Annual Congress
gynécologie suisse

27 - 29 June 2018
Congress Centre Kursaal Interlaken

Abstracts
• Free Communications
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• Videos
# Authors

FM = Free Communications  
P I - P VI = Poster Presentation and Exhibition  
P = Poster Exhibition  
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Syphilis on the rise - is there an increased risk of mother-to-child transmissions? Results from mandatory reporting in Switzerland, period 2006-2016

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Introduction: In Switzerland, all new laboratory confirmed cases of syphilis are mandatory reportable to the Federal Office of Public Health (SFOPH). Syphilis, caused by Treponema pallidum, is mainly sexually transmitted. Mother-to-child transmission during pregnancy and delivery occurs and can cause pregnancy loss, neonatal death, malformations and serious health problems in the newborn.

Material and Methods: We analyzed trends in number of cases by gender and age categories for all reported laboratory confirmed syphilis cases in Switzerland.

Results: From 2006 to 2016, numbers increased from 189 to 733. While cases in men increased by a factor 4, women’s cases increased by 1.5. In 2016, 11% of confirmed cases were in women. Estimated incidence was 15.7 per 100’000 men and 1.7 per 100’000 women. A majority of affected women was aged 25 to 44 years, i.e. childbearing age. During the period 2006-2016, the SFOPH received 79 notifications of potential syphilis in infants (<1 year of age). Of these, 30 cases were classified as no case (child had received maternal antibodies but did not show signs of infection), 14 were laboratory confirmed congenital syphilis cases, 5 possible cases and 1 a probable case; 29 could not be classified due to missing information. Overall, number of confirmed infant cases stayed low during the whole observation period and fluctuated around 1 case per year (range 0-4).

Conclusions: During the last decade, the overall number of confirmed Syphilis cases has increased strongly in men and to a lesser extent in women. Not affected by this increase have been infant cases. In view of the continued rising trend in syphilis numbers, maintaining a high level of awareness of this disease in prenatal care is essential to prevent negative pregnancy outcomes and neonatal syphilis.
Non-invasive prenatal testing (NIPT) for aneuploidies – an audit of the first 8000 tests in a Swiss human genetics center

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Introduction: Non-invasive prenatal testing (NIPT) is the most accurate prenatal screening method of the most frequent chromosomal aberrations. Yet there is no large Swiss cohort study regarding the Panorama® Test (Natera® Inc., San Carlos, USA), NIPT based on the single nucleotide polymorphism method. The Panorama® Test provides information about the risk for fetal trisomy 21 (T21), 18 (T18), 13 (T13) as well as gonosomal anomalies (GA), triploidy & vanishing twins (TVT), and micro-deletions. This study compares test results from a single center (Genetica AG, Zurich, Switzerland) with pregnancy or neonatal outcomes.

Material and Methods: A total of exactly 8,000 Panorama® Test analyses were performed on women with non-donor singleton pregnancies from April 2013 to September 2016 (3.5 years). Results were classified as high- or low-risk, regarding T21, T18, T13, TVT, and GA. Follow-up was closed 9 months later (May 2017), report collection ended 16 months later (December 2017).

Results: The Panorama® Test provided a final result in 94.6% of all cases (7,569/8,000). In 65.6% of the cases with laboratory result the complete pregnancy outcome was available (4,962/7,569). The following 83 chromosomal aberrations were detected: 49 T21, 11 T18, 7 T13, 8 GA, and 8 TVT (prevalence 0.017). However, the Panorama® Test classified 92 cases as high-risk including all 49 T21 cases, all 11 T18 cases, and all 7 T13 cases. Furthermore 8 GA cases and 8 TVT cases were detected and correctly classified as high risk. The false positive rate was 0.2% (total 10 cases, 5 T21, 1 T18, 3 T13 and 1 GA). One low risk case ended in a late spontaneous abortion at 18 weeks. The reporting hospital got the clinical impression of triploidy, but no further genetic research was undertaken. In 34.4% of the cases with laboratory result but lost to follow-up (2,607/7,569) the following chromosomal aberrations were detected: 23 T21, 7 T18, 5 T13, 10 GA, 7 TVT. In this cohort the Panorama® Test performed with a sensitivity 100% and a specificity of 99% for T21, T18, T13, GA and TVT. The positive predictive value for these chromosomal aberrations was 89%.

Conclusion: This single center Panorama® Test analysis on a large Swiss cohort with pregnancy or neonatal outcomes presented the expected very accurate detection of the most common numeric chromosomal aberrations.
Hindbrain herniation, banana, and lemon sign after open fetal myelomeningocele repair – when do these signs disappear and is shunting predictable?


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Introduction/Aims: MRI data showed that hindbrain herniation is reversible in about 80% of cases after fetal myelomeningocele (fMMC) repair. Little is known on the sonographic follow up of the hindbrain herniation, the banana, and lemon sign after fMMC repair - when they disappear and whether the time between fMMC repair and their disappearance has any predictive value for the necessity of shunting during the infants first year of life.

Patients and Methods: The first 50 patients that underwent fMMC repair at the Zurich Center for Fetal Diagnosis and Therapy were included in this study. We retrospectively analyzed all sonographic pictures performed once weekly after fMMC repair focusing on hindbrain herniation as well as the banana, and lemon signs. Additionally, 37 of the 50 children were ≥ 1 year of age and could be included in the analysis for prediction of shunting during the infants first year of life. An independent Mann-Whitney-U-test or a Chi-square test was applied where appropriate. Data is presented as mean +/- SD. Statistical significance was given with p <0.05.

Results: Hindbrain herniation resolved in 48 fetuses (96%), i.e. before delivery. It disappeared on average at 1.6 +/- 0.9 weeks after fMMC repair. Banana and lemon signs resolved at 3.1 +/- 6.7 weeks and 6.1 +/- 4.9 weeks after the intervention, respectively. Sonographic disappearance of the hindbrain herniation within the first 2 weeks after fMMC repair was associated with a significant lower incidence of shunt placement (OR 0.19; 95% CI 0.4-0.9) during the infants first year of life (p = 0.03). All fetuses with persistent hindbrain herniation before delivery received a shunt. No significant correlation could be demonstrated between the disappearance of the banana sign within the first 3 weeks (OR 1.2; 95% CI 0.2-3.2;p=0.7), nor the lemon sign within the first 6 weeks (OR 1.2; 95% CI 0.2 0.3-4.7;p=0.7) after fMMC repair and the necessity of a shunt placement during the infants first year of life.

Conclusion: We demonstrate here that hindbrain herniation reverses in 96% of all fetuses undergoing fMMC repair, banana and lemon signs disappear later. Reversibility of hindbrain herniation within two weeks after fMMC repair is associated with an 80% lower incidence of shunt placement during the infants first year of life.
A comparison of prenatal and postnatal diagnoses of congenital heart diseases of the outflow tract

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**Introduction:** The prevalence of congenital heart diseases (CHD) of the outflow tract is 0.1-0.3/1’000 live birth. With the inclusion of the three-vessel view (3vv) in routine cardiac screening, the detection rate of CHD improved. Less is known about the quality of echocardiography in suspected anomalies. The aim of this study is to compare our prenatal diagnosis of outflow tract anomalies with postnatal findings.

**Material and Methods:** This is a retrospective single-center study, conducted at the university hospital of Bern. We included all pregnancies diagnosed prenatally with a pathology of the fetal cardiac outflow tract between 2009 and 2017 with known postnatal diagnosis. Inclusion criteria were anomalies of the aortic arch (AA), double outlet right ventricle (DORV), transposition of the great arteries (TGA), tetralogy of Fallot (TOF) and truncus arteriosus communis (TAC). A distinction between cases with isolated heart defects and cases with additional anomalies was performed. The incidence of aneuploidy was assessed were available.

**Results:** During the study period, we diagnosed 72 children with pathology of the outflow tract, 29 children with isolated anomalies and 43 with associated cardiac or extra-cardiac anomalies. The prenatal diagnosis was confirmed postnatally in 43 cases (59.7%), 17 (58.6%) of the isolated, and 26 (60.4%) of cases with associated anomalies. Of the remaining 29, 11 had a different anomaly of the outflow tract, 10 with a diverse CHD and 8 had a normal postnatal echocardiogram. More than half [16/29 (55.2%)] of the wrong diagnoses concern the AA group. In 46/72 (63.9%) genetic testing was performed, 10/46 (21.7%) resulted in a pathological diagnosis, most of these children had additional anomalies. We found 6 cases with a 22q11 deletion, 3 with trisomy 21 and 1 with cat eye syndrome.

**Conclusion:** This study demonstrates that in 60% the prenatal diagnosis of a pathology of the outflow tract can be confirmed, if AA anomalies are excluded the diagnosis is correct in over 70% of cases. As expected, a large part of cases with suspected coarctation (CoA) could not be confirmed postnatally. The diagnosis of genetic anomalies is frequent in this group of patients and demonstrates, that invasive testing should always be offered.
Validation of a quantitative System for real-time Measurement of postpartum Blood Loss: A prospective Cohort Study in the daily Obstetric Setting

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Introduction: Postpartum haemorrhage (PPH) is one of the major obstetric complications. Reliable real-time estimation of blood loss is crucial for the prompt management of PPH.

Materials and Methods: Our study aims at the validation of measured blood loss (MBL) with a quantitative real-time measurement system during 1) vaginal delivery and 2) caesarean section by comparison with a haemoglobin based formula (Brecher’s formula) for blood loss as an objective control. 921 patients were prospectively enrolled into this study (vaginal delivery: n= 461, caesarean delivery: n=460) Blood loss was measured by quantitative fluid collection bags. “Calculated blood loss” (CBL) was determined by Brecher’s formula based on the drop of haemoglobin after delivery. MBL based on our measurement system was compared to CBL by correlation analysis and stratified by the mode of delivery.

Results: During vaginal delivery, MBL as determined by our quantitative measurement system highly correlated with CBL (p<0.001, r=0.683). This was also true for patients with caesarean deliveries (p<0.001, r=0.402), however in a less linear amount. In women with caesarean deliveries, objectively low blood loss tended to be rather overestimated while the condition in patients with high blood loss showed a contrary trend.

Conclusions: The technique of real-time measurement of postpartum blood loss after vaginal delivery as presented in this study is practicable, reliable and strongly correlating with the actual blood loss and therefore poses an actual improvement in the management of PPH.
Contraception in the Swiss population over 20 years - signs of pill tiredness?

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Introduction: Contraception is crucial to prevent unwanted pregnancies, abortions and STIs. Decreasing fertility rates and postponing of parenthood lead to prolonged periods of contraceptive use, increasing the need for safe, acceptable methods and targeted counseling. In recent years, declining sales figures were reported for the contraceptive pill. We aimed to assess the prevalence of contraceptive methods in the Swiss population from 1992 to 2012.

Methods: In 5-yearly national health surveys, conducted by the Federal Office of Statistics, the use of contraceptive methods is assessed in a representative sample of the Swiss population by computer-based telephone interviews. We calculated weighted prevalence rates of contraceptive methods used in 1992, 1997, 2002 and 2012 for women and men, stratified by 5-year age groups.

Results: In 2012, in those aged 15-49 years, the overall prevalence of any contraceptive method was 74% (95%CI 72.3-75.5) in women, 76% (95%CI 74.8-78.0) in men; and 80% among women and men who reported to be sexually active in the previous year. Overall, the most frequent methods used were condoms (27.0% in women, 37.4% in men) and hormonal methods (32.7% in women, 36.3% in men), followed by sterilization (12% in women, 10% in men) and IUD (14% in women, 9% in men). Postcoital contraception was reported by <1%. There is a heterogeneous age pattern: The use of condoms and hormonal methods is highest among the youngest age groups and decreasing with increasing age, whereas the prevalence of sterilization increases. IUD use is most frequent in those aged 30-39 years. Over time, the overall contraceptive prevalence increased from around 40% in 1992 to around 60% in 2012. For the single methods, the time trend is varying across the age groups: In the youngest age groups (15-19 years and 20-24 years), the prevalence of any contraceptive methods is increasing over time, with highest rates observed in 2012. In women, pill use is increasing over time in those aged 15-19 years, whereas there is a slight decrease in women aged 25-29 years and no clear time trend among women beyond age 30.

Conclusion: The use of contraceptive methods is high, particularly among the young age groups, being at least as high as in neighboring countries. Between 1992 and 2012, there is a slight decrease in the reported use of hormonal methods only in women aged 25 to 29 years, but no indication for ‘pill tiredness’ is observed among teenagers, nor in women above age 30.
First year of experience with a new intrauterine device for contraception – an observational case series

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Introduction: Effective and safe methods for contraception are needed all over the world. Hormon-free methods as well as those which do not demand a daily intake are more often chosen by young patients. Beside the well-known copper intrauterine device (IUD) and copper chain, a new structured intrauterine copper ball (IUB) has been implemented in Europe since 2014, available in Switzerland since 2016. To our knowledge, there are no published data on experience in daily management. We report on a first series of 23 patients who received an IUB in an outward patient setting specialised for contraceptive counselling.

Material and Methods: Data on patients who received an IUB after counselling on possible contraceptive methods in a specialised centre were collected in a database. Insertion was done by the resident. All patients were controlled by ultrasound (US) at time of insertion, 6 weeks and 1 year after insertion. If the patient contacted the consultation due to signs of infection or pain, an US was performed.

Results: 23 patients chose the IUB between February 2017 and January 2018. Patients’ age was in mean 28.3 years (19-38.0). Parity and number of pregnancies varied from 0-4 (mean 1,2) resp. 0-9 (mean 2.55). Uterus masses in US varied in length from 44-86 mm (mean 69 mm), transversal 29-63 mm (mean 44.4 mm) and anteroposterior 62-68 mm (mean 38 mm). Mean time of utilisation was 5.6 months (0-11.5) without dislocation. 4 patients presented with a dislocated IUB between 1.53 to 8.5 months after insertion. There was no difference in age, parity or uterus masses between patients with or without dislocation, as well as in events of dislocation of any other IUD prior to use of IUB. Fortunately, no involuntary pregnancy occurred. Dislocation rate was 4/23= 17,4%.

Conclusion: In our small series, compared to other IUD, the dislocation rate was high. 6-8% are described in literature for gestagene IUD, copper IUD and chain. This shows the need for an extended patients’ safety information before insertion, as the pearl index may be higher as indicated by the published licencing studies of the IUB. The clinical experience in Switzerland is not very extensive. Collection of data on all patients should be done by the inserting doctors as well as medical authorities. More data are also needed on other IUB sizes available in other countries. Having a close look at the safety of the device, which does not have a licensing as drug, but only as medical device in Switzerland, appears to be very important.
Multinational multicenter open-label randomized controlled parallel trial comparing vaginal non-hormonal moisturizing cream to vaginal estriol cream in postmenopausal women with vaginal dryness

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**Introduction:** Multinational multicenter open-label randomized controlled parallel trial to test for non-inferiority of a non-hormonal vaginal moisturizing cream compared to vaginal estriol cream in postmenopausal women with vaginal dryness.

**Materials and Methods:** 172 postmenopausal women with vaginal dryness were randomized to either a 6-week treatment with a vaginal non-hormonal moisturizing cream or vaginal estriol cream. Application regimen followed the package leaflet. Primary endpoint was to prove non-inferiority of the non-hormonal moisturizer based on a “total severity score” defined as a sum score of the single symptoms vaginal dryness, itching, burning and pain unrelated to sexual intercourse. Secondary endpoints were symptom intensity of single symptoms, daily life impairment, vaginal health index (VHI), and global judgement of efficacy and safety. Subjective and objective signs of vaginal atrophy were assessed at every visit (n=3); in addition, symptoms were documented in a diary once weekly.

**Results:** Non-inferiority of the vaginal non-hormonal moisturizer was confirmed regarding the difference of the mean “total severity score” at the end of the trial compared to baseline (PP; n=80, treatment with moisturizing cream; n=71, treatment with estriol cream; p=0.0002). Subjective symptoms (vaginal dryness, itching, burning, dyspareunia) and daily life impairment improved by both treatments without significant intergroup difference. VHI also improved by both treatments. However, the difference between the treatments was significant in favor for vaginal estriol (p<0.0001). No serious adverse events. More adverse events related to vaginal estriol than to moisturizing cream. Positive global judgement of efficacy and tolerability was high (> 85%) for both treatments.

**Conclusion:** A vaginal non-hormonal moisturizing cream significantly improves postmenopausal vaginal atrophy symptoms and may be used as first-line treatment for vaginal atrophy in accordance with the recommendations of the North American Menopause Society.
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PreImplantation Factor promotes Neuroprotection by modulating Long non-coding RNA H19 of the Neuronal Stem Cells

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Introduction: Premature infants face multiple challenges including periventricular leukomalacia (PVL) and successful therapies are lacking. Neural stem cells (NSCs) from the subventricular zone give rise to myelin producing cells during brain development. Post-injury, activation of dormant NSCs represents an attractive strategy and long non-coding RNA H19 is a potential candidate to regulate cell differentiation. Since synthetic PreImplantation factor (sPIF) protects against multiple neuronal disorders, we posit that sPIF activates NSCs after injury by modulating H19 and therefore modulates myelin.

Methods: Cell lines (Immature oligodendrocytes MO13.13) were treated with sPIF (200nM; 48h), and evaluated by quantitative RT-PCR and H19 silencing was performed. We used a mouse model of PVL (LPS and hypoxia-ischemia; n=20) to test specific effects on NSCs. All animals were electroporated with a pCAG-Cre plasmid to permanently label NSCs at P0. Injury group was subjected to brain injury and received NaCl as treatment; Sham animals served as healthy controls. sPIF (0.75 mg/kg sc twice daily) treatment was started from P0 until P7. As a proof of concept we used a constitutively active plasmid encoding H19 (pCMV-H19CA) to increase H19 activity in NSCs. We evaluated animals by MRI, immunohistochemistry, and in-situ hybridization at P7 with special focus on labeled NSCs. Two-tailed Student’s t-test and Mann-Whitney tests were used in analysis with level of significance set at p <0.05.

Results: We detected myelin loss by reduced fractional anisotropy (FA), diffusion tensor imaging and myelin basic proteins (MBP) intensity post-injury. Both sPIF and H19CA ameliorated this loss significantly, increasing both FA and MBP intensity. Furthermore, sPIF and H19CA resulted in increased NSCs differentiation. In cell lines, sPIF increased mRNA expression of immature (OLIG2) and mature (MBP) oligodendrocyte markers in H19-dependent manner. sPIF also increased H19 expression in the brain, as detected by in-situ hybridization.

Conclusion: sPIF activates NSCs and prevents myelin loss after injury by modulating H19 of the NSCs. Given the FDA Fast Track designation and safety data of sPIF in First in Human Clinical Trial (ClinicalTrials.gov Identifier: NCT02239562), clinical trials to prevent or treat PVL can be envisioned.
Vulva cytology – brushed, scratched, rasped, scraped...?

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Introduction: Due to an increasing incidence of vulvar dysplasia during the recent years an increasing number of patients require a regular surveillance. As a consequence there is an increasing demand for painless but meaningful methods to determine the degree of dysplasia and/or cancer. Aim of the current study was to determine the concordance of cytological findings between samples taken by brush or by spatula. This is a pilot study to a future study on cytology and histology in patients with dysplasia.

Material and Methods: 20 patients with colposcopical suspicious vulvar lesions who underwent examination in our colposcopy clinic between March to May 2017 were included. They come for a regular screening after vulvar cancer, vulvar dysplasia and lichen sclerosus. The lesions were located at the vulva, the perineum and perianally. From this location we took in consent with the patients two different smears, one with a cytological brush and the other with a spatula. The cytological examination was performed in the Department of Pathology. Initially the examiner was blinded to the method that was used obtaining the samples, after the report of the results he was unblended.

Results: All 40 cytological smears were representative, quantity and quality of the cells in all samples were sufficient. Generally, the quality of cells in brush samples was better, they have less cell lesions provoked by pressure of the spatula. 17 samples showed the same results by brush and by spatula, 3 cytologies differed. One of the differences was an ASC-US with brush to ASC-H with the spatula, the other shows LSIL with the brush and ASC-US with spatula und in the third case we had a normal result with the spatula and LSIL with a brush. 4 cases showed a severe dysplasia in both samples, all could be histological confirmed. We found 1 carcinoma in situ and 1 invasive carcinoma. 8 samples resulted in ASC-US, they were obtained with one exception from women with lichen sclerosus, histologically we found hyperkeratosis without malignancy. 4 results showed normal findings in the brush and spatulum sample and in 2 cases there were LSIL findings in concordance.

Discussion: Cyto-Brush and spatula show equivalent results in cytological smears of the vulva. The brush is superior for cell-quality and enables a better differentiation. Severe dysplasia can be detected. Analogue the cervical PAP-smear as a accepted screening method the vulvar smear can determine dysplasia as well and leads to histological confirmation.
NEW FORMULA FOR THE ESTIMATION OF GESTATIONAL AGE FROM CROWN-RUMP LENGTH IN FIRST TRIMESTER ULTRASOUND IN IVF-PREGNANCIES

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Objective: Ultrasound measurement of Crown Rump Length (CRL) up to 13+6 weeks of gestation is the standard method for establishing the gestational age (GA). In 1975 Robinson and Fleming created the first GA estimation formula using abdominal ultrasound and pregnancies with known date of the last menstruation. Currently more than 30 different formulas are available, but there is no consensus about an international standard. The accuracy of each formula is usually presented with the 95% prediction interval (PI), which is +/- 5-7 days from the real GA for most equations. This variation of PI could be explained due to diverse disadvantages on establishing different formulas. The aim of this study is to create a new GA estimation formula with CRL in the first trimester ultrasound using newest technique, qualified specialists and IVF-pregnancies to optimize the results. Our new equation we compare with the Rempen’s formula, which is officially recommended from the Swiss society for ultrasound in medicine obstetrics and gynecology section (SGUMGG), as well as the latest formula published by Papageorghiou from Intergrowth-21st study in 2014.

Material and Methods: 1947 CRL measurements of ongoing pregnancies with accurate date of ovulation were used from the database of the Department of Reproductive Endocrinology, University Hospital Zürich. A specialist with a qualification for reproductive medicine performed all measurements in the first trimester. The data from 1947 measurements were used in the model-generating population and 150 measurements in the evaluation group to test the new formula and compare results with Rempen’s and Papageorghiou’s formula using the average Error (AE - average difference between the real GA and the estimated GA for each equation in days) and PI. The regression analysis in SPSS© was conducted and the cubic equation applied the best. Excel© and Bland-Altman-Plot were used for graphical presentation of the results.

Results: New formula: GA = 40.605 + 1.078\times \text{CRL} - 0.007\times \text{CRL}^2 + 0.00001939\times \text{CRL}^3

<table>
<thead>
<tr>
<th></th>
<th>AE</th>
<th>PI 95%</th>
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<tr>
<td>New Formula</td>
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<td>-0.7122 to 7.1014</td>
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<tr>
<td>Rempen</td>
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Conclusion: New formula presents the smallest average error and PI of +/- 4 days. Rempen’s formula shows quite similar but not that good result. Papageorghiou’s formula overestimates the GA crucially.
THE BERNESE GESTATIONAL DIABETES (GDM) PROJECT: Postpartum Oral Glucose Tolerance Test (OGTT) in Women After Gestational Diabetes

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Introduction: The incidence of gestational diabetes mellitus (GDM) is increasing worldwide due to a rising prevalence of obesity as well as the revised definitions of GDM since the implementation of the findings of the HAPO-study in 2008. The Swiss screening guidelines have been adapted accordingly. Women with a history of GDM should be screened by means of a 2-hour 75g OGTT to assess persistent abnormal glucose tolerance after delivery. The aim of the following study was to examine the adherence of our cohort to this postpartum screening and to determine the incidence of pathological OGTT results.

Material and Methods: We performed a prospective cohort study on low and high risk for GDM women who had an HbA1c test at ≤14 weeks of gestation. Women with known pre-existing diabetes mellitus or HbA1c values ≥6.5% were excluded. Secondary outcomes included development of postpartum metabolic disorders. All women with GDM were offered an OGTT after delivery. Demographic, clinical and laboratory parameters and the incidence of abnormal OGTT were investigated. Furthermore, the association between first trimester HbA1c and OGTT glucose values was analysed. Parametric and non-parametric tests were used for statistical analysis.

Results: From March 2014 to December 2016, 205 women were correctly screened according to the HAPO-trial and were diagnosed with GDM. Of those, 108 (52.7%) underwent pp OGTT at a mean of 88±52 days after delivery. However, 9 (8.3%) women had to be excluded because of missing parameters. 23 out of 99 women (23.2%) had abnormal screening result. The number of women and incidences of impaired fasting glucose (IFG), impaired glucose tolerance (IGT), IFG and IGT, or overt diabetes were 10 (10%), 7 (7%), 3 (3%), and 3 (3%), respectively. Women with abnormal OGTT had a higher first trimester HbA1c than those with normal OGTT (5.43% ± 0.34 vs. 5.25% ± 0.34, p= 0.01).

Conclusion: The lack of adherence to postpartum screening of women with a history of GDM is of great concern in particular in regard to the high incidence of persistent abnormal glucose tolerance found in our cohort. In view of the potential for early, effective prevention of DM, strategies to increase the rate of testing should be evaluated such as automated orders by SMS or email. Moreover, the method and timing to detect glucose abnormalities should be revised. The correlation found with first trimester HbA1c is interesting and will be further investigated.
Vitamin D deficiency in Pregnancy and Neonates – an observational Study - Are babies already born vitamin D deficient?

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Introduction: Vitamin D is essential for bone health and has traditionally been associated with rickets. A Vitamin D level below 50nmol/l is considered to be a clinically significant deficiency. Little is known about the changes of vitamin D levels during pregnancy and in the fetus. Significant increase in maternal serum calcitriol levels, in the vitamin D binding protein and in placental vitamin D receptor have been described. There is a strong positive correlation between maternal and fetal vitamin D levels, as calcidiol crosses the placental barrier and represents the main vitamin D source for the fetus. A low vitamin D status is worsened in pregnancy and can turn into proper deficiency. Vitamin D deficiency in the mother can therefore lead to deficiency in the Fetus. There is no data on prevalence of vitamin D deficiency among pregnant women in Switzerland and the numbers of neonates that are born deficient in vitamin D and all the future consequences for the child are unknown.

Material & Method: We performed a cohort study of 1382 pregnant women attending prenatal care at our department. 25-dihydroxycholecalciferol levels were determined in the first trimester. Women with Vitamin D deficiency <50 nmol/l were substituted with 1000IE/d, women with severe vitamin D deficiency <25 nmol/l were substituted with 2000IE/d.

Result: The vast majority (76%) of the studied population was found to be vitamin D deficient. Severe Vitamin D deficiency was present in one third (34.2%) of all pregnant women. A follow up of treatment success partly done. Samples taken by the time of delivery showed that a significant number of women still had insufficient vitamin D levels despite treatment and a control of the vitamin D level in the umbilical cord blood confirmed insufficient vitamin D levels in the neonates.

Discussion: Our study shows a high prevalence of severe vitamin D deficiency in pregnant women. A Vitamin D screening should be offered to all pregnant women in the first trimester in order to meet their specific need. It seems necessary to follow up treatment success in 2nd or early 3rd trimester. If the women is still deficient, which might be due to an inadequately low substitution dose or malcompliance, boosting her vitamin D level by a single high dose of 300 000 IE of vitamin D might be necessary in order to secure an adequate vitamin D level for her and for the fetus and to avoid deficiency later in the newborn with all possible negative consequences.
Influencing factors of early breastfeeding status - a retrospective analysis of 4200 mother-and-child-pairs of the University Hospital Basel, Switzerland, between 2014 - 2015

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Introduction: Benefits of breastfeeding for child, mother and society are well researched. WHO recommends exclusive breastfeeding (EBF) for up to 6 months of age. In Switzerland, breastfeeding rates and duration have yet not met these recommendations therefore warrant further promotion and encouragement. To provide better information for promotion, further influencing factors must be explored. In this study we will identify and understand influencing factors of breastfeeding behaviour within the first few days after childbirth as it is a crucial time for setting the course on breastfeeding practice. We aim to find predictors, that lead mothers to breastfeed exclusively, partially, or not at all.

Material & Methods: UNICEFs Baby friendly hospital initiative data collection of University Hospital Basel during 2014-2015 was used and retrospectively analysed. We excluded mothers < 18 years of age, infants < 37 weeks gestation, transfers to neonate intensive care unit and outpatient births. 4200 mother-and-child-pairs were included. Based on breastfeeding status at discharge, three study groups were formed: EBF, partial breastfeeding (PBF) and non-breastfeeding (NBF) group. Collected data was divided into maternal, infant and institutional variables. Univariate and multivariate regression analysis was performed to identify significant correlations.

Results: In univariate analysis, among others, following variables were significantly (p value <0.001) correlated PBF and NBF: maternal (gestational) diabetes (GDM/DM), diabetic fetopathy, intrauterine-growth restriction, early term births (<39 weeks), delayed bonding (within and > 1h after birth), short bonding duration, delayed first feed (>2h after birth), 1-2 times separation of mother and child, use of aids (e.g. pacifier). Multivariate regression analysis showed inverted nipples (OR 5.4), mothers wish for formula (OR 5.3), Diabetes/GDM (OR 5.1), multiples (OR 6.9) and use of breast pump (OR 5.3) to be the strongest predictors for PBF practice.

Conclusion: Based on our results, immediate bonding after birth and early breastfeeding initiation should be provided in the delivery room. Supplemental formula feeding for infants with diabetic mothers, should strongly be reconsidered. Routine formula feeding must be avoided. We recommend, to identify risk factors that may impact the ability to breastfeed effectively and provide affected mother-and-child pairs with appropriate assistance.

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Clinic: Obstetrics, University Hospital Zurich

Introduction: Maternal mortality is an important indicator for quality assurance in Obstetrics. To improve clinical care, maternal mortality should be assessed periodically. In this study, we analysed maternal mortality cases between 2005 and 2014 and compared the rates with earlier periods.

Material and Methods: The Federal Office of Statistics (BFS) provided all death certificates between 2005 and 2014 with an ICD10 code in the obstetrical field (indicated with letter O). Additionally, all death certificates were included which had a positive answer for the question about pregnancy or birth within the last 43 days. This question is mandatory for all women who die between the age of 15 and 49 years. Since 2007 it is possible to link the information about death with birth data. Therefore, we included cases where death occurred within 365 days after delivery. The cases were classified by ICD10 in direct, indirect and non-pregnancy related cases.

Results: We received 117 cases from BFS and 104 cases were eligible for evaluation. Fourteen cases happened abroad, and no further information was available. Between 2005 and 2014, we had 787'025 live births in Switzerland. The direct mortality rate was 3.6/100'000 live births (28 cases) and the mean maternal age was 33.4 years (range 19 - 51 years). 81% of all deaths occurred after delivery and only 6% sub partu. Nine cases were related to haemorrhage, two of them with ectopic pregnancies. For the non-pregnancy related cases we found eleven women who committed suicide and 19 women died of cancer within the first year after delivery. In one case, the cancer was detected during caesarean section.

Conclusions: Compared to the previous 10 year-period, the direct mortality rate decreased from 4.15 to 3.6/100’000 live births (13%). In the period before, between 1985 and 1994, the mortality rate was 5.54. The rate of haemorrhage decreased from 12 to 9 cases, equal to a reduction from 37.5% to 32%. Due to the adapted search strategies and improvement of death certificate information, more non-pregnancy related maternal deaths were available for analysis. For clinical practice, the prevention of haemorrhage and post-partum depression needs special attention.
MRI with vaginal and rectal opacification can help to exclude deep infiltrating pelvic endometriosis preoperatively

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**Indication:** With a prevalence of 10% in women of reproductive age, endometriosis is more commonplace than generally assumed. It is difficult to diagnose, and often symptoms do not correlate with the extent of disease. The diagnostic tool of preference is laparoscopy; in this context, improving the use of noninvasive diagnostics such as magnet resonance tomography (MRI) is crucial. In this study, the accuracy of the detection of deep infiltrating endometriosis (DIE) using MRI is analyzed.

**Patients and Methods:** Patients who underwent preoperative 1.5 T and 3 T MRI with or without vaginal and rectal gel opacification, blinded to intraoperative findings, were analyzed by a specialized gynecologic radiologist. The findings were then compared to intraoperative findings by reviewing the operation reports, postoperative diagnosis, and intraoperative images. Statistical analysis was performed with SPSS (Vers 25.0) with ANOVA and cross tables for specificity and sensitivity.

**Results:** Fifty cases were analyzed. The mean patient age was 33.2 years, mean BMI was 29, and the mean of previous surgery was 1.4. One-third of the patients had rASF °I and° II, and two-thirds had °III and °IV. The overall sensitivity for detection of DIE with MRI was 80%, with a specificity of 54.5%. The detection accuracy of DIE improved significantly when proceeding with the endometriosis MRI protocol, including vaginal and rectal gel application, showing sensitivity of 85.7% and specificity of 100%.

**Conclusion:** Adapted MRI protocols with vaginal and rectal gel application leads to better preoperative diagnostic in DIE. For planning of surgery, excluding deep infiltrating endometriosis is of great importance.
Estimating risk of malignancy in adnexal masses with ultrasound: a retrospective diagnostic accuracy study

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Objectives: To evaluate the performance of ultrasound with pattern recognition by experts, Risk of Malignancy Index (RMI), IOTA simple rules and IOTA ADNEX in the differentiation between benign and malignant adnexal masses.

Methods: This is a retrospective diagnostic accuracy study, based on data prospectively collected from patients with adnexal masses (Viewpoint data base), who underwent transvaginal and/or transabdominal examination by experienced examiners in our department between December 2016 and December 2017. The risk of malignancy, defined as invasive or borderline tumors, was determined by pattern recognition and the use of three prediction models: the ADNEX model, IOTA simple rules and the Risk of Malignancy Index (RMI, cut off 200). Histological findings were the clinical reference standard.

Results: In the studied period, we recorded adnexal findings in 417 consecutive examinations. Of these, 45% had surgery and were included in the analysis. 60% of patients were premenopausal and 40% were postmenopausal. Ninety percent of the masses were benign, 4% borderline-tumors, 6% invasive cancers. Expert pattern recognition and RMI had the highest specificity (93%) in differentiating malignant from benign tumors. The ADNEX model showed a sensitivity of 92% and correctly differentiated borderline from invasive tumors, at a specificity of 86%. The use of a cut off <= 5% of risk of malignancy permitted an improvement of sensitivity and specificity for ADNEX.

Conclusions: Although pattern recognition by experts seems to have the best discriminating power, especially for borderline tumors at our center, RMI and IOTA-models help in preoperative planning and are a valuable tool for triage for referral and in teaching settings.
Type and Route of Hysterectomy in Change: A Trend-Analysis of hysterectomy in Switzerland between 1998-2016

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Introduction: To describe the overall trend and mode of hysterectomy for benign conditions as well as it’s rate of complications in Switzerland as recorded by the “Arbeitsgemeinschaft Schweizer Frauenkliniken“ (ASF) - database between 1998-2016

Methods: This is a retrospective analysis of the ASF-database for all patients who underwent hysterectomy for benign indications between 1998-2016. We calculated the overall percentage change during the observed period (1998-2016) for abdominal hysterectomy (AH), vaginal hysterectomy (VH) and laparoscopic hysterectomy (LH). LH were further analyzed for total laparoscopic hysterectomy (TLH); laparoscopic abdominal supracervical hysterectomy (LASH) and laparoscopic assisted vaginal hysterectomy (LAVH). Using join-point-regression analysis, we further estimated the average annual percentage change for each hysterectomy approach. The complication-rate was finally analyzed for AH, VH and LH over the same observation period.

Results: There is an overall decrease in the rate of hysterectomies between 1998 and 2016 of -33.8% (1998 n=5277; 2016 n=3496) with a simultaneous shift in the route and method of hysterectomy. There is a pronounced decrease of AH by -84.5% during the observed period and delayed also for VH (-54.4%) with an increase in laparoscopic approach by +97.7%, lead by TLH (+96.8%) and also by LASH (+96.8%). The LAVH decreased slightly by -9.8%. The rate of complications during this observation period shows an inverse trend with an significant annual increase in AH by +3.6% APC. For the laparoscopic approach, there is an opposite trend with a non-linear, significant decrease in complication rate of -6.8% APC after the year 2000. The rate of complications for VH remained stable (-1.7 % APC, not significant).

Conclusion: There is a significant overall decline in the rate of hysterectomies with a change of paradigm of the mode of hysterectomy. A rise in laparoscopic hysterectomy was seen at the expense of mainly abdominal hysterectomy and surprisingly also of - according the guidelines, favoured - vaginal hysterectomies. The rate of complications shows an opposite trend during the observation period, indicating an initial learning-curve with laparoscopic hysterectomies.
The topography of an almost unknown site: the vulva

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Clinic: Gynecology, Cantonal Hospital Lucerne

Introduction: Accurate and detailed descriptions of a „normal vulva“ are rare, even though the knowledge of the morphology is mandatory to understand and diagnose vulvar diseases. Despite the fact that the anatomy of the vulva is known since more than one hundred years, textbooks lack detailed definitions of anatomical relationship and measurements. This unsatisfying situation leads to a wide range of existing diagnoses concerning vulvar morphology. Moreover, in an increasingly demanding society with rising numbers of gynecological cosmetic interventions, age-related measurements of the vulva are needed.

Material and Methods: In a prospective, single center trial between August 2015 to April 2017 we recruited 657 caucasian women aged 15-84 years. Standardized measurements of the external female genitalia were recorded as well as basic patient characteristics (e.g. age, height, weight and parity). Patients were assigned to one of seven cohorts according to their age (Decade 1: 15 - 24 years, Decade 2: 25 -34 years, Decade 3: 35-44 years, Decade 4: 45-54 years, Decade 5: 55-64 years, Decade 6: 65-74, Decade 7: 75-84 years) and analyzed separately.

Results: The length of the clitoris (r = -.169, p < .001, n = 657), the distance of the clitoris to the urethra (r = -.283, p < .001, n = 657), the length of labia minora (r = -.364, p < .001, n = 657) as well as the length of the perineum (r = -.095, p =.014, n = 657) are inversely correlated with the age. A positive correlation between BMI and the length of the labia majora (r = .150, p < .001, n = 657) and the length of the introitus (r = .097, p =.014, n = 657) was found as well as a positive correlation between the length of labia majora and vaginal delivery (r = .133, p < .01, n = 546) and introitus and vaginal delivery (r= .136, p <.01, n = 546). Negative correlation was seen between vaginal delivery and the distance of the clitoris to the urethra (r = -.241, p < .001, n = 546).

Discussion: With this trial we present data on standard dimensions of the external female genitalia. To our knowledge this is so far the biggest cohort presented on this topic. Thus, these results form the basis for upcoming discussions concerning vulvar diseases and the perception of a “normal vulva”.
Analyzing precancerous lesions and HPV prevalence in gynecology patients

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Introduction: HPV infection is frequently associated with anal cancer and anal premalignant lesions (AIN). As for cervical intraepithelial neoplasia (CIN), AIN, if diagnosed early could be treated easily and without sequelae for the patient, which is unlikely when anal cancer is diagnosed. Currently there are no recommendations to screen women for AIN (compared to the cervical cancer screening guidelines) and it is not acceptable to screen the whole population because anal cancer remains rare. However, the incidence of anal cancer increases in recent decades without well-defined risk factors. Our hypothesis is that women with high grade CIN are more at risk to develop anal dysplasia and then anal cancer. If this hypothesis is confirmed, these patients may benefit of anal screening. Considering what we know about immunosuppression and dysplasia, HIV infected patients are probably more at risk for AIN. The secondary objective is to compare anal with cervical HR-HPV prevalence.

Material and Methods: We present the preliminary results of a prospective unicentric, observational and comparative study conducted in the CHUV. This study includes 3 groups of patients 1) control patient (no CIN, no HIV) 2) women with high grade gynecologic dysplasia 3) HIV patients. Every patient has HIV testing, colposcopy, cytology and HPV testing and anuscopy, cytology and HPV testing. The goal is to recruit 360 patients.

Results: An interim analysis was performed on the first 126 patients (G1: 47, G2: 48, G3: 31 patients respectively). Anal HR-HPV carriage is 21,3%, 43,8% and 32,3% in the 3 groups and anal cytological smear is abnormal in 6,4%, 20,8% and 12,9% respectively. Significant P Values (P<0.05, Student’s t-test) are calculated between group 1 and group 2 for anal HR-HPV prevalence (p=0.019) and for abnormal anal cytological smear (p=0.040). Cervical HR-HPV prevalence is 12,8%, 72,9% and 38,7% in the 3 groups.

Conclusion: There is a significant difference regarding the prevalence of HR-HPV and cytological analyzes between group 1 and 2, which tends to confirm our hypothesis. According to these results, we could recommend anal screening, especially among the young patients that we follow in our colposcopy unit. Our results also support vaccination as primary prevention. Group 3 analysis show an increase in cytological lesions but to a lesser extent than described in the literature.
Diet, Medication Use and Drug Intake during Pregnancy: Data from the consecutive Swiss Health Surveys 2007 and 2012

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**Clinic:** 1) Obstetrics, University Hospital Zurich, 2) Biostatistics, Epidemiology, Biostatistics and Prevention Institute, University Zurich

**Introduction:** The aim of this work was to gain knowledge on the health status of pregnant women in Switzerland, especially on their attitude and decisions towards diet, use of medication and consumption of drugs, including alcohol and tobacco.

**Methods** Data collected by the consecutive Swiss Health Surveys of 2007 and 2012 on socio-demographic and lifestyle characteristics (including nutrition), type and intake of medication, use of alcohol, tobacco and illicit drugs of the female population were analysed. To compare pregnant with non-pregnant women, a group of 10 times as many non-pregnant women (reference group, N=3090) was matched with all the participating women who said they were pregnant at the time of the survey (pregnant group, N=309). These two female groups were then compared.

**Results:** The pregnant and non-pregnant participant groups were comparable with respect to most socio-demographic characteristics and both showed a high awareness of health related-issues. Nevertheless, significantly more pregnant women than non-pregnant women revealed a high nutritional awareness, claiming to pay attention to what they ate (78.3% vs. 73.0%, respectively). Frequent consumption of milk products and fish and moderate consumption of meat were found more often in the pregnant group. Use of medication was comparable between the two participant groups, except that pregnant women took pain killers less frequently than did non-pregnant women (30.0% compared to 61.5%, respectively) and relied more often on prescribed medication. Pregnant women were more restrictive in their alcohol consumption than non-pregnant women. Nevertheless, 10.0% and 1.9% of the pregnant women declared consumption of wine and beer, respectively, in the previous 7 days. Regular smoking was less frequent in the pregnant group (11.7% vs. 30.3% in the reference group) and less intensive (pregnant smokers smoked 3.6 cigarettes less per day). A few pregnant women (1.9%) said they consumed marijuana, no other illicit drugs were mentioned.

**Conclusions:** In Switzerland, women of child-bearing age revealed high general health-awareness. During pregnancy, a considerable part of the women adapted their diet and seemed to refrain from using pain killers and from consuming alcohol, tobacco and illicit drugs. However, since a fairly large minority of the pregnant women mentioned drinking alcohol and/or smoking tobacco, further preventive work is needed.
Does the obstetrical risks increase with rising Body Mass index (BMI)? A review of 359,382 women in Switzerland from 2005 – 2015

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Introduction: An increase of bodyweight is observed worldwide. Obesity is currently recognized as a health epidemic worldwide. Maternal overweight and obesity are associated with a lot of obstetrical problems for the mother. Our aim is to analyze the association between the BMI at birth with the rate of complications in pregnancy, labour and the puerperium.

Material and Methods: Database of the national Swiss Hospital for obstetric and gynaecological hospital admissions – „Arbeitsgemeinschaft Schweizer Frauenklinken“ (ASF-Statistik) was used to conduct this population-based retrospective cohort study of all births from 2005-2015. Chi-Square-Test was used to determine the differences between BMI groups according to WHO definition. A BMI 18,5 – 24,9 at birth was used as the normal reference. p<0,05 is defined to be significant (in bold).

Results:

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<td>Gestational diabetes in %</td>
<td>2,56</td>
<td>3,47</td>
<td>3,92</td>
<td>6,44</td>
<td>10,58</td>
<td>14,97</td>
</tr>
<tr>
<td>Preeclampsia in %</td>
<td>0,79</td>
<td>1,11</td>
<td>1,03</td>
<td>1,68</td>
<td>2,73</td>
<td>3,28</td>
</tr>
<tr>
<td>Caesarean section in %</td>
<td>23,15</td>
<td>26,53</td>
<td>28,94</td>
<td>35,71</td>
<td>43,63</td>
<td>48,41</td>
</tr>
<tr>
<td>V/E/Forceps in %</td>
<td>13,01</td>
<td>10,82</td>
<td>11,73</td>
<td>11,11</td>
<td>8,93</td>
<td>7,92</td>
</tr>
<tr>
<td>Complications in puerperium in %</td>
<td>3,88</td>
<td>3,63</td>
<td>4,12</td>
<td>4,45</td>
<td>4,29</td>
<td>4,41</td>
</tr>
<tr>
<td>Birth weight &gt;= 4000g in %</td>
<td>3,98</td>
<td>6,43</td>
<td>8,11</td>
<td>12,34</td>
<td>14,57</td>
<td>16,22</td>
</tr>
<tr>
<td>Admission to neonatology in %</td>
<td>5,76</td>
<td>5,42</td>
<td>4,52</td>
<td>4,77</td>
<td>5,31</td>
<td>5,86</td>
</tr>
<tr>
<td>Perinatal mortality in %</td>
<td>0,86</td>
<td>0,91</td>
<td>0,48</td>
<td>0,39</td>
<td>0,43</td>
<td>0,59</td>
</tr>
</tbody>
</table>

The rate of gestational diabetes and preeclampsia increases significantly with progressive BMI as expected and in agreement with literature. The number of caeserean sectios rises with the BMI to nearly 50 % in class III obesity, whereas the rate of vaginal-operative deliveries decreases in women with BMI >= 35.0. The number of newborns with a birth weight >= 4000g is significantly rising depending on maternal BMI. Neither perinatal mortality nor the rate of admission to neonatology was associated with increasing BMI.

Conclusions: In conclusion it seems, that fetal outcome is not influencend by mothers BMI although the complication rate during pregnancy and the rate of caesarean section are increased.
Pregnant women diagnosed with HIV in Switzerland: longitudinal evaluation of public reporting and recruitment to the Swiss HIV Cohort Study (SHCS) and Mother and Child HIV Cohort Study (MoCHiV)

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**Introduction:** About 96% of pregnant women, followed in the Swiss HIV Cohort Study (SHCS) including the Mother and Child Cohort (MoCHiV) have an undetectable viral load during the whole pregnancy. Thus, some of the measures to prevent HIV mother to child transmission have been recently abandoned. As recommendations are changing, interdisciplinary follow-up of pregnancies is particularly important. Aim: To evaluate notification of pregnant women diagnosed with HIV to the Federal Office of Public Health (FOPH) compared to subsequent recruitment to the SHCS/MoCHiV.

**Methods:** Descriptive analysis based on data from FOPH and SHCS/MoCHiV in the period 2003-2017.

**Results:** During this 15-year period, 331 (13%) of 2552 women diagnosed with HIV were reported to the FOPH as pregnant, with a mean notification rate of 22/year (95% CI 16.5 – 27.6). However, in 855 (33%) information about pregnancy was missing. 765 of 2552 women (30%) were Swiss and 1606 (63%) from other countries. In 181 (7%) of notifications the origin was not given. Among Swiss women 31 (4%) pregnancies were notified compared to 267 (19.2%) in women from other countries. At the time of notification to the FOPH, 4 (13%) Swiss pregnant women were known to be registered in the SHCS/MoCHiV, compared with 46 (16.7%) non-Swiss. For 181 of 2552 (7%) women the origin was not given. Mean age of Swiss pregnant women was 32 years (range 19-47) compared to 29 years (range 17-58) in foreigners. In the majority of women (89.4%) the route of HIV transmission was heterosexual. During the same 15-year period, 236 pregnant women were registered in the SHCS/MoCHiV with a mean rate of 15.7/year (95% CI 9.7 – 21.7). Overall 62 (mean n=4.1 per year, 95% CI 2.8 – 5.5) children were reported with vertical HIV infection during the whole period. Of these, 10 (16%) were registered in MoCHiV.

**Conclusions:** These results suggest that a large part of women diagnosed with HIV during pregnancy in Switzerland are recruited in to the SHCS/MoCHiV, although with some delay. However, because of many missing values in the FOPH notifications, results should be taken with caution. Moreover, about 20% of the clinical reporting forms are never completed. To closely monitor frequency and characteristics of mother-to-child transmission in a time of evolving recommendations and to ensure comprehensive care with implementation and evaluation of all prevention measures, improved notification and continuous recruitment to the SHCS/MoCHiV is crucial.
Impact of the etiology behind retained placenta on postpartum hemorrhage

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Introduction: Postpartum hemorrhage (PPH) is the major cause of maternal deaths worldwide and retained placenta is responsible for nearly 20% of all severe PPH cases. The aim of this study was to investigate the influence of the time factor and the etiology of retained placenta on the dynamics of postpartum hemorrhage. In contrast to most of the other studies and in order to avoid dilution of data by physiologic deliveries, our cohort consisted solely of women with retained placenta.

Methods: This retrospective monocentric cohort study investigated 296 women diagnosed with retained placenta after vaginal delivery at the University hospital Zurich. Blood loss was estimated by using calibrated surgical drapes. Antepartum and one day postpartum hemoglobin levels were measured to obtain postpartum drop of hemoglobin (g/l). Stratification by length of the third stage of labor (<60 minutes, ≥60 minutes) as well as subgroup analysis of women with or without uterine atony was performed. A Spearman Rank correlation was conducted to analyze the association between the duration of the third stage of labor with blood loss parameters.

Results: The median blood loss was 1300ml (IQR 900-1900ml) and median drop of hemoglobin was 39g/l (IQR 26-54g/l). In patients with third stage of labor <60 minutes, uterine atony (p=0.001) and blood transfusion (p=0.006) were significantly more common as compared to women with a longer third stage of labor. In women with uterine atony (27.4%), a significantly larger drop of hemoglobin (55g/l vs. 35g/l, p<0.001), higher blood loss (2000ml vs. 1100ml, p<0.001), higher risk of blood transfusion (13.6% vs. 0.9%, p=0.002), general anesthesia (32% vs. 20%, p<0.001) and admission to the ICU postpartum (6.2% vs. 0.5%, p=0.002) was detected. Overall, we did neither in the overall population nor in the subgroup analysis find a gradual increase in blood loss or drop in hemoglobin levels over time in the third stage of labor.

Conclusion: Blood loss in women with retained placenta is not increasing over time in the third stage of labor. Hence, no standard cutoff point for the indication of manual removal of the placenta can be defined. Rather than on time the amount of blood loss depends on the etiology behind retained placenta: Women with retained or only partially detached placenta due to uterine atony are characterized by immediate and severe hemorrhage. Continuous observation and early detection are required in these patients with instant manual removal of the placenta.
**FM V/54**

**Maternal Serum glycosylated fibronectin as a short-term predictor of preeclampsia: a rapid Point-of-care test for rule-in or rule-out preeclampsia**

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**Clinic:** 1) University Hospital Basel, 2) Geneva University Hospitals, 3) DiabetOmics, Inc., Hilsboro, OR, USA

**Objective:** To assess the performance of glycosylated fibronectin (GlyFn) to rule-in or rule-out preeclampsia (PE) in 4 weeks in a cohort of women with clinical suspicion of PE.

**Study design:** 151 women at risk for PE were enrolled from a prospective cohort. Maternal serum samples were collected between 20 and 37 weeks of gestation. Clinical suspicion of PE was defined as presence of any of the following variables: new onset hypertension, proteinuria, or clinical symptoms of PE. Subjects meeting a clinical diagnosis of PE were excluded. Glycosylated fibronectin (GlyFn), pregnancy-associated Plasma protein-2 (PAAPA-2), placental growth factor (PlGF), and soluble fms-like tyrosine kinase-1(sFlt-1) were measured by immunoassay. GlyFn was also determined using a rapid point-of-care test format. Receiver-Operator characteristic (ROC) curves derived from logistic regression analysis were used to determine the classification performance for each analyte.

**Results:** 32 of 151 (21%) women developed a clinical diagnosis of PE within 4 weeks. All biomarkers exhibited good classification of performance, with GlyFn exhibiting the best overall performance (GlyFn (AUROC=0.93; 91% sensitivity, 87% specificity, 64% PPV, 97% NPV), PAAPA2 (AUROC=0.92; 87% sensitivity, 77% specificity, 50% PPV, 96% NPV), PlGF(AUROC=90, 81% sensitivity, 82% specificity, 55% PPV, 94% NPV), sFlt-1 (AUROC0.92; 84% sensitivity, 90% specificity, 69% PPV, 96% NPV)). The GlyFn immunoassay and the rapid Point-of-care test showed a coefficient of Variation of r=0.93.

**Conclusion:** In this prospective cohort, the high performance of GlyFn for short-term prediction of PE as a rapid-of-care test meets the needs of triage and intervention in low and middle-income countries that have the highest burden of perinatal morbidity and mortality.
Enhanced Recovery After Surgery Pathways in Gynaecological Surgery decrease duration of hospital stay without increasing readmission rate

Clinic: 1) Visceral Surgery, 2) Department “Femme-Mère-Enfant”/1,2 University Hospital Lausanne

Introduction: Enhanced recovery after surgery (ERAS) aims to reduce perioperative stressors and provide standardized pathways for clinical practice. ERAS has been shown to reduce length of hospital stay in various fields of surgery (colorectal, hepatobiliary), but evidence in gynaecology remains scarce. The aim of the present study was to assess the effect of ERAS implementation in gynaecological surgery on length of stay and readmission rate.

Methods: Retrospective analysis of a prospectively maintained database of women undergoing gynaecological surgery (benign, staging or debulking) within an ERAS protocol from 9 October 2013 to 31 December 2016. Results were compared with a case-matched group before implementation (pre-ERAS) from 3 October 2012 to 30 September 2013 in a Swiss tertiary centre. Perioperative items were prospectively collected on a daily basis into a dedicated database. Complications were graded according to Clavien-Dindo classification, with major complications defined as grade III-V.

Results: 445 women were included, with ERAS (n=403) and pre-ERAS (n=42) groups. Preoperative characteristics and demographics were similar in both groups. Overall, complications rate was not different between the two groups (25% (104/403) vs 29% (12/42), p=0.698). No differences were found for major complications rate (7.1% (3/42) vs 2.5% (10/403), p=0.088), reoperations rate (2.5% (10/403) vs 2.4% (1/42), p=0.968), neither for number of patients in Intensive Care Unit postoperatively: 9.4% (38/403) vs 19% (8/42), p=0.062). Median length of stay was significantly reduced in the ERAS group compared to pre-ERAS with 3 days (IQR 2-4) vs 5 (IQR 3-8), p<0.001. Readmission rates were similar in both groups (2.2% (9/403) vs 2.4%(1/42), p=0.951).

Conclusion: ERAS protocol in gynaecological surgery reduced length of stay without increasing readmissions.
SLN mapping and frozen section of the SLNs to triage cervical cancer patients to radical surgery versus definitive chemo-radiotherapy: just do it!

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**Clinic:** 1) Obstetrics and Gynecology, Inselspital, University Hospital Bern, University of Bern, 2) Obstetrics and Gynecology, University of Insubria, Varese, Italy

In cervical cancer, lymph node metastases are the most important prognostic factor that influences both the prognosis and the treatment of the patients. In case of known metastatic involvement of the lymph nodes a radical hysterectomy and pelvic lymphadenectomy could be avoided in favour of a definitive chemo-radiotherapy. The aim of our study was to evaluate the performance of the combination of sentinel lymph node (SLN) mapping and frozen section (FS) in triaging patients to a definitive chemo-radiotherapy.

A retrospective analysis of patients with histologically proven cervical cancer undergoing SLN mapping and FS of the SLN from January 2008 to December 2017 was performed. In case of negative finding at FS radical hysterectomy and pelvic lymphadenectomy were performed. Otherwise, the planned surgical procedure was aborted and paraaortic lymphadenectomy was performed to determine the extent of the radiation field. Only metastases diagnosed at H&E staining were considered.

One-hundred and four patients with cervical cancer underwent surgery. Of these, 85 (81.7%) had bilateral detection rates at the SLN mapping and underwent FS evaluation and were therefore selected for statistical analysis. A total of 389 nodes were identified and evaluated intraoperatively (median 4, range 2-15 nodes for patient). 39 nodes (10%) resulted positive at the definitive histological analysis. Micro-metastases were found in five nodes (1.2%). Twenty-three patients had lymph nodal metastases at H&E staining. Of these, 22 displayed metastatic disease to the SLNs and one to a NSLN accounting for a FN rate of 4.3%. Metastatic node disease could correctly be identified in 21 patients at the FS analysis and just in one patient with bilateral micrometastastic disease FS analysis failed. The FN rate of the FS is therefore 4.5%. The FN rate of the combined methodology (SLN mapping and FS of the SLN) is 8.6%. Altogether, 21 out of 23 patients (91.3%) could correctly be triaged to a definitive chemo-radiotherapy avoiding an unnecessary further surgical procedures.

The combination of SLN mapping and FS of the SLNs is efficient in triaging patients to a definitive chemo-radiotherapy thus reducing the number of unnecessary multimodality treatments.
Identification of predictive factors for anastomotic leakage in patients undergoing advanced ovarian cancer surgery


Clinic: 1) Obstetrics and Gynecology, Inselspital, Bern University Hospital, University of Bern, 2) Gynecology, Obstetrics and Urology, “Sapienza” University of Rome, 3) Faculty of Medicine, University of Bern

Background: Optimal cytoreduction is the most important prognostic factor in advanced ovarian cancer (OC). Radical surgery including upper abdominal surgery and bowel resection (BR) is usually required to pursue this aim. Anastomotic leakage (AL) is the most common severe complication after BR. Aim of this study is to identify risk factors for AL in patients undergoing surgery for OC.

Methods: The institutional database for primary OC was analyzed and the III-IV FIGO stage patients receiving BC during debulking surgery at the Department of Gynecology, University of Berne (Switzerland), were included. Logistic regression models were performed to identify risk factors for AL. Age, BMI, ECOG performance status (PS), anesthesia risk (ASA score), history of surgery, timing of surgery (primary vs IDS), presence of ascites at diagnosis, preoperative albumin and hemoglobin (HGB) levels, Complexity Score Index (CSI), protective stoma, residual disease, ICU admission, operative time, and estimated blood loss (EBL) were tested as predictive factors.

Results: BR was performed in 90/339 OC patients. AL occurred in 9/90 (8.1%) patients. Univariate analysis of the potential prognostic factors affecting AL found PFS, ASA score, CSI, protective stoma, EBL, and albumin level to be the only variables eligible for the multivariate analysis. Among them, only PS ≤ 2 [OR = 0.01 (0.001, 0.21) p = 0.002] and albumin level [OR = 0.82 (0.7, 0.96) p = 0.017] were found to be significant for AL at the multivariate analysis.

Conclusion: PS and preoperative albumin levels are independent predictive factors for anastomotic leakage.
Genotype and phenotype of POLE mutated endometrial cancer

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Clinic: 1) Obstetrics and Gynecology, Inselspital, Bern University Hospital, University of Bern, 2) Karolinska Institutet, and Karolinska University Hospital, Stockholm, Sweden, 3) Institute of Pathology, Switzerland

Introduction: In 2013 the Cancer Genome Atlas (TCGA) presented a molecular based classification of endometrial cancer (EMCA). Tumors with a mutation in the polymerase epsilon (POLE) gene are of interest since they are typically ultra-mutated and highly immunogenic. In initial studies with limited patient numbers they also have shown an excellent outcome. In this analysis on of the largest cohort of patients with POLE mutated tumors to date, we looked at both clinicopathologic patient characteristics, as well as oncologic outcome.

Methods: From a combined cohort from the University Hospital of Bern, Switzerland (N=256) and the Karolinska Institute, Sweden (N= 355), clinical data including preoperative patient characteristics, therapies, histology, and follow-up were obtained from the internal hospital databases. To identify POLE exonuclease domain mutations, genomic DNA was isolated from formalin-fixed paraffin-embedded (FFPE) tumor tissue. Sequencing of the POLE gene exons 9-14 was performed using bidirectional Sanger sequencing using M13-primers on an ABI 3500 Genetic Analyzer (Life Technologies, Carlsbad, CA) using the BigDye Terminator v3.1 Cycle Sequencing Kit (Life Technologies) according to standard protocols. Mutation analysis was done using Mutation Surveyor software (SoftGenetics, State College, PA, USA).

Results: Five patients were excluded due to insufficient DNA. Pathogenic POLE mutations were identified in 53/599 (8,8%) tumors. All of the pathogenic mutations were located on exons 9,12,13, and 14. Comparing the phenotype of patients with POLE mutated tumors vs without rest showed that patients with a POLE mutated tumors are significantly younger (61.3 yrs vs 66.6 yrs; p=0.048). No significant difference was found for body mass index (BMI), family history of cancer or medication use. Comparing tumor histology revealed significantly more lymphovascular space invasion (LVSI) and more aneuploid tumors, however there was no difference in FIGO stage, tumor histologic type or grade. Patients with POLE mutated tumors showed a slightly better progression free survival and disease specific survival, however these differences were not significant (log rank p= 0.322 and p= 0.988).

Conclusions: POLE mutated tumors in this cohort do not show the excellent survival that has been published up to date. Patients are slightly younger, but any histologic type or FIGO stage is possible. Exons 10 and 11 did not show any POLE mutations in this cohort.
A retrospective validation study of the laparoscopic ICG SLN mapping in patients with grade 3 endometrial cancer

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Introduction: To evaluate the sensitivity, negative predictive value (NPV) and false negative (FN) rate of the Near Infrared (NIR) indocyanine green (ICG) sentinel lymph node (SLN) mapping in patients with high grade endometrial cancer who have undergone a full pelvic and para-aortic lymphadenectomy after SLN mapping.

Material and Methods: Retrospective analysis of patients with endometrial cancer undergoing a laparoscopic NIR-ICG SLN mapping followed by a systematic pelvic and para-aortic lymphadenectomy. Inclusion criteria were a grade 3 endometrial cancer or a high risk histology (papillary serous, clear cell carcinoma, carcinosarcoma and neuroendocrine carcinoma) and a completion pelvic and para-aortic lymphadenectomy to the renal vessels after SLN mapping. Overall and bilateral detection rates, sensitivity, negative predictive value and false negative rates were calculated.

Results: From December 2012 until January 2018, 42 patients fulfilled inclusion criteria. Overall and bilateral detection rates were 100% and 90.5% respectively. Overall, 23.8% of the patients had lymph node metastases. In one patient, despite negative bilateral pelvic SLNs, a metastatic non SLN was detected. This was the only false negative case resulting in a false negative rate of 10%. Sensitivity and NPV were 90% and 97.1% respectively.

Conclusions: NIR-ICG SLN mapping yields high overall and bilateral detection rates and an acceptable false negative rate in high risk endometrial cancer patients and could therefore be safely adopted in this setting.
Wharton’s jelly stem cell-derived exosomes drive neural progenitors towards oligodendrocyte specification

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Perinatal brain damage is accompanied by oligodendrocyte progenitor cell loss. The neuro-regenerative effects of transplanted mesenchymal stem cells (MSC) in animal models of perinatal brain damage are presumed to rely on secreted factors such as MSC-derived exosomes.

Thus, the aim of this study is to evaluate the capacity of exosomes derived from MSC of human umbilical cord tissue, namely Wharton’s jelly, (WJ-MSC) to prime neural progenitor cells (NPC) towards oligodendroglial identity.

WJ-MSC-derived exosomes were isolated from culture supernatants by serial high-speed and ultracentrifugations. Exosome microRNA (miRNA) content was assessed by real-time PCR. After the culture with WJ-MSC-derived exosomes, NPC were evaluated for the expression of markers involved in oligodendroglial specification and differentiation by real-time PCR.

WJ-MSC-derived exosomes contained miRNA that are involved in oligodendroglial cell fate determination and differentiation (miR-338, miR-9, miR-19b, miR-138). The expression of miR-338, known to regulate oligodendrocyte specification and differentiation, were significantly increased in NPC after 72 h of co-culture with exosomes. Furthermore, the gene expression of the transcription factor neurogenic differentiation 1 (Neurod1), which blocks oligodendroglial cell fate determination, was significantly reduced in NPC after co-culture with exosomes for 72 h.

In conclusion, we have shown that isolated WJ-MSC-derived exosomes contained miRNA having key roles in oligodendrogenesis. Furthermore, WJ-MSC-derived exosomes have the potential to prime NPC towards oligodendroglial identity, which seem to be partially ascribed to exosome-born miR-338.
Intranasal Administration of Exosomes Derived from Wharton’s Jelly Mesenchymal Stem Cells to Treat Hypoxic-Ischemic Encephalopathy of Prematurity

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Every year, an estimated 15 million babies are born preterm. Survivors of preterm birth are at risk to develop infections, severe necrotizing enterocolitis, bronchopulmonary dysplasia and hypoxic-ischemic encephalopathy (HIE) of prematurity. HIE is characterized by severe neuroinflammation leading to long-term disability. In animal models of perinatal brain damage, Wharton’s jelly mesenchymal stem/stromal cells (WJ-MSC) derived from umbilical cords can reduce neuroinflammation in HIE, in part because they release cell-derived extracellular vesicles like exosomes. We aimed to test the feasibility and the anti-inflammatory potential of intranasally administered WJ-MSC-derived exosomes in an animal model of HIE.

We isolated exosomes from WJ-MSC culture supernatants using serial centrifugation. Consistent with the etiology of HIE in preterm neonates, we introduced brain damage in 3-day old rat pups with LPS i.p. and unilateral carotid artery cauterization followed by hypoxia (8% O2). As a treatment, rat pups received an intranasal administration of exosomes. To evaluate the feasibility of an intranasal exosome administration, we labeled the exosomes with an infrared dye and traced them inside the bodies of the animals 30 min, 3 h and 24 h after administration. To evaluate the anti-inflammatory effects of exosomes, we sacrificed the animals 24 h after exosome administration and analyzed their brains for pro-inflammatory gene expression using real-time PCR.

Intranasally administered exosomes translocated to the brain within 30 min. The accumulation of the exosomes within the brain reached its peak 3 h after their administration. A small portion of exosomes were also detected within the lungs and the GI tract, presumably caused by aspiration and swallowing during the intranasal administration. No exosomes were found in the spleen, likely excluding systemic absorption. Intranasal administration of exosomes dampened the upregulation of pro-inflammatory genes like tumor necrosis factor (TNF)-α, interleukin (IL)-6, IL-1β and C-X-C motif chemokine 10 (P<0.05) after experimental HIE.

Intranasal administration is an effective an minimally invasive approach to deliver WJ-MSC-derived exosomes to the brain for as a novel cell-free treatment for neuroinflammation after HIE of prematurity.
Maternity Care with a Disability in Switzerland

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Clinic: 1) Swiss Paraplegic Research, Nottwil, 2) Gynecology & Obstetrics, Canton Hospital Lucerne

Introduction: The number of Women with a Disability (WwD) is likely to increase in the future, and therefore also the number of those who would like to start a family. Thus, it is critical to understand how maternity care is prepared to meet WwD needs. A fairly robust body of literature documents disparate access to and availability of maternity care services among WwD. Women encounter inaccessible medical facilities/equipment, inadequate training and stigmatizing attitudes of clinical providers, and transportation problems. Compared to their non-disabled peers, WwD are also less likely to receive recommended gynecologic services such as mammograms, pelvic health exams, and counseling for family planning. In the past, WwD were seen as asexual beings; this may explain the service gap. However, WwDs are sexually active and wish to become mothers. Little is known about their maternity care situation. Therefore, we examined the maternity care situation of Swiss WwD during labour using spinal cord injury (SCI) as case in point.

Material and Methods: A retrospective mixed-methods study with 17 women with SCI (WwSCI) and 15 health professionals (i.e., gynecology, midwifery, urology & rehabilitation medicine) was conducted. Data were collected in WwSCI by self-reported questionnaires and focus groups and in health professionals by expert interviews.

Results: WwSCI together gave birth to 23 children. The major complication during pregnancy were bladder infections. In 10/17 of cases, women were exceptionally pre-hospitalized because of bladder and/or kidney infections, preeclampsia, hypertension and/or signs of premature labour. WwSCI experienced structural, organizational and architectonical barriers receiving optimal maternity care. Available information about pregnancy with SCI was scarce. Women had to visit different health professionals for identical medical problems. Health professionals had to consider different factors compared to the provision of care to non-disabled woman (i.e., evaluating medication, interpretation of neurological pain and possible causes for it). A lack of experience in the field created situations of uncertainty during care delivery.

Conclusion: Study results show that WwSCI have different health care needs compared to women without disability. WwSCI appear to be more dissatisfied with maternity in more fragmented systems. Access to holistic care during maternity needs urgently to be improved and elicit calls for bold action in Switzerland.
Adjusting simulation training to new challenges: evaluation of a training for difficult fetal extraction at caesarean section in the second stage of labor

Clinic: 1) Obstetrics and Gynaecology, 2) Anaesthesia, 3) Simulation Basel “SimBa”/ 1-3 University Hospital Basel

Introduction: The increasing rate of cesarean section seems to be accompanied by a high rise in cesarean section at full dilatation (CSFD) (Unterschneider, 2011). CSFD with an impacted fetal head in the mother pelvis can lead to difficult fetal extraction with serious complications for mother and neonate, such as major hemorrhage, bladder or ureter trauma, extension tears of the uterine angle, broad-ligament hematoma, increased postoperative fever and neonatal injuries (Allen, 2005). The impacted head by cesarean section can be compared to shoulder dystocia by vaginal delivery but evidence of the best strategy to extract the fetus is scarce. We conducted a prospective study in a simulation setting to improve the knowledge, technical and non-technical skills of residents and senior physicians about difficult fetal extraction by CSFD.

Material and Method: Residents and senior physicians were invited to take part in a workshop to test a new simulation scenario about CSFD. The participants (n=20) completed a pre-test assessment, attended a theoretical teaching and a simulation session. Immediately and six weeks after the training all participants completed a post-test assessment. We evaluated the knowledge about difficult fetal extraction at CSFD, the self-perceived competencies as well as the structured use of technical and non-technical skills during simulation session.

Results: Global knowledge scores improved after the training (+ 4 % pre-/post-test assessments), as well as self-perceived competencies (Likert Scale mean pre-test 3.5/6, post-test immediate 4.7/6, after six weeks 4.2/6). The checklist (clinical algorithm) was rated as very helpful (5.4/6) and the simulation scenario as realistic (5.6/6) although relatively stressful (4.2/6). During the simulation session, 9/20 participants tried the push and pull method before extracting the fetus as reversed breech. All but one tried some other method before extracting the child with the push and pull method or reverse breech (Trendelenburg lie of the mother and/or nitroglycerin, changing operating hand, pull at fetal shoulder). 3/20 managed delivery with conventional methods. The mean uterotomy-to-delivery time was 135 s.

Conclusion: Findings in this pilot study show that theoretical and simulation-based training of difficult fetal delivery at CSFD helps residents and senior physicians to improve their skills. It is necessary to investigate how such a training should be adjusted to be enrolled in a larger setting.
Video analysis for the evaluation of obstetrical procedures during vaginal births: a prospective cohort study

Author: Kimmich N., Kreft M., Zimmermann R.
Clinic: Obstetrics, University Hospital Zurich

Introduction: Video documentation of vaginal births serves to demonstrate procedures of midwives and obstetricians. It helps to reflect, evaluate and discuss their actions, especially in retrospect in the absence of the laboring woman and their partner. The aim of our study was to demonstrate the application of the medium „video“ for teaching and learning purposes in the labor ward during vaginal births and the most common noticeable problems and pitfalls around fetal extraction and perineal protection.

Material and Methods: Between 2/2015 and 6/2017 we evaluated 100 women in a prospective observational study, who gave birth vaginally to a singleton in vertex presentation between 37+0 and 42+1 gestational weeks at the University Hospital of Zurich and suffered from any kind of visible birth trauma. During every birth crowning of the fetal head, fetal extraction and the performed manoeuvres of the staff were recorded on video. Afterwards, the procedures of midwives and obstetricians were analyzed and evaluated in retrospect by a senior counselor.

Results: Recurring noticeable problems were lack of hygienic handling (no sterile gloves or underlay), reduced protection of the perineum or slowdown of the fetal head at crowning and during expulsion, missing perineal visualization and an insufficient guidance of the fetal shoulders and arms at extraction. Besides, an incorrect technique of episiotomy (handling of scissors, starting point, cutting angle) and an inconvenient communication between the staff and the woman (everybody talked simultaneously and partly with differing content) was noticed. Besides, during vacuum-assisted births an incorrect positioning of the cup, direction of pulling and handling of the equipment was noticed.

Conclusion: Video analysis of obstetrical procedures during vaginal births is an easy applicable tool for teaching and learning purposes in the labor ward. It contributes to the demonstration of procedural quality and interaction of the involved persons and can also be used for staff evaluation.
First trimester markers of nitric oxide (NO)-metabolism in pregnant women with shrunken pore syndrome (SPS) and subsequent preeclampsia (PE)


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Background: We recently identified a subgroup of pregnant women with shrunken pore syndrome (SPS), a condition with decreased renal clearance of low molecular weight proteins and normal clearance of creatinine, a circumstance presumably resulting from shrinking of glomerular pores. Women with SPS already during the first trimester have been demonstrated to be at considerable risk to develop subsequent preeclampsia (PE) later in pregnancy. The NO-metabolism markers arginine and ADMA and especially their ratio (Arg/ADMA) are recognized as markers of endothelial dysfunction.

Aim: To investigate markers of NO-metabolism in women already showing evidence of SPS during the first trimester.

Methods: We conducted a nested case-control study within the PRADO cohort. Women with PE having evidence of SPS at baseline during the first trimester (n=5) were compared to PE-cases without evidence of SPS (n=33) and women without evidence of either PE or SPS (n=35). Double-sided 95% reference intervals according to CLSI guideline EP28-A3c were determined within the group of women with neither PE nor SPS. Arginine and ADMA were measured from serum obtained during gestational age 11+0 to 13+6 weeks using the AbsoluteIDQ® p180 kit assay (Biocrates, Innsbruck, Austria), which is run on an AB SCIEX 4000 QTrap® mass spectrometer with electrospray ionization.

Results: Reference intervals for arginine, ADMA and the Arg/ADMA ratio were 93, 95% confidence interval, [80-109], to 227 [209-242] micromol/L, 0.13 [0.11-0.16] to 0.56 [0.47-0.64] micromol/L, and 198 [145-274] to 1242 [1082-1413], respectively. There were no significant differences in arginine and ADMA concentrations between controls with neither PE nor SPS, women with PE and without SPS, and women with SPS and PE. However, women with PE and SPS had a significantly lower Arg/ADMA ratio than women with PE and without SPS, as well as women with neither PE nor SPS (p=0.04). There was no difference in Arg/ADMA between the women with PE and without SPS and the women with neither PE nor SPS.

Conclusions: Our findings show that SPS in the first trimester is associated with another pathophysiological condition, i.e. lower NO-production leading to a subsequent increase in vessel tone. The observed association offers an explanation how SPS could lead to PE. Further, it raises the question, whether women with SPS during the first trimester would benefit from supplementation with arginine and/or an NO-donor drug (e.g. sildenafil) in order to mitigate the risk for developing PE.
Trauma in Pregnancy: Is Hospitalization Always Inevitable?

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Introduction: Epidemiologic importance of trauma during pregnancy is undoubted, as it is still one of the leading causes of non-obstetric maternal morbidity and mortality. Mechanisms of trauma range from minor falls to motor vehicle accidents and assaults. Although most cases comply with relatively light trauma that has no further consequences for the pregnancy outcome, observation of such patients often takes place in a stationary setting for 24 hours. The aim of our study was to analyze the severity of traumas during pregnancy and the clinical approach towards such patients. Secondary aim was to provide an optimal variant of management.

Material and Methods: Retrospective study at the Department of Obstetrics, University Hospital of Zurich included data of 251 pregnant patients who sustained trauma and were then examined whether at an outpatient or inpatient department for 24 hours (from 01/2000 to 08/2012). Data was sorted by: severity of trauma, mode of care (in-/outpatient department), gestational age at the time of trauma, diagnostic measures and subsequent therapy, duration of hospitalization and number of additional ambulant checkups. Pregnancy outcomes were compared.

Results: Minor trauma occurred in 230 (91.6%) cases. 100 (43.5%) of those patients were treated in an outpatient department whereas 130 (56%) were hospitalized. The mean gestational age at the time of the trauma was 26+1 (SD +/- 7+3) pregnancy weeks in the ambulant and 30+1 (SD +/- 5+6) pregnancy weeks in the inpatient group. Cardiotocography showed no abnormalities in 84 (84%) of the patients with ambulant treatment and in 95 (74%) of hospitalized patients. Regular contractions were only detected in 2 (2%) ambulant patients and in 6 (4.6%) stationary cases. Kleihauer-Betke-Test was positive in only 1 out of 100 patients in the ambulant group while the stationary group contained 3 (2.3%) patients with a positive Kleihauer-Betke-Test.

Conclusion: Patients examined in an ambulant setting during the pregnancy had similar outcomes as patients who were observed and treated in an inpatient department. Ambulant examination and treatment especially if a minor trauma has occurred, could serve as an alternative approach in the future and moreover help to reduce the expenses of hospitalization.
Association between placental localization and the risk of placental abruption: a retrospective cohort study

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Introduction: Approximately 0.4-1% of all pregnancies are complicated by placental abruption. The placental abruption is associated with high morbidity and mortality in pregnancy. Little is known about whether and to what extent the localization of the placenta in utero is associated with placental abruption. The aim of this cohort study was therefore to evaluate the rate of placental abruption at our hospital as well as the distribution of placental localization in cases with and without placental abruption.

Material and Methods: A retrospective data analysis was performed on all singleton pregnancies from 24+0 gestational weeks onwards between 2007 and 2016 at our tertiary care hospital. Exclusion criteria were fetal malformations, inadequate data documentation or refused consent to the use of datasets. Exact placental localizations were extracted from the last prenatal ultrasound examination charts and the distribution of placental localizations in the group with and without placental abruption was evaluated. Data were analyzed using SPSS, p-values <0.05 were considered statistically significant.

Results: In 196 of 20246 pregnancies (0.97%) a placental abruption occurred. The distribution of placental localizations of all pregnancies was as followed: 47.0% anterior, 37.2% posterior, 10.2% fundal, 2.2% right and 1.8% left. 1.2% were identified as placenta previa marginalis/totalis and 0.4% as placenta bipartita. In the group with placental abruption the placental distribution was: 49% anterior, 36.2% posterior, 5.6% fundal, 3.1% right, 1.5% left and 0.5% a placenta previa marginalis/totalis. Women with a fundal placenta had a statistically significantly lower risk of placental abruption (p = 0.04), and women with a right-sided placenta had a statistically significant increase in risk (p= 0.02). However, the positive predictive value was very small in both groups.

Conclusion: There is an association between the placental localization in utero and placental abruption. A right-sided placenta seems to be associated with a higher risk, a fundal placenta with a lower risk of placental abruption. However, further investigations are needed, in which already established risk factors for placental abruption are incorporated in order to evaluate a substantial correlation between placental localization and placental abruption.
Valacyclovir effect on the placenta in cytomegalovirus infection – A case report

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Introduction: Congenital cytomegalovirus (CMV) infection is the most common intrauterine infection and thus, an important cause of neurological complications in infected infants. Currently there is no proven therapy for congenital infection but newer studies showed promising results with the virostatic valacyclovir. Our main interest was to understand how CMV transmission occurs to the placenta and to the fetus.

Case Report: 30-years old primigravida was referred at 23+6 weeks because of fetal asymmetric cerebral ventricles and cysts in the posterior horn. Symmetric ventricular synechiae were diagnosed and serology revealed an acute maternal CMV infection. Amniocenteses, showed a high CMV antigen titer in the amniotic fluid. The patient opted to continue with the pregnancy. A therapy with valacyclovir 8gr/daily was started at 27 weeks until delivery, which occurred by elective cesarean due to breech presentation. The newborn was small for gestational age (2530g. <10th centile), and adapted well. Urine analysis was positive for CMV PCR on the first day. Multiple cysts in the frontal white matter and lateral ventricles as well as in the right parahippocampus and lenticulostriatale calcifications were described by sonography. Only minimal bilateral hearing loss was evident at demission and until 5 month after birth. Postpartal therapy with valgacyclovir got started presumably for a total of 6 month. The placenta was hypothrophic (<3.P) with regular parenchyma and normal umbilical cord. The histology surprisingly showed no signs of infection or inflammation. Also the membranes showed no inflammation. On immunohistochemistry, no CMV proteins could be detected due to the preceding virostatic therapy. However, viral DNA was found within the placenta by biomolecular techniques.

Discussion: Valacyclovir operates by inhibiting the viral DNA replication and therefore blocks the infection from further spreading. This explains why no CMV protein could be detected in the presence of viral DNA. We assume that in our case the high dosage treatment with valacyclovir kept the virus from replication within the placenta and thus ongoing spreading to the fetus leading to a milder version of CMV symptoms in the newborn.
Multiple disseminated myomas post hysterectomy - a case report

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Leiomyomas are the most frequent benign tumours of the uterus. In many cases a myomectomy or hysterectomy is the only way to treat a patient with these specific symptoms. During the operation a morcellation of the myoma/uterus is needed to extract the tumour/organ from the abdomen. With this method the risk of spread of myoma cells in the abdomen is given.

A 49-year-old woman was disposed to go to our hospital by her gynaecologist because of diffused tumours in the abdomen. In 2010 a laparoscopic hysterectomy with morcellation was performed in another hospital. After the operation the patient observed a growing tumour in one of the scars. A CT was done and showed diverse intraabdominal, peritoneal disseminated tumours and enlarged paraaortic retroperitoneal lymph nodes. A punch biopsy of the tumour was executed in the scar and a benign leiomyoma was diagnosed. A laparotomy with excision of all 15 leiomyomas, a bilateral adnexectomy and the removal of the enlarged parametric lymph nodes were accomplished. The histological examination showed again benign leiomyomas. In the adnexe there were also found leiomyomas. The lymph nodes were also benign. The immunohistochemical staining showed no expression of Calretinin, Inhibin alpha or CD10 (marker for ovarian or endometrial tumours). In spite of the aggressive growing of these leiomyomas, Ki-67 was positive by only 1-2%. The tumours showed positivity for WT1 (tumour suppressor gene, positive in ovarian carcinomas). The p16 marker was negative with a p53 wildtype muster (tumour suppressor protein). Our patient recovered well from the operation.

Disseminated leiomyomas have been rarely reported. The patients always have a history of past myomectomies or hysterectomies. In many cases a morcellation of the myoma/uterus was executed. The tumours are originated from remaining residues of myoma cells. The reason of the fast growing tumoural tissues is not yet described. In some articles it is supposed that higher hormone levels in the patient should be considered as a cause for these fast growing tumours (pregnancy, oral contraceptives, hormone treatment, hormone - secreting tumours). There are other case reports described with patients in postmenopausal status. A complete excision of all the leiomyomas is recommended, otherwise the tumours continue to grow. In two case reports a therapy with aromatase-inhibitors was performed because an operation was not possible. As a consequence the disease remained and stable.
A nomogram to predict eligible patients for early discharge (< or = 2 days) after oncological surgery in gynecology with an established enhanced recovery clinical pathway

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**Objectives:** Enhanced recovery program (ERP) have been proven to decrease length of hospital stay without increasing readmission rates or complications. However, patient and operative characteristics that improve the chance of successful early hospital discharge are not well established. The aim of this study was to establish a nomogram which could be used before the surgery, through the characteristics of patients undergoing gynecological surgery for oncological indications in an ERP, who could be early discharged from hospital.

**Procedure:** This observational study has been prospectively conducted from 2015 and the implementation of ERP, to 2017. All the included patients were referred for hysterectomy and/or pelvic or para-aortic lymphadenectomy for gynecological cancer. We defined 2 subgroups of patients on surgical procedures characteristics: isolated procedures (hysterectomy or pelvic lymph node lymphadenectomy or para-aortic lymphadenectomy) and combined procedures (at least the association of 2 procedures). The primary objective was to establish a nomogram to predict early discharge (POD < or = 2 days) through patients and operative characteristics.

**Outcomes:** Two hundred and thirty patients were enrolled during the study protocol. 83.9% of patients have been managed with a minimal invasive technique (MIT). One hundred and fifty-nine patients (69.1%) were discharged on or before POD 2 with a mean length of post-operative stay of 1.45 days (+/-0.57). On multivariate analysis the surgical approach (open surgery versus laparoscopy, OR=0.02 (95% CI [0-0.07]), p<0.001) and the type of surgery (combined procedure versus isolated procedure, OR=0.41 (95% CI [0.18-0.91]), p=0.028) were found to be significant predictors of increased hospital stay. A nomogram has been built including multivariate analysis results with the capacity to predict eligible patients for early post-operative discharge (AUC=0.86, 95% CI [0.81-0.92]).

**Conclusions:** The use of MIT for isolated procedures (hysterectomy or lymph node dissection) in oncological indications constitutes an independent factor of early in a setting of ERP. These promising preliminary results have to be validated on a prospective cohort to control the interest of this nomogram, to improve hospital’s management resource and quality of care.
Perioperative Morbidity of ICG Sentinel Lymph Node Mapping in Endometrial Cancer

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Introduction: Amid controversy over surgical staging in endometrial cancer, sentinel lymph node (SLN) mapping has recently gained popularity. Complete lymphadenectomy is associated with a higher peri- and postoperative morbidity including prolonged operating time, increased blood loss, and more lower extremity lymphedema. But little is known about the possible side effects of SLN mapping. The aim of the study is to evaluate the perioperative morbidity of SLN mapping.

Material and Methods: In a retrospective cohort study, we compared all patients at our institution with endometrial cancer undergoing laparoscopic ICG SLN mapping followed by hysterectomy and bilateral salpingo-oophorectomy with patients undergoing laparoscopic hysterectomy and bilateral salpingo-oophorectomy alone. Data on patient characteristics, perioperative data, and data on complications during hospitalization were collected between January 2008 and September 2017.

Results: Data covering 144 patients were analyzed. Of these patients, 97 had laparoscopic hysterectomy and bilateral salpingo-oophorectomy with ICG SLN mapping and 47 had laparoscopic hysterectomy and bilateral salpingo-oophorectomy without SLN mapping. The groups did not differ in age (64.9 vs 65.9 years, p=0.614) or in type of histology (91.3% vs 93.8% endometrioid type, p=0.75). However the BMI was significantly higher in the group without SLN mapping (30.0 vs 35.4 kg/m², p=0.001). Therefore, the results of the perioperative data were corrected for BMI in univariate analysis. Mean blood loss was 116 and 185 ml, respectively (p= 0.716), and operation time was 141 and 149 minutes, respectively (p= 0.148). Intraoperative complications were significantly higher in the group without SLN (1% vs 8.9%, p= 0.029), whereas postoperative complications during hospitalization did not differ significantly between the two groups (4.1% vs 10.9%, p=0.258).

Conclusion: Laparoscopic ICG SLN mapping in endometrial cancer is not associated with higher perioperative morbidity than hysterectomy and bilateral salpingo-oophorectomy alone. Therefore SLN mapping may be an acceptable surgical strategy between a complete lymphadenectomy and no nodal evaluation, especially in patients with low risk endometrial cancer and it can help patients avoid the side effects associated with a complete lymphadenectomy. The limitations of this study include the heterogeneity of the two groups and the missing data concerning long-term complications, including lower extremity lymphedema.
Integrin alpha 2 as key molecule in mediating ovarian cancer metastasis

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Introduction: Metastasis of ovarian cancer, the leading cause of deaths among all gynecological cancer, occurs when malignant cells detach from the primary tumor site and disseminate throughout the peritoneal cavity, preferentially to the omentum. The underlying mechanisms of ovarian cancer metastasis, however, remain unclear. Accumulating evidences suggests that integrins, which play essential roles in mediating cell-extracellular matrix (ECM) interaction for cancer cell adhesion, growth, migration, and invasion, may be a predictive biomarker and a therapeutic target for ovarian cancer treatment. In this study, we investigate the potential role of integrin α2 in ovarian cancer metastasis.

Materials and Methods: CRISPR-Cas9 genome editing was used to generate integrin α2 (ITGA2)-knockout cells from parental ovarian cancer cell lines (IGROV1, SKOV3, SKOV3ip, OV-CAR4). Overexpression and rescue of integrin α2 was done by lentiviral-mediated transduction. Adhesion of cells to different ECM proteins was determined in coated MaxiSorp plates. Integrin expression in cell line extracts and extracts from matched patient samples (primary and omental metastases) from our established tissue biobank was determined by Western blotting and quantified by densitometry. Integrin α2 expression in tissue samples was visualized by confocal immunofluorescence microscopy.

Results: We found in a panel of 12 representative ovarian cancer cell lines that integrin α2 expression positively correlated with epithelial cell markers (expression of E-cadherin, absence of N-cadherin and vimentin). Integrin α2 was required for adhesion of ovarian cancer cells to collagen: integrin α2-knockout ovarian cancer cells showed reduced adhesion to collagen I, fibronectin, and laminin, whereas rescuing integrin α2 expression in these knockout cells fully restored adhesion to collagen but only partially to fibronectin and laminin. We also found in matched patient samples that integrin α2 was elevated in the primary tumor and in omental metastases but rarely present in benign tissue and tumor-free omentum. Collagen and fibronectin was elevated both at primary tumor and metastatic sites.

Conclusion: Our results indicate that integrin α2 expression positively correlated with omental metastases. This supports the view that integrin α2 plays a key role in mediating ovarian cancer cells metastasis.
Indocyanine green fluorescence lymphnode mapping in uterine and cervical malignancies

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Introduction: Sentinel lymph node (SLN) mapping with indocyanine green (ICG) and minimally invasive near-infrared (NIR) technology has significantly improved the performance of SLN mapping in early stages of uterine malignancies and was introduced in Switzerland since 2015. Although it is characterized by a low number of false-negative results, efficacy is still controversial and surgical hazards poorly reported.

Materials and Methods: We retrospectively analyzed the data of 28 patients operated laparoscopically in our unit in a two year period from 01.02.2016 to 31.01.2018 for endometrial and cervical cancer. 8ml of diluted ICG (5 mg in 10ml H2O) were injected in 4 quadrants of the cervix at the beginning of the procedure. Pelvic lymph nodes were identified laparoscopically using NIR/IGC specific camera (STORZ, Tuttlingen, Germany). Patients were discussed preoperatively at the tumorboard. Pelvic lymphadenectomy (PL) with or without para-aortic lymphadenectomy (PAL) was indicated in cases of positive or inconclusive results, tumor stage FIGO >IA and histological grading >G2. Blood loss, surgical time, technical limits and post operative complications were analyzed.

Results: 26 of 28 patients were operated for endometrial cancer and 2 for cervical cancer. In 7/28 patients (25 %) PL and PAL was performed: in 2 cases for serous endometrial carcinoma, in 2 cases to complete the treatment of the cervical cancer (negative SLN) and in 3 cases for lack of lymphatic tissue. Of the 25 SLN collected, 23 were negative at the histologic analysis and 2 showed micrometastasis on paraffin slides. In one case we reached a technical limit, due to wide retroperitoneal diffusion of indocyanine green but lymphnodes could be identified. Reported blood loss was minimal (10-300 ml) and surgical time acceptable (15-30 min). Only 2 patients had post operative complications not in direct correlation with the ICG sampling (vaginal cuff dehiscence and aspecific fever).

Conclusions: ICG SLN mapping is feasible and efficient. It has negligence blood loss and few post-operative complications. Lack of lymphatic tissue and retroperitoneal ICG diffusion were the main problems we encountered at the beginning of our learning curve. SLN mapping with ICG requires adequate training of all medical and paramedical surgical team. Centralization of oncological patients facilitates cases load and regularity of collecting and treatment.
Short-term counselling for families with parental cancer: an ongoing randomized, wait-list controlled intervention study

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Introduction: A parental cancer diagnosis challenges the entire family system, affecting its stability, relationship and quality of life. Children with parents suffering from cancer are at higher risk for developing behavioural problems or mental disorders. Although psycho-oncological family-based counselling programs have shown to increase children's and parental well-being, there is still a lack of such interventions. Therefore, the aim of the present study is to test the feasibility and efficacy of a newly developed short-term counselling program for families with parental cancer.

Material and Methods: We are conducting a randomized wait-list-controlled intervention study at the Cancer Center of the University Hospital Basel. 55 parent-child pairs are planned to be recruited. The counselling intervention consists of six sessions, which were developed on the basis of existing and evaluated psychotherapy manuals. Questionnaires on family, child and parental psychosocial functioning are assessed at three time points (before and after counselling and 6 weeks follow up) to quantify efficacy. Feasibility is measured with regard to recruitment possibilities, satisfaction with counselling, drop-out rates and reasons.

Results: The study started in June 2017 and first results of the pilot study will be presented. At the moment 4 of 43 contacted families participate in the counselling. 20 have not come to a decision yet and 19 decided against the counselling or were excluded. Reasons for non-participation were not being fluent in German, local distance, lack of time due to many medical appointments and being already referred to other psychosocial services. Screening procedure shows that all families appreciate the offer of family counselling as an option to use at the time needed. Families who participated reported high satisfaction with the content of the counselling.

Conclusion: Families with parental cancer appreciated the possibility of family counselling at the time needed. The main goal is now to recruit more families to draw conclusions about the feasibility and efficacy of our short-term, counselling intervention for families with parental cancer and, overall, to support these families in this challenging situation.
Providing advanced care through gynaecological cancer treatment in a Swiss university hospital

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Introduction: Women suffering from gynaecological cancer have a high symptom burden. Physical symptoms are highly prevalent as well as psychological issues. Gynaecological cancer and its treatment affect parts of the body that are normally an intimate zone. Therefore, women may feel alone and experience stigmata. Hence, the aim of this project was to develop and implement an APN role to provide continuity of nursing care. The focus lies on how to cope with issues and on prevention of complications of female genitals (e.g. vaginal stenosis after pelvic radiotherapy) with intent to sexual rehabilitation as well as to maintain gynaecological examination.

Method: Criteria of the APN role were depicted following the participatory, evidence-based, patient-focused process. This framework was introduced to develop, implement and evaluate APN roles (Bryant-Lukosius & DiCenso, 2004). Description of the actual model of care was undertaken by document analysis and by interviewing patients (n=7) and professionals (n=4). Role development was deduced by conducting thematic analysis. Decisions were discussed in strategic workshops.

Results: Analysis revealed that patients experienced the treatment process as fragmented. Particularly they did not perceive continuity in nursing care when they change from in- to outpatient and through radiotherapy. Nursing continuity therefore is provided by consultations taking place depending on the women’s individual needs and through regular follow ups. Scope of practice comprises clinical practice, interprofessional collaboration and practice development. Systematic assessment of disease burden, changement in body image and sexuality is provided. Consultation for vaginal dilation is available for all women undergoing pelvic radiotherapy or brachytherapy. A telephone hotline was established to provide low-threshold consultation.

Conclusions: First experiences endorse that the implementation of an APN may be a supportive and effective intervention for a highly vulnerable patient group. Patients report to feel supported by the APN in a sensitive phase of illness.
Pivotal function of A4GALT-related glycosphingolipids in metastasis of ovarian cancer cells


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Introduction: The transition of cancer cells between epithelial and mesenchymal states (EMT) comprises cellular and molecular processes essential for local tumor growth and dissemination. We investigate the function of glycosphingolipids (GSL) in EMT in ovarian cancer and their role in chemosensitivity and disease outcome.

Materials and Methods: CRISPR-Cas9-technology was employed to generate A4GALT-knockout sublines from parental ovarian cancer cell lines (IGROV1, SKOV3, and BG1). GSL expression profile was determined by flow cytometry. Gene and protein expression were determined by RT-qPCR and Western blotting, respectively. Publicly available transcriptomic data sets were used to compute overall survival and relapse-free survival.

Results: Ovarian cancer cells with epithelial features have elevated expression of genes encoding glycosyltransferases (A4GALT) responsible for globoside biosynthesis and this elevated expression was associated with better outcome (OS and RFS) in ovarian cancer patients. CRISPR-Cas9-mediated deletion of A4GALT and subsequent depletion of globosides induced in these cells changes typical for EMT: they switched from a cobble-stone to a fibroblast-like (mesenchymal) morphology; no longer expressed E-cadherin as a consequence of epigenetic silencing of the CDH1 (E-cadherin gene) promoter; showed higher capacities to migrate and disseminate (zebrafish-model), to form colonies, and to proliferate anchorage-independently (anoikis-resistance); were resistant to chemotherapeutic drugs; and adapted cancer stem cell-like features. Intriguingly, E-cadherin expression and accurate E-cadherin-mediated cell-cell adhesion required functional A4GALT and globosides.

Conclusion: We propose a model in which A4GALT function and expression of globosides are absolutely required and accurate expression and localization of E-cadherin are essential for the epithelial cell state and in which, conversely, A4GALT deletion-imposed loss of globo-sides and concomitant absence of E-cadherin expression (by epigenetic silencing of its gene CDH1) induces EMT associated with chemo-resistance and acquisition of mesenchymal and stem cell-like features. This model reveals novel potential therapeutic targets to prevent cancer cell dissemination.
**Does preoperative axillary ultrasound and lymph node biopsy lead to an overtreatment in the era of ACOSOG Z0011?**

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**Introduction:** The publication of the ACOSOG Z0011 trial lead to one of the most important changes in the surgical management of early breast cancer (BC). Nowadays it is an option to omit axillary lymph node dissection (ALND) in patients with T1-2 cN0 BC undergoing breast-conserving surgery (BCS) and one or two positive sentinel lymph nodes (SLN). This approach was rapidly integrated in guidelines worldwide. But the optimal preoperative work-up of the axilla remains unclear. The aim of our study was to sort out if preoperative axillary ultrasound (AUS) and lymph node (LN) biopsy lead to an overtreatment in patients with early BC.

**Material and Methods:** Retrospective analysis of data from patients with primary BC treated at the university hospital of Berne between 2011 and 2017. All patients with T1-2 tumors with BCS were included in the present study. Patients with neoadjuvant chemotherapy, distant metastasis at diagnosis or without surgical axillary staging were excluded. Patient and tumor characteristics, results of the preoperative work-up of the axillar LN status, type of axillary surgery and number of positive LN were determined. In our certified breast center all patients with newly diagnosed BC receive routine AUS and biopsy of suspicious LN.

**Results:** In the study period 812 cases of BC in 773 patients were treated in our department. Inclusion criteria were fulfilled and complete data available in 361 cases. Overall clinical evaluation of the axilla (palpation +/- AUS) showed low sensitivity with 39% and a specificity of 93%. 29 patients had a preoperative biopsy of suspicious axillary LN; with a positive result in 19, a negative in 7 and a false negative result in 3 patients (Sensitivity 86%, specificity 100%). From 301 patients, who met the inclusion criteria of the ACOSOG Z0011 trial, 13 were treated by an upfront ALND; 7 based on a positive LN biopsy and 6 on suspicious findings in AUS alone. In those cases pathological results showed macrometastasis in ≤2 LNs in 2 respectively 6 patients. ALND was performed in 79 (21.9%) patients with a median of 17.5 (5-40) lymph nodes removed. Nodal disease burden was significantly higher in patients with a clinical suspicion of LN metastasis (6 vs. 2.8, p <0.001).

**Conclusion:** In our cohort ALND based on AUS and/or preoperative LN biopsy lead to overtreatment in 8 patients. Applying the ACOSOG Z0011 criteria for the surgical management of the axilla in early BC should also imply an adaption of the preoperative work-up of the axilla.
Risk factors for failed vaginal breech delivery in the all fours position

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Objective: Breech presentation is an obstetric challenge that continues to be widely debated, and recommendations for the optimal mode of delivery are lacking. Recent studies suggest that the breech delivery in the all fours position may have advantages over the supine position. The aim of this study was to define risk factors for a failed vaginal breech delivery in the all fours position of the mother.

Material and Methods: Electronic medical records were used to identify all breech presentations delivered between 06/2012 and 12/2017 (n=391) in a Swiss cantonal hospital. Of these women, 149 attempted vaginal delivery of which 110 used the all fours position. Multivariate analyses of fetal and maternal variables was performed including following parameters: maternal age, maternal weight and height, parity, gestational age, fetal birth weight and head circumference, duration of first stage of labor, epidural anesthesia, and induction of labor.

Results: 75 of 110 mothers in the all fours position had a successful vaginal breech delivery (68%), 9 mothers cesarean section (7.6%), 34 women had to be turned to supine position in order to perform maneuvers facilitating delivery (29%). Multivariate analyses indicated the only statistically significant risk factor for failed spontaneous delivery in all fours position was a prolonged duration of first stage of labor (OR 1.003, p=0.049).

Conclusion: No clear contraindication to a vaginal delivery in the all four position could be elucidated. A long first stage of labor is an indicator of less effective labor leading to less effective contractions in the second stage of labor, a higher rate of cesarean section and maneuvers in supine position. For women with a long first stage of labor and ineffective contractions in the all fours position, the supine position is recommended, since mothers often mention that they are able to push harder in this position.
Association between the intrauterine placental site and an abnormal third stage of labor and maternal blood loss: a retrospective cohort study

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Introduction: Vaginal births are accompanied of an abnormal third stage of labor in approximately 5% of cases, either in form of an incomplete placental expulsion or placental retention. This can cause higher maternal blood loss and therefore higher morbidity. Little is known about the association between the placental site and an abnormal third stage of labor and maternal blood loss. Aim of this study was to evaluate the rate of incomplete placental expulsion and placental retention in our department, as well as the placental sites and blood loss in these cases compared to births with a normal third stage of labor.

Methods: Between 1/2007 und 12/2015 we evaluated all vaginal births with singletons in vertex presentation after 34 weeks of gestation in the Department of Obstetrics at the University Hospital of Zürich. We excluded all cases of placenta previa, fetal malformations and cases with incomplete data. The rate of women with a normal third stage of labor, with an incomplete placental expulsion and with a placental retention was calculated. For every of these three groups we evaluated the distribution of the placental sites and the blood loss.

Results: An abnormal third stage of labor occurred in 558 of 8739 births (6.4%), in 60% because of incomplete placenta expulsion, in 40% because of placental retention. The placental sites between the three groups were statistically different. The placental site in normal vaginal births was as followed: 46.9% anterior, 38.7% posterior, 2.3% right, 1.8% left und 10.3% fundal. In the cases with incomplete placenta expulsion, we found the placenta in 51.3% anterior, in 33.8% posterior, in 1.8% right, in 3.26% left and in 9.8% fundal. In the cases with placental retention we found the placenta to be in 54.7% anterior, in 21.3% posterior, in 5.4% right, in 1.8% left and in 16.7% fundal. The average blood loss in vaginal births with a normal third stage of labor was 377 ml, in the ones with incomplete placental expulsion 1146 ml, and in the cases of placental retention 1445 ml. This was significantly different as well as the distribution of the placental sites (p = 0.011). The birth mode in these 3 groups was not statistically different.

Conclusion: There is an association between the intrauterine placental site and an abnormal third stage of labor and the amount of blood loss. Therefore, knowing the placental site could be helpful to anticipate an abnormal third stage of labor and to prepare for possible upcoming interventions.
Indications for intravenous iron therapy in pregnant women

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Background: The most common cause of anemia in pregnancy is iron deficiency. There are various possible forms of treatment for iron deficiency anemia. Oral iron is the preferred route of administration for mild anemia. However, oral iron supplementation often leads to adverse effects. Intravenous iron therapy is promising, especially in cases of severe anemia. Although, intravenous iron therapy is often used without correct indication.

Methods: A retrospective study of the medical records was carried out at the Department of Obstetrics, University Hospital Basel. From January 2015 to December 2016, 152 pregnant women were treated with intravenous iron. The maternal characteristics, blood parameters and reasons for iron therapy were investigated. The reasons for intravenous iron treatment were divided into: a) poor response to oral iron therapy or non-compliance, b) intolerance to oral iron therapy, c) severe anemia (Hb < 90 g/l), d) rapid correction of anemia, e) non-correct indication for therapy.

Results: There were 152 pregnant women with intravenous iron treatment. Due to missing data in 11 pregnant women, the analysis was conducted in 141 women. The mean of hemoglobin before therapy was 108.5 ± 13 g/l (75-138) and after treatment was 122.2 ± 11.1 g/l (99-165). The mean of ferritin before therapy was 13.3 ± 7 µg/l (4-36). There were 9/141 (6.4%) pregnant women with Hb < 90 g/l before therapy. The mean of gestational age at the treatment was 30.3 ± 7 weeks (14-39). The mean of maternal age was 31.1 ± 6 years (18-47), gravidity 2.4 ± 1.4 (1-7), parity 0.9 ± 0.9 g/l (0-5) and BMI 23.7 ± 5 kg/m2 (14.9-41.4). 80 pregnant women were allocated and 61 were internal patients. In 25 pregnant women (25/141; 17.7%) intravenous iron therapy was used because of poor response to oral iron therapy or non-compliance, in 16 (16/141; 12.1%) because of intolerance to oral iron therapy, in 29 (29/141; 20.6%) because of severe anemia and in 43 (43/141; 30.5%) because a rapid correction of anemia was needed. 28 pregnant women (28/141; 20%) were treated with intravenous iron without correct indication, therefore 19 patients were allocated (19/28; 68%).

Conclusion: The most often reason for intravenous iron therapy was rapid correction of anemia (30.5%). 20% of pregnant women were treated with intravenous iron without correct indication for this therapy. However, 68% of pregnant women with incorrect indication for intravenous iron therapy were allocated.
Informal human milk sharing and selling: risks and challenges

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Introduction: The contemporary use of unpasteurized human donor milk is rising in popularity and controversy. Despite the risks of mishandling, adulteration and disease transmission, informal milk sharing and selling online are proliferating. Little is known about the practices and human milk markets in Switzerland. Therefore, the goal of the study, led by Stillförderung Schweiz, is to investigate the motivations, practices, and perceptions of mothers who have engaged in online milk sharing. Further research examines the legalities, prices, participants, quality and safety issues of human milk from online sources.

Material and Methods: A scientific literature review and online market research was conducted on the topic of milk sharing and selling. Relevant social media groups were contacted with interview invitation letters for eligible mothers who have recently donated or received donor milk informally. The interviews were recorded and transcribed for analysis.

Results: No scientific studies were found on informal milk sharing or selling in Switzerland, despite the overall growth of studies in Europe. Several online milk exchange platforms were found to have no accountability nor official hygienic procedures. Five mothers were interviewed from a milk sharing Facebook group. Milk receivers, who experienced low milk supply or illness, felt guilty and were concerned about the taboo and negative consequences of using a stranger’s milk. However, following in-person or online contact, mothers built trusting relations and believed the benefits outweighed the risks, preferring unpasteurized donor milk over infant formula. Overall, participants assumed no harm and positive intentions from other mothers. Yet, screenings, medical background checks, blood tests and hygienic protocols, e.g., pasteurization, were limited in practice.

Conclusion: Human milk is unregulated and in demand in Switzerland, as evident in the rise of informal milk sharing. Participants in this study experienced systematic barriers while pursuing their breastfeeding goals. Yet, found value through informal milk sharing networks. Overall, the lack of medical support, regulation, hygienic standardization and accessibility to safe human milk presents numerous gaps, challenges, and rising concerns. Results from this study can deepen the understanding of maternal needs in order to develop public health interventions, clinical practices and policies that promote maternal and infant health and safety.
Risk factors for Preterm Birth following open fetal Myelomeningocele Repair – Results from a prospective Cohort

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Introduction: Fetal myelomeningocele (fMMC) repair is nowadays a therapeutic option in selected cases, but preterm birth is still one of the main concerns. The gestational age (GA) at delivery is a major outcome parameter with fundamental influence on the neonatal and infant’s development. The total duration of fetal surgery and the occurrence of oligohydramnios before PPROM are reported risk factors for preterm delivery. The underlying study aimed at the identification of risk factors for preterm birth following open fetal surgery at our center.

Material and Methods: Sixty-seven women underwent fMMC repair between 2010 and 2017 at the Zurich Center for Fetal Diagnosis and Therapy. Demographic, surgical, and pregnancy complications, including potential risk factors for preterm birth (GA < 37 weeks) such as preterm premature rupture of membranes (PPROM), chorioamniotic membrane separation (CMS) and placental abruption were evaluated using Chi Square test and t-test.

Results: Maternal Body Mass Index, maternal age, parity, previous uterine surgery, GA at intrauterine surgery, total surgery time, surgical subcutaneous hematoma, oligohydramnios and amniotic fluid leakage were not identified as risk factors for preterm birth. However, complications directly attributed to the surgical interventions as CMS (p=0.028, 92% vs 52%) and PPROM (p=0.001, 95% vs 52%) were highly associated with preterm birth. Placental abruption was found more often after fMMC repair compared to a general obstetrical population (12% versus 1%) and ended in premature birth in all cases (p=0.024, 100% vs 60%). However the majority of women delivered at a gestational age >35 weeks.

Conclusion: In our study cohort, risk factors for preterm birth were PPROM, CMS and placental abruption, whereas surgery time did not influence our outcome. We conclude that the surgery technique should aim at minimizing CMS and amniotic fluid leakage.
Birth lacerations in different genital compartments and their effect on maternal subjective outcome: 
a prospective observational study

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Introduction: Lacerations are common in vaginal births, occurring in 50-91.5% of cases. Little is known about others than high-grade perineal tears and their association to maternal impairment. This study aimed to evaluate the frequency and distribution of all kind of birth lacerations and their association to maternal discomfort, in order to better counsel women regarding their choice of birth mode.

Material and Methods: Between 2/2015 and 12/2016 we conducted a prospective observational study on 140 women with singleton pregnancies in vertex presentation at term, who gave birth vaginally in the University Hospital of Zurich and were affected by a laceration. The lacerations were assigned objectively and subjectively to eight genital tract compartments. The presence and effect of lacerations on maternal health were assessed by questionnaires for three different times (time before birth=T1, one to four days postpartum=T2 and six to eight weeks postpartum=T3). Subjects of evaluation were for example urine and stool incontinence, genital complaints and psychological impairment.

Results: The number of affected compartments was 1.33 objectively and 2.99 subjectively at T2 and 1.27 at T3. The most affected compartment was the right perineum (73%, including 29% episiotomies), followed by the right inner posterior (21%) and the right outer anterior (14%) compartment. An accordance between subjective and objective assessment was found in 83% at T2 and 69% at T3. Overall, impairment of women by their lacerations was low and reversible. The most described complaints were burning sensations/pain in the genital area during urination (54%) and urine incontinence (49% during pregnancy, 34% at T3). Many women were concerned about their laceration (63% at T2 and 30% at T3).

Conclusion: Birth lacerations predominantly appear at the right perineum, followed by the right inner posterior and outer anterior compartment. Physical impairment by these lacerations is generally low, of minor importance and reversible, but psychological impairment is not negligible.
Role of transabdominal cerclage in fetal membranes histology after term elective cesarean section

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Introduction: Transabdominal cerclage is considered as a surgical approach to cervical insufficiency in women with a failure of previous transvaginal cerclage and fetal loss. In fetal membranes overlying the cervix, a zone of altered morphology has been well described before labor at term.

Materials & Methods: We aimed to examine the fetal membranes histology by comparing the membrane thickness of normal pregnant women and pregnant women with transabdominal cerclage, at term, before labor, in the absence of premature rupture of membranes. Our hypothesis was that transabdominal cerclage can determine structural changes in the cervical area of membranes and can also lead to functional changes in fetal membranes thus maintaining the homeostatic balance at term without complications. Chorioamniotic membrane samples were collected from women who underwent term elective cesarean section before the onset of labor at the same gestational age (≥ 37 weeks) without any maternal or fetal disorder. Women were divided into two groups: the abdominal cerclage group (n=5) and the control group (n=5). Membrane samples were collected in two different areas: membranes overlying the cervix and membranes located far from the cervix and the placenta.

Results: In the chorioamniotic membranes overlying the cervix: (1) the mean fetal membrane thickness was significantly decreased compared to the distal area. In the cervical area, the chorion is significantly thicker in membranes of women with transabdominal cerclage. (2) Hydroxyprostaglandin dehydrogenase (PGDH) and Toll-like receptor-2 (TLR-2) expressions are also significantly increased in fetal membranes in women with transabdominal cerclage. (3) Cellular senescence is significantly decreased in membranes of women with transabdominal cerclage.

Conclusions: Fetal membranes in presence of transabdominal cerclage exhibit structural and functional changes compared to controls at term before labor. In presence of transabdominal cerclage, the significant chorion thickening in the cervical area closely correlates with increased PGDH and TLR-2 expression and the reduction of cellular senescence. Our data suggest that these changes contribute to the creation of a specific microenvironment in membranes that prevent the triggering of parturition. Structural and functional changes in fetal membranes account for favorable outcomes and the high success rate of transabdominal cerclage.
Seizure following the administration of inhaled nitrous oxide for pain relief during labour

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Introduction: First reports on the use of nitrous oxide as an anaesthetic and analgesic substance date back to 1868. Recently, it has regained popularity in obstetrics for shortterm pain relief, mainly during second and third stage of labour, including during laceration suturing. Several trials suggest its safety and effectiveness in pain management during labour. In our department, inhaled nitrous oxide has been introduced two years ago.

Case report (Material and Methods): A 30-year-old healthy gravida 3 para 2 was admitted for delivery at term. She was administered nitrous oxide for labor pain during the second stage of labour. Following a few inhalations she developed a generalised tonic-clonic grand mal seizure. Immediately, nitrous oxide administration was ceased and intravenous 10mg intravenous diazepam was given. Delivery of a healthy boy with normal umbilical cord pH values and APGAR score was completed by vacuum extraction due to fetal distress. The patient returned to a baseline level of alertness 20 minutes after the seizure. Preeclampsia laboratory parameters were in the normal range. The patient’s blood pressures remained normal, no proteinuria was detected in routine urine tests. The following day, a specialized neurological consult completed by an EEG and an MRI was performed, the investigations did not reveal any abnormalities.

Results: We have not observed any complications with nitrous oxide administration for pain relief during labor until an otherwise healthy women suffered a grand mal seizure. The patient subsequently recovered fully. In the literature no such case has been previously described, although there are a few case reports of seizures associated with the use of nitrous oxide in children with no history of epileptic seizures.

Conclusion: We describe the first case of a healthy women suffering a grand mal seizure due to nitrous oxide inhalation for pain relief during labour. Our report suggests that rare serious adverse effects may occur, and that awareness of these possible events is mandatory. Further research is recommended regarding effectiveness, patient satisfaction and adverse effects of inhaled nitrous oxide during labour.
Early onset HELLP syndrome in two subsequent pregnancies - a case report

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Introduction: HELLP syndrome is normally a complication of the late pregnancy and characterized by haemolysis, elevated liver enzymes and low platelets. This disorder has an incidence for up to 0.9% for all pregnancies. HELLP syndrome is often described as a severe form of preeclampsia in literature.

Case report: We report on a woman who got pregnant twice and sustained HELLP syndrome in each pregnancy before 24th week. In the past she had had secondary acute myelogenous leukemia (after refractory anemia 2003) with following chemotherapy and whole-body irradiation in 2005. As a consequence of the cancer therapies she suffered from ovarian insufficiency. Because of an unfulfilled wish for a baby the couple decided to get an oocyte donation in Spain. In her first pregnancy (2015) the 34-year-old woman had a normal course of pregnancy until the 23rd week. Because of hypertension (205/130 mmHg), she was transferred to our clinic. The lab results showed thrombocytopenia (93 G/l), three to four times elevated liver enzymes and proteinuria. Furthermore, clinical gestosis signs were detected. We diagnosed a severe preeclampsia and HELLP syndrome. Antihypertensive, as well as a methylprednisone-therapy were started. Nevertheless, 6 hours after hospitalisation, the transaminases achieved a value ten times above the normal level. Additionally the platelets decreased even further. We decided to end the pregnancy by Caesarean section (sectio parva), with the child dying 30 minutes after. In 2017 the patient got pregnant by oocyte donation again. An ASS-prophylaxes was started. In 15+2 gestational week her gynecologist diagnosed high blood pressure and did a sFlt-1/PGLF Ratio test. This was increased significantly (664). Because of the clinical symptoms and abnormal lab results, we diagnosed a preeclampsia and HELLP syndrome again. Therapies were started. Nevertheless on 18th week of gestation we could detect an intrauterine fetal death. The child was born dead after induction of labor.

Conclusion: In conclusion many studies show the higher risk of gestosis/HELLP syndrome after oocyte donation. In case of a previous HELLP-pregnancy there is an increased risk of HELLP syndrome and preeclampsia for further pregnancies. In this case we would have advised the patient against a second pregnancy because of the risk factors.
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Postoperative Pain is driven by pain preoperative and not the extension or even presence of endometriosis

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Indication: Chronic pelvic pain affects around 15% of women in general and of these, more than 1/3 have endometriosis. The treatment of patients with abdominal pain often is challenging. It is known, that the severity of endometriosis does not correlate with the extent of the pain symptoms. In this study, risk factors for postoperative pain in premenopausal women undergoing a hysterectomy were analyzed.

Patients and Methods: Data from premenopausal patients with a hysterectomy for benign disease was collected retrospectively from the hospital internal database from January 2013 to October 2017. The patients were arranged depending on their indication for a hysterectomy in groups with and without pain preoperative as well as with or without endometriosis/adenomyosis. Postoperative pain was documented by the nurses and quantified by the patients in a scale from 1-10 on the first three postoperative days. To quantify the analgesics use, a scoring system was applied for the amount and types of analgesics needed. Hospital stay, number of doctor visits and perioperative data were also analyzed. Independent t-test and ANOVA were used for statistical analysis.

Results: A total of 204 patients were analyzed. Mean age was 42.2, BMI 27.3, and Parity 1.3. Comparing the four groups (pain/endometriosis yes /no) no significant difference was found in postoperative pain or analgesics use. However, comparing the patients with or without pain preoperative, patients with pain show a significant higher pain score on day one and two (p=0.013 and 0.035). No significance was found on postoperative pain or analgesics use looking at age, BMI, complications, time of the operation, blood loss, endometriosis rASF stage or presence of adenomyosis.

Conclusion: Main reason for postoperative pain is the presence of pain preoperative and not the extension or even presence of endometriosis. The effect was not measurable looking at the amount of analgesics used. This might be explained by to standardized postoperative analgesics prescriptions. This study underlines the importance of pain management also preoperatively.
The utility of genetic risk models in the daily practice of genetic counseling

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Introduction: The early detection of BRCA mutations has an important clinical relevance for prevention and treatment of breast and ovarian cancer. The increasing awareness of physicians lead to a significant rise in the referral rates for genetic counseling. But it remains a challenge to select patients for genetic testing, especially in times of limited health funding. Decision tools may be empirical criteria or risk models.

Material and Methods: Retrospective analysis of data of an unselected cohort of patients referred consecutively to our breast centre for genetic counseling. Patient’s characteristics and data on family history were collected. For all patients mutation probability was routinely calculated by using the two risk assessment tools BRCApro and BOADICEA. The aim of our study was to analyze the performance of the two risk models in selecting women for genetic testing. Sensitivity and specificity were calculated at the cut-off of 5% and 10% BRCA mutation probability. Furthermore we evaluated the ease of use of both risk models judged on the time used for data entry.

Results: Complete data were available for 63 patients referred to our breast centre for genetic counseling during the study period. 33 (50.8%) women were affected by breast cancer with a mean age at diagnosis of 48.8y (24-80), 3 (4.5%) by ovarian cancer, mean age at diagnosis 47.7y (23-69) and 27 (44.8%%) were unaffected individuals. Genetic testing for BRCA mutations was performed in 44 (69.8%) patients. 38 (86.4%) women fulfilled at least one criteria of the Swiss Guidelines for genetic counseling and testing. Four (9.1%) women were diagnosed to carry a pathogenic BRCA mutation. A variant of uncertain significance was found in 3 (6.8%) individuals. The sensitivity of the two risk models at the threshold of 5% was 25% for BRCApro and 50% for BOADICEA, the specificity was 90% versus 85% respectively. Mean time for data entry was 10.1 (5-15) min for BOADICEA and 8.2 (3-12) min for BRCApro (p<0.001).

Conclusion: The risk models BRCApro and BOADICEA are not helpful to discriminate between BRCA mutation carriers and non-carriers in a low-risk population. Their use is time-consuming. Other factors as the personal motivation of the woman and the possible utility of the test results for other family members may actually be more important in the decision-making process.
Uterine Fibroid Therapy Without Knives or Hormones

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Introduction: Uterine fibroids are common in women of reproductive age. If fibroids cause problems such as abnormal uterine bleeding, there are different therapeutic approaches. Medication can be used to reduce fibroid volume, but this approach has potential side effects and may be associated with recurrent symptoms after cessation of therapy. Nonmedical interventions include myomectomy, hysterectomy, uterine artery embolization (associated with post-embolization syndrome and post-procedure pain), and MR-guided focused ultrasound (requires several hours). We report our experience at a regional hospital in Samedan, Switzerland.

Material and Methods: We used a transcervical device with integrated intrauterine sonography (Sonata) that thermally ablates uterine fibroid tissue with radiofrequency (RF) energy. This results in coagulative necrosis leading to a reduction in fibroid volume and associated symptom relief. The use of a proprietary targeting system (SMART Guide), enables the safe delivery of RF energy to fibroids. The Sonata System is capable of ablating all fibroid types except for pedunculated fibroids (FIGO type 0 and type 7 myomata). In a single session, more than one fibroid can be ablated and there is no requirement for general anesthesia. To date, we have treated nine patients at our hospital. All patients were evaluated with transvaginal sonography prior to treatment with Sonata, and sonography will be repeated approximately twelve weeks after ablation.

Results: To date, there are results for three patients at three months post-ablation. The first patient had a single treated fibroid that demonstrated a reduction in total fibroid volume of 43% at three months, while the sole treated fibroid in the second patient realized a 23% reduction. The third patient had two fibroids with a 54% and a 24% reduction in total fibroid volume, respectively, after three months. Across all four fibroids, this represents an average of 36% reduction in total fibroid volume at three months.

Conclusion: Published data regarding Sonata study show a statistically significant reduction in total fibroid volume of 54.7% after three months. While the current patient numbers and three-month data are insufficient to make conclusions about fibroid volume reduction at twelve months post-treatment, all of our patients are asymptomatic by three months after fibroid ablation, and these encouraging results lead us to recruit additional symptomatic patients for treatment with Sonata.
Enhanced Recovery Program in Gynaecological Surgery; persistency of Cost-Efficiency over time after implementation?

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**Background:** Enhanced recovery after surgery (ERAS) implementation has proven to reduce complication, duration of hospital stay and cost. Little is known about the sustainability of these results over time in gynaecological surgery. The aim of the present study was to assess the cost-efficiency evolution over the 4 years after implementation of an ERAS programme in gynaecological surgery. Comparison of running costs of ultimate year with patients treated before ERAS implementation was made to assess cost-efficiency of ERAS implementation.

**Methods:** Conducted as a retrospective study, the perioperative costs for 388 women undergoing gynaecological surgery (benign, staging or debulking) within an ERAS protocol were analyzed between 1 October 2013 and 31 December 2016 in a Swiss tertiary centre. Pre-ERAS patients were included from 9 October 2012 and 30 September 2013. Preoperative, intraoperative and postoperative real costs were collected for each patient via hospital administration. A bootstrap independent t-test was used for comparison.

**Results:** There were 42 patients in pre-ERAS group, 122 patients in 2014 (year 1 after implementation (AI)), 134 patients in 2015 (year 2 AI) and 90 patients in 2016 (year 3 AI). Preoperative characteristics and demographics were similar between all groups. The mean total costs per patient for the pre-ERAS group were USD18’772 (15’399-22’721). In 2014, the mean total costs were USD16’101 (14’649-17’533), in 2015 USD15’510 (13’981-17’162) and in 2016 USD13’398 (11’983-14’914). Comparisons of the 3 means (2014-2016) showed a significant difference (p=0.003). The mean total costs in 2016 were significantly decreased compared to 2014 (p=0.011).

**Conclusion:** Total costs decreased over time after implementation of ERAS in gynaecology, thus enhanced recovery program is sustainable on the long term.
Physical Computing and Gamification in Laparoscopic Skills Training

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Introduction: Skills training in laparoscopy using box trainers is an essential part in surgical education. The time spent practicing is often insufficient. Causes can be overbearing bureaucracy in clinical work, unstructured exercises or sometimes also lack of intrinsic motivation. The gamification of a laparoscopic exercise with the aid of physical computing is an attempt to incentivize training and to generate data for analysis.

Material and Methods: A laparoscopic box trainer with fixed camera is used for this project, this allows for single user training. The training module consists of a hand-made metallic model with multiple targets. A right and left instrument is inserted in the typical contralateral orientation. The targets themselves, the surrounding of the targets, as well as both instruments are individually connected to a physical computing platform. A microcomputer analyzes the inputs and generates outputs to a mini-display. For creating a game, an original software was designed to guide the user and to give user feedback on accuracy, speed and other useful variables.

Results: A combination of a laparoscopic box trainer and model with a physical computing platform was created. The computer software was designed to create a novel approach to gamify laparoscopic skills training. Eye-hand-coordination and spacial orientation can be practiced in anatomically correct dimensions, also it can be analysed and gamified.

Conclusion: Physical computing in combination with laparoscopic box trainers is feasible and opens up multiple possibilities to create novel exercises in surgical skills training. The necessary hardware can be acquired for reasonable prizes. A high level interpreted programming language facilitates the analysis of user inputs and their documentation, and allows for the creation of programs to interact with the physical world. Different models are possible and easy to create, once basic knowledge of electronics and software design is acquired.
Factors that improve outcomes after recurrence in endometrial cancer

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Introduction: Endometrial cancer has a generally good survival rate, with an overall 5-year survival ranging from 75% to 86%. However, in the case of recurrence, mortality is high and indications for different treatment options and risk parameters are not well defined.

Materials and Methods: Out of a retrospective, representative cohort of patients with endometrial cancer selected from (2004 to 2015) at the University Hospital of Bern, patients with recurrence were analyzed to look for factors for longer survival after the diagnosis of recurrence. Survival analysis using the Kaplan-Meier method, along with a log rank test and Cox regression, served to define risk factors.

Results: Of a total of 256 patients, 45 patients (17.6%) had a recurrence. In the initial diagnosis, 40% of these patients had low FIGO stages (I and II) and 60% had higher FIGO stages (III and IV). Thirty-nine tumors (86.7%) had an endometrioid histology. 16.3% of the patients with recurrence initially had low-risk disease (endometrioid, stage I, LVSI neg, G1-2). Median survival after recurrence was 11 months (range 0-118 months). Almost two-thirds (62%) died due to disease by the time of median follow-up of 14 months (0-118 months). Significant factors to predict good outcome after recurrence occurred are: (a) recurrence detected by routine follow up and not by symptoms (p= 0,021, HR 3,23), (b) recurrence located locoregional versus intraabdominal and distant (p= 0,025, HR 2,65) and (c) initially low grade tumors (G1 and G2) (p=0,002). Neither the initial FIGO stage, nor the histology type, nor the time to recurrence showed to be a significant risk factor for shorter survival. Of the treatments performed after the diagnosis of recurrence (none, operation, radiation, radiochemotherapy, chemotherapy and hormone treatment), radiochemotherapy and operation resulted in the best survival curves. Even corrected for location of recurrence, this finding is significant (p=0,01).

Conclusion: Patients whose cancer is detected during routine control and shows locoregional recurrence have a longer survival. Radiochemotherapy and operative therapy of the recurrence show better outcomes; however, many therapies are multimodal and therefore hard to compare. Surprisingly, from the initial risk parameters at primary diagnosis, only the grading shows a significant influence on survival after recurrence.
Copper intrauterine ball and concurrent super-infected ectopic pregnancy: a case report

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Introduction: The use of intrauterine devices (IUDs) plays a role in the occurrence of ectopic pregnancy (EP). The copper intrauterine ball system (cIUB) has been designed to reduce some of the side-effects due to IUDs, but its evidence-based effectiveness is still to be evaluated.

Material and Methods: We present the case of a 37 year-old patient, consulting our emergency department complaining of a lower abdominal pain and an abnormal uterine bleeding without fever. Her cIUB was placed 8 months earlier. She had no medical history except 2 caesarian sections, a spontaneous vaginal birth and 2 medical abortions. Vital signs were normal; the abdominal and pelvic examinations were unremarkable. The vaginal discharge was physiological. Laboratory was in range, but it disclosed a pregnancy with a BHCG of 13 UI/L. Transvaginal ultrasound revealed an enlarged right ovary with an hemorrhagic corpus luteum (40 mm). There was no sonographic evidence of pregnancy. A subsequent follow-up was organized. A week after, the patient consulted complaining of fever up to 38.5°C, increasing abdominal pain, a PCR of 216 mg/L and a negative BHCG value. The imaging suggested a tubo-ovarian abscess. An antibiotic therapy with ceftriaxone and metronidazole was started, followed by a laparoscopic drainage and a right salpingectomy. The cIUB was removed.

Results: The pathology revealed an acute and chronic suppurative inflammation of the tube and the immunohistochemistry showed necrotic chorionic villi. An Escherichia Coli was detected in the intraabdominal smear, while the cervical bacteriology was negative. The whole scenario matched with a tubal pregnancy spontaneously evolved in a tubal abortion which has been super infected by E. Coli in a patient using a cIUB.

Conclusion: A recent literature review revealed no reported cases of superinfection of an ectopic pregnancy with current cIUB. Patients desiring a cIUB should be clearly advised of these potential risks, which can result in a decrease of fertility, as in our case a tubo-ovarian abscess requiring a unilateral salpingectomy. Nonetheless, the medical team should consider these complications in the differential diagnosis, in order to begin a prompt and correct treatment to possibly avoid the potentially irreversible complications.
Leiomyomatosis peritonealis disseminata after uterine morcellation - a case report

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Introduction: Minimal invasive laparoscopic surgery has many benefits, e.g. shorter length of hospital stay, less blood loss and complications, but the removal of large specimens can be a challenge. An elegant solution was presumably found with intraabdominal power morcellation, but with the risk of spreading malignant tissue fragments in the abdominal cavity, leading to an aggravation of the disease. Professional associations dissuade from using morcellation if a gynecological cancer, e.g. leiomyosarcoma is suspected (1,2) acknowledging that a presurgical diagnosis is not always easy. However there is also a possibility of spreading benign fibroid mass leading to a leiomyomatosis peritonealis disseminata (LPD). The first description of this disease was in 1952 and was later characterized by Taubert et al. in 1965 (3). The pathophysiology is not fully understood but previous morcellation of a uterine tumor can lead to this rare complication(4). Most of the cases remain asymptomatic.

Case Report: 41-year-old 2P patient with Laparoscopic supracervical hysterectomy due to symptomatic uterus myomatosus with intraabdominal power morcellation, 2010. Seven years later incidental finding of multiple abdominal tumorous lesions during the annual check; Diagnostic imaging with ultrasound, CT and MRI: Multiple nodes, inhomogeneous structure, sharply defined, well perfused, malignancy can not be excluded; Punchbiopsy showed a mesenchymal tumor, compatible with leiomyomatous tumor. According to the recommendations of the interdisciplinary Tumorboard Surgery with multiple myoma-excision via longitudinal laparotomy (partial coecumresection, portioexcision, removal of myoma knots from the mesenterium, the abdominal wall and the rectosigmoid junction) was performed. Intraoperativ frozen section: no evidence of malignancy. Definitive histology: cell-rich leiomyoma nodules, the largest 10 cm, consistent with a disseminated intraperitoneal leiomyomatosis; Follow Up: regular gynecological controls, annual imaging with MRI.

Conclusion: Intraabdominal morcellation of fibroid tumors carries risks that have to be balanced against the benefits of minimal invasive surgery. Morcellation with a contained tissue system may reduce, but not eliminate the risk of tumor spread.

Severe maternal disorder following dilatation and curettage in early pregnancy: Amniotic fluid embolism or septic shock?

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Introduction: Amniotic fluid embolism (AFE) causes severe maternal disorder and hence, early diagnosis is vital. The diagnosis of AFE is based on clinical symptoms during labor, delivery and shortly after. These include hemodynamic instability, respiratory insufficiency, coagulopathy and/or coma/seizure. One of the differentials is the septic shock which, in contrast, can be treated by antibiotics. Absence of signs of infection at admission may mislead to the diagnosis of AFE, however, the source of a septic shock may have been a subclinical infection or iatrogenic spreading of bacteria.

Material and Methods/case report: We report on a 32-year-old patient at 13th week of pregnancy admitted to the emergency department with vaginal bleeding, normal vital signs and blood analysis. She was diagnosed an inevitable miscarriage and a curettage was performed. Overnight she suffered from fever, diffuse intravascular coagulopathy (DIC) and hemodynamic instability. Differential diagnoses included an AFE or sepsis. To ensure normal body functions our patient was given noradrenalin, vitamin K, tranexamic acid and cefepim. The blood cultures yielded gram-negative anaerobic bacteria (bacteroides fragilis) as the cause of a severe gram-negative sepsis. Thus antibiotic therapy was changed from cefepim to metronidazole according to the microbiologist’s recommendation. After antibiotic treatment the women fully recovered from the hospital and she was discharged five days after the operation.

Conclusion: The infection rate after surgical abortion is 0.27%. In general fever that occurs within 48 hours after surgical intervention is mainly non-infectious. Literature research showed that 10% of all patients with confirmed AFE had fever. A disseminated intravascular coagulation occurs in 83% of all patients with AFE and in 35% of all septic patients. Likewise acute hypotension is more common among patients with AFE. Summarized such fulminant maternal disorder is more common among patients with AFE. Obviously the possibility of two pathological processes at one time cannot be excluded but research shows that AFE following surgical abortion at less than 16 weeks is unlikely. To our knowledge this is the first case report on a severe AFE-like maternal disorder after a curettage attributed to a gram-negative sepsis.
MATERNAL AND/OR NEWBORN RELATED REASONS FOR A PROLONGED HOSPITALIZATION OF THE MOTHER AFTER BIRTH AT UNIVERSITY HOSPITAL OF ZURICH, CLINIC FOR OBSTETRICS

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Introduction: The length of postpartum stay of a mother and her newborn decreases worldwide. However, sometimes hospitalisation is prolonged due to medical and/or psychological reasons. This practise increases health costs and occupies capacity of an obstetrical department. The aim of this study was to objectively analyse the most frequent causes of a prolonged hospitalization and its necessity. Furthermore, we aimed to estimate financial turnover and calculate the disbursement due to the prolonged hospital stay.

Material and Methods: Prospective analysis of 192 deliveries ≥ 35 weeks of pregnancy was performed during November and December 2017 at the department of obstetrics, University Hospital of Zurich. We examined the length of the stay at the hospital after the spontaneous delivery, vaginal operative delivery and C-Section. A prolonged stay at the hospital after giving birth is defined as ≥ 4 days after vaginal delivery, respectively ≥ 6 days after the C-Section. The reasons of prolonged hospitalization and dependency on delivery mode, gestational age, parity and age were analysed. Descriptive statistics and polynomial multivariate regression was used.

Results: There were 423 deliveries, which resulted in 440 children ≥ 35 weeks of pregnancy. 40% of mothers (n=192), who delivered 199 children, approved the general consent form and were therefore considered in our study. Vaginal delivery was registered in 114 patients (59.4%) and C-Section in 78 patients (40.6 %). Prolonged hospitalization appeared in 6.2% (n=13) of the mothers. In 38.5% (n=5) of cases a prolonged hospital stay occurred due to a newborn related problem. 46.1% (n=6) had a maternal reason. At 15.4% (n=2) of cases there was no objective reason for a prolonged hospital stay. 8 (53.3%) newborns with a prolonged hospitalization were at ≥37 pregnancy weeks and 7 (46.7%) ≤36 pregnancy weeks. Delivery mode showed an influence on prolonged hospital stay: 1 day longer after vaginal delivery, 5 days after vacuum extraction with episiotomy, 2.5 days after C-Section. Higher parity was associated with increased hospital length.

Conclusion: Clinical indication, parity and delivery mode were significantly associated with a prolonged hospitalisation postpartum. Causeless prolongation of hospital stay could be avoided within optimisation of outpatient care. Furthermore, ambulant care in such cases would reduce the unnecessary expenses.
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**Improvement of fetal head circumference measurement at term**

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**Introduction:** Fetal head circumference (HC) is an important factor, which influences estimation of fetal weight and delivery mode. Sonographic estimation of HC shortly before delivery is associated with significant underestimation compared with the postnatal HC due to difficulties to find the right plane, correct measurement of biparietal diameter (BPD) and especially of fronto-occipital diameter (FOD) in case of impacted fetal head. Aim of our study was to analyze the accuracy of sonographic fetal head measurement at term and to find the strategy how to improve it.

**Material and Methods:** In this retrospective study data of 70 pregnancies (37-42 weeks), where fetal biometry was performed by an experienced clinician within 1 week before delivery, was analyzed. Ultrasound pictures were proved in order to include only high quality measurements. Fetal HC was calculated using formula for an ellipse $HC=3\cdot\pi\sqrt{(BPD^2+FOD^2)/2}$, where FOD was calculated using 3 methods: 1) originally measured FOD 2) expected FOD, using fix FOD/BPD relations (1.21 and 1.27), derived from biometry standards 3) expected FOD for measured BPD using regression formula, calculated from biometry standards $FOD = -6.919748 + 1.515329 \times BPD - 0.002741 \times BPD^2$. Systemic error was evaluated using mean percentage error (PE): $(HCE \ (expected \ HC)-HCC \ (calculated \ HC))/HCC \times 100\%$.

**Results:** Direct measurement of BPD and FOD confirmed significant underestimation of HC compared with postnatal HC (PE = -3.60 %, SD=2.61). The larger postnatal HC was, the higher underestimation of HC was found. The lowest PE (0.073 %, SD=3.28) was in the group, where calculated FOD from fix relation (BPD x 1.27) was used. FOD corrections were used as follow: if BPD was <99 mm FOD was calculated according to formula: $BPD \times 1.268557$; if BPD was between 99-103 mm, FOD was calculated according to formula: $BPD \times 1.20641443$; if BPD was more than 103 mm, FOD was calculated according to formula: $-6.919748 + 1.515329 \times BPD - 0.002741 \times BPD^2$. The last method showed the most accurate results (PE -1.03 %, SD=1.37).

**Conclusion:** Fetal HC measurement could be significantly improved using measured BPD and expected FOD as follows : $FOD = BPD \times 1.268557$ if BPD is <99 mm; $FOD = BPD \times 1.20641443$, if BPD is between 99-103 mm; $FOD = -6.919748 + 1.515329 \times BPD - 0.002741 \times BPD^2$, if BPD is more than 103 mm.
Angiogenic profiling of cases with isolated HELLP syndrome

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Introduction: Angiogenic profiling with the use of sFlt-1/PlGF ratio can be helpful to characterize women with clinical or laboratory signs of impending preeclampsia (PE). However, little is known about the angiogenic profile of pregnancies complicated by HELLP (Hemolysis, Elevated Liver enzyme, Low Platelet) syndrome.

Material and Methods: The angiogenetic profile of pregnant women with singleton gestation and isolated PE (group 1), PE associated with HELLP (group 2), and isolated HELLP syndrome (group 3) from 01/2015 to 01/2018, were compared. To overcome gestational age depended angiogenic behavior, cases (group 3) were matched 2:1 with cases from group 1. Matching criteria was gestational age (± 1 week). PE was defined according to the international Society for the Study of Hypertension in Pregnancy (ISSHP) statement 2014, as new-onset or chronic hypertension associated with at least one end-organ damage after 20 weeks. HELLP syndrome is defined according to the Mississippi or Tennessee criteria (in cases associated with PE). The last angiogenic profile before delivery is used for analysis. Parametric, non-parametric and ANOVA tests are used for statistical analysis.

Results: During the observational period 118 women could be included in the study. Of those 61 (51.7%) had isolated PE, 53 (44.9%) HELLP/PE, and 4 (3.4%) an isolated HELLP syndrome. Gestational age at delivery was different between group 3 and the others (group 1 vs. 2 vs. 3: 33±3.7 vs. 33.9±3.7 vs. 38.5±2.0 weeks; p<0.05). Median angiogenic profile was lowest in group 3 (111[37-162]) (group 2: 210[17-1758], and group 1: 139[871-21]; p<0.05) and remained so when matched to group 1 and 2 (111[37-162] vs. 162[21-261] vs. 206.5[72-522], p=NS).

Conclusion: Isolated HELLP syndrome is rare and seems to be a particular entity expressing a different clinical and angiogenic behavior compared to classical PE or PE associated with “HELLP-like” laboratory changes as seen in group 2. Unfortunately, the low number of cases does not allow to draw meaningful conclusions.
Antenatal screening for hemoglobinopathies - an interim analysis

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Background: Hemoglobinopathies are among the most common inherited disorders worldwide. As a result of the migration of people from countries with a high prevalence of hemoglobin disorders, laboratory diagnosis is of growing importance in North-West Europe. Different policies for hemoglobinopathy screening have been adapted in Europe. The aim of the screening is early identification of women with hemoglobinopathies and so improvement of prenatal care.

Methods: Family origin questionnaire was used to screen pregnant women for the risk for hemoglobinopathies in the first trimester. Family origin questionnaire was adopted from the NHS Sickle Cell and Thalassemia Screening Programme in England. According to this questionnaire pregnant women were divided into two groups: women with high risk and women with low risk for hemoglobinopathies. In women with high risk red blood cell indices, iron status and chromatography was conducted. For women identified as carriers, their baby`s father was tested for hemoglobinopathy irrespective of family origin. In the case of a suspicion for alpha thalassemia based on hematological parameters, the molecular analysis was performed.

Results: There were 1175 pregnant women on recruitment. Out of 1175 women, 700 were identified as high risk group. Due to missing data in 32 pregnant women, the analysis was conducted in 668 women. The mean of hemoglobin was 122 ± 12 g/l and the median of ferritin 38 µg/l (4-418 µg/l). There were 89 anemic women (89/668; 13.3%); namely iron deficiency anemia was identified in 60 women (60/668; 8.9%) and anemia of other etiology in 29 women (29/668; 4.3%). There were 171 women with iron deficiency (171/668; 25.6%). The prevalence of hemoglobinopathies was 12.9% (86/668). There were 17 women with sickle cell anemia (6 women with sickle cell disease and 11 with sickle cell trait), 26 with alpha thalassemia, 27 with beta thalassemia, 27 with beta thalassemia, 4 with delta thalassemia, 6 with compound hemoglobinopathy, 3 with hemoglobinopathy E, 1 with hemoglobinopathy D, 1 with hemoglobinopathy C and 1 with hereditary persistence of fetal haemoglobin.

Conclusion: The prevalence of 12.9% in high risk group of pregnant women confirms an increasing significance of screening programme for hemoglobinopathies in Switzerland.
ALTERED UTERINE ARTERY REMODELLING IN WOMEN WITH CHT – A POSSIBLE EXPLANATION WHY ASPIRIN DOES NOT PREVENT PRETERM PREECLAMPSIA

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Abstract: Mean arterial pressure (MAP), uterine artery pulsatility index (UtA PI) and placental growth factor (PlGF) are first trimester markers for preeclampsia (PE). Low dose aspirin (LDA) reduces the risk for PE in pregnancies at risk, but recent studies suggest that it is not effective in women with chronic hypertension (CHT). The aim of this study is to analyse differences in first trimester screening parameters in women with CHT compared to normotensive pregnancies.

Material and Methods: All women with first trimester PE screening between January 2014 and July 2017 with known pregnancy outcome were included. Women with CHT on antihypertensive therapy were excluded. MAP was measured with UEBE Visiomat comfort in a standardised way, UtA-PI was assessed by FMF-certified sonographers and PlGF was analysed on Kryptor from Brahms. Multiples of the median (MoMs) were calculated by Viewpoint. Statistical analyses were performed on Graphpad Version 5.0 for Windows.

Results: 1739 pregnancies were included in the study: 29 women with CHT and 1710 normotensive patients. Between 11 and 14 weeks there is a correlation of MAP (r=-0.06, p=0.009), UtA PI (r=-0.14, p<0.0001) and PlGF (r=0.19, p<0.0001) with gestational age in normotensive women. In these pregnancies an inverse correlation between MAP and UtA PI (r=-0.12, p<0.0001) as well as their MoMs (r=-0.10, p<0.0001) can be found while this is not the case in CHT (r = 0.28, p=ns). As expected, in CHT the median [IQR] MAP-MoM (1.17 [1.10-1.22] vs 1.00 [0.95-1.06], p<0.0001) is significantly higher than in normotensive pregnancies; also the median [IQR] PlGF-MoM is significantly higher (1.23 [0.91-1.58] vs 0.97 [0.76-1.23], p=0.004), while the median [IQR] UtA PI MoM (0.88 [0.71-1.16] vs 0.94 [0.76-1.15], p=ns) is not different (p=0.08).

Discussion: These results demonstrate that in normotensive pregnancies blood pressure is inversely correlated with the UtA resistance, while this is not the case in women with CHT. A possible explanation is that pre-existing altered uterine vessel properties in CHT do not allow adaptive vasodilatation as noted in normotensive women or that with the higher MAP the effect is already exhausted. Therefore also the vasodilatative effect of LDA via inhibition of platelet thromboxane A2 (TXA2) production can no longer be effective.
Iodine is a Regulator of Human Uric Acid Concentration

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Introduction: Hyperuricemia in pregnancy is closely associated with preeclampsia, moreover there is a correlation with uric acid level and fetal/maternal outcome in pregnancies complicated with preeclampsia. Glucose transporter 9 is the major regulator of uric acid homeostasis in humans. While GLUT9 is expressed in two alternative splice variants, GLUT9a and GLUT9b, with different subcellular localizations, no functional differences of the two splice variants are known to date.

Methods: We used the Two electrodes voltage clamp technique on Xenopus laevis oocytes expressing the human GLUT9 isoforms to investigate the function of GLUT9. Molecular docking of uric acid was performed on the published predictive hGLUT9 structure using the Vina AutoDock software. 778 million random combinations were tested resulting in 9 thermodynamically favorable positions of uric acid.

Results: In this study we investigated the function of both GLUT9 isoforms. Functional experiments unveiled that uric acid transport mediated by GLUT9a but not GLUT9b is inhibited by iodide with an IC50 of 35.1±6.7 µM. Modification of the N-terminal domain of GLUT9a strongly affects the Iodide inhibition. Using molecular dynamic studies, we identified two positively charged residues in the N-terminal domain of hGLUT9a which have the potential to bind iodide and therefore explain the observed functional differences.

Conclusion: This novel regulation mechanism of GLUT9 function has not been described before. The N-terminal domain of GLUT9a interacts with small negatively charged ions like iodine, could have clinical implication in hyperuremia-associated diseases, specifically during pregnancies. Indeed, clinical date of woman with preeclampsia complicated pregnancies show a negative correlation of the serum uric acid level and iodine concentration. This mechanism provides novel insights in how the uric acid serum concentration is regulated by iodide and therefore opens potential novel therapeutic strategies for the treatment of preeclampsia.
Maternal and neonatal outcome of reverse breech extraction of an impacted fetal head during caesarean section in advanced stage of labour: a retrospective study

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Introduction: Performing a caesarean section with extraction of a deeply impacted fetal head is technically challenging. It is associated with elevated maternal risks including uterine incision extensions, prolonged operative times, postpartum haemorrhage and neonatal complications such as skull injuries and newborn hypoxia. To lower those risks the reverse breech extraction (RB) of an impacted fetal head during caesarean in advanced stage of labour was established at our hospital in 12/2014. The objective of this study was to identify risks and evaluate selected outcome parameters associated with difficult fetal head extraction and to compare maternal and neonatal outcome parameters between two different extraction methods (head pushing vs. RB). Primary outcome was the incidence of uterine incision extensions, secondary outcomes were selected maternal and neonatal outcome parameters.

Material and Methods: In this retrospective study we examined all women (n=629) at term with a singleton pregnancy in cephalic presentation and with cervical dilatation ≥ 7cm during intrapartum caesarean section (12-2012-12/2016). Baseline criteria and outcomes were compared between groups of uncomplicated and difficult fetal extractions. The latter group was subdivided into deliveries performed by either head pushing (n=82) or RB (n=55). Data was analysed using SPSS with p<0.05.

Results: Difficult fetal head extractions are associated with significant differences in baseline criteria and with elevated risks for mother and child. When performed by RB, significant less uterine incision extensions, shorter operative times and less blood loss were identified. Regarding the neonatal outcome, the present data showed less morbidity after RB without statistical significance.

Conclusion: The RB method is associated with less maternal morbidity than the head pushing method for extraction of a deeply engaged fetus in obstructed labour. A significant reduced rate of uterine incision extensions may be explained by a more gentle delivery method resulting in shorter operative times for repair and less blood loss. No significant differences of neonatal outcomes were evaluated, however data was rare and the junior staff had to first adapt to the new RB extraction. The beneficial maternal-fetal results of performing the RB method indicate that it is a reliable alternative to the standard method and should preferably be used in deeply impacted fetal head extractions during caesarean sections.
Uterine packing with chitosan-covered gauze as treatment of postpartum hemorrhage

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Introduction: Postpartum hemorrhage (PPH) is the most important cause of maternal mortality and mainly caused by uterine atony. Management of PPH includes the administration of uterotonics (oxytocin, misoprostol, sulproston), intrauterine packing (Bakri®Balloon), application of uterine compression sutures, and selective devascularisation by embolisation/ligation with Hysterectomy as the last therapeutic option. Uterine packing with chitosan-covered gauze is an alternative treatment to control PPH. Chitosan is a natural polymer extracted from the shells of shrimp and crabs. When in contact with blood, the gauze forms a gel-like clot without initiating the clotting cascade or generating heat.

Material and Methods: We used CELOX™, a 3 meters long, chitosan-covered gauze. Between March 2016 and February 2018, it was used in 7 patients (4 after cesarean section, 3 after spontaneous delivery). After cesarean section, the uterine cavity was packed with the gauze through the hysterotomy with one end placed transcervically in the vagina. After spontaneous delivery, it was inserted transvaginally. The gauze was removed after 24 hours.

Results: After spontaneous deliveries (3) the cause of PPH was retention of placenta, incomplete placenta, and atony respectively, with persistent bleeding despite uterotonics and curettage. In two cases, insertion of a Bakri®Balloon was attempted, but not successful because of expulsion. After insertion of CELOX™, the bleeding stopped. The cause of PPH after cesarean section (4) was placenta praevia (1), abnormal invasive placenta (2), and uterine atony (1). Manual removal of the placenta, curettage, and administration of uterotonics could not control the bleeding. In three cases where hysterectomy seemed inevitable, the bleeding stopped after insertion of the gauze. In one case, due to failure of transcervical placement of the gauze, we performed immediate re-laparotomy to remove it. Because of persistent bleeding, we ligated both uterine arteries. Due to a very low incidence overall, we could not observe any difference in the number of postpartum hysterectomies before and after introduction of this method.

Conclusion: The use of chitosan-covered gauze can be an effective and cost saving treatment of PPH if other treatments fail. Its placement and removal is easy and does not require special training. We did not encounter any adverse Events.
Sjögren Syndrome and pregnancy

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**Introduction:** The possible negative effect of the different autoimmune diseases on pregnancy may vary according to disease activity, secondary organ impairment, drug exposure as well as direct antibody triggered transplacental damage of the feto-placental unit. Most obstetrical complications are placental mediated such as immunologic miscarriage, insufficiency with fetal growth restriction (FGR), preterm delivery, and direct fetal complications such as neonatal lupus and congenital heart block (CHB). Sjögren syndrome (SS) is often associated with other connective tissue disease (CTD) and typically associated with maternal as well as particular fetal/neonatal complications. The aim of this retrospective study was to summarize our experience with the management of pregnancies affected by SS.

**Material and Methods:** Our database included pregnancies affected by SS from 2010 to 2018. Clinical, laboratory, sonographic, rheumatologic, and neonatology parameters were collected. FGR was defined as abdominal circumference <10th centile with and without abnormal feto-placental Doppler findings with a birthweight <10th centile for gestational age. In case of positive anti-SS-A and anti-SS-B antibodies women had serial fetal echocardiograms.

**Results:** Ten pregnancies from 8 women were included. Six women were positive for SS-A and B antibodies and 4 had additional CTD. All were term deliveries, mainly by cesarean section (60%). 4/10 newborns were FGR (mean birth percentile 9.9%), one suffered from a first degree AV-block at delivery which reversed after betamethasone. A third one showed signs of cardiomyopathy.

**Conclusions:** Pregnancies with SS are at increased risk for adverse fetal and neonatal outcome. A multidisciplinary team consisting of dedicated rheumatologist, obstetricians and neonatologists is imperative not only during pregnancy but also for preconceptional counselling.
A New and Effective Treatment for Cervical Dysplasia

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Background: Cervical Dysplasia is a known and often self-limited reaction to HPV (Human Papilloma Virus). There are two peak ages of high incidence: between 16 and 25 years and between 45 and 55 years. The high incidence of 15% to 30% at the younger age mirrors the first contact with HPV, while a recurrence of HPV activity probably causes the perimenopausal peak. At the younger age over 90% resolve spontaneously. A minority of 2% to 8% develops a cervical dysplasia. The Bethesda System 2014 differentiates between LSIL (Low Squamous Intraepithelial Lesion) and HSIL (High Squamous Intraepithelial Lesion). Today the treatment for LSIL is counselling and follow-up examinations. Women with persistent LSIL Dysplasia or HSIL Dysplasia receive an excisional or ablative treatment. There is an increased risk of preterm births after ablative treatment (OR 1.47) and after excisional treatment (OR 2.19). The risk for early and very early preterm births is also elevated (OR 2.4).

Patients and Method: The data from 217 patients accumulated between January 2005 and December 2017 was retrospectively analysed. Based on the PAP-Smears patients were divided into the LSIL group (n=173) and the HSIL group (n=44). The LSIL group received vaginal ovules containing tinctures of Taxus brevifolia folium and Cupressus sempervirens folium. The HSIL group was initially treated with vaginal ovules containing Imiquimod 4% and tincture of Taxus brevifolia folium. In the case of a regression to LSIL Dysplasia the treatment was adapted accordingly. Neither Dysplasia based on genital atrophy nor Dysplasia of unknown significance (ASC-US and ASC-H) are part of this study.

Results: The study results are compared with the natural history (NH) of LSIL and HSIL Dysplasia. The LSIL group showed 94.1% regression (NH 49%), 2.8% persistence (NH 32%) and 3.1% progression (NH 20%). There were no cases of invasion. The HSIL group showed 88.6% regression (NH 20%), 11.4% persistence (NH 30%) and no invasion (NH 50%).

Conclusion: The long-term results of a new treatment for cervical Dysplasia indicate high regression rates for LSIL Dysplasia and HSIL Dysplasia. Compared with the usual operative treatment there are no lasting harmful side effects.
Improving clinical practice: the European Federation of Colposcopy quality standards in a colposcopy clinic: an update

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Objective: Quality Assurance (QA) is a way of maintaining a high quality of health care services by constantly measuring the outcome of clinical practice. QA is becoming increasingly important in health care. Nevertheless, there are no specific quality requirements for colposcopy and colposcopy-guided treatments in Switzerland and many other European countries. The European Federation of Colposcopy (EFC) conducted a five-round Delphi consultation to define six quality indicators for colposcopic practice. These indicators were slightly adapted at the EFC general meeting in Paris in January 2018.

Study design: We retrospectively evaluated these quality indicators in our colposcopy clinic during the period from January 2015 to December 2017. The six indicators and corresponding targets are (1) documentation of the transformation zone (TZ) type (100%); (2) percentage of cases having a colposcopic examination prior to treatment for abnormal cervical cytology (100%); (3) percentage of conisations (diagnostic or therapeutic biopsies) with cervical intraepithelial neoplasia (CIN) 2+ (≥85%); (4) percentage of excised lesions with clear margins (≥80%); (5) number of colposcopies personally performed each year with low grade/minor changes (≥50); and (6) high-grade/major lesions (≥50).

Results: From January 2015 to December 2017, 249 conisations were performed at our colposcopy clinic. The TZ-type was documented in nearly every colposcopy (99.6%, 248/249). 99.6% (248/249) had a colposcopic examination prior to treatment for abnormal cervical cytology and 87.6% (218/249) of conisations showed CIN 2+ in diagnostic or therapeutic biopsies. 48.2% (120/249) of excised lesions had clear conisation margins, supporting findings that the goal of ≥80% clear margins is difficult to obtain. Each colposcopist at our clinic performed more than 50 colposcopies with low grade/minor changes and high-grade/major lesions per year.

Conclusion: Adopting the quality indicators recommended by the EFC offers the possibility to evaluate the performance of colposcopists and provide a benchmark system to secure performance both nationally and internationally. By applying these quality indicators to our retrospective data, we identified our strengths and weaknesses, which will enable us to make future improvements in the care of our patients.
Oocyte donation in women cured from cancer provide similar live birth rates compared to women without previous history of cancer

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Retrospective cohort study including 172 women cured from cancer, which underwent OD treatment between 2006 and 2015. We describe the reproductive outcomes of their first OD treatment performed at our clinic. The included patients were treated and cured from cancer by one or more of 4 oncological treatments (CT, RT, surgery, bone marrow transplant). All patients started ART after 5 years of follow-up from cancer and with authorization and declaration of cancer-free from their oncologists. All patients were analyzed for common demographic parameters and for reproductive outcomes.

Results: The average age at OD cycle was 37.2±6.2, all patients were of BMI between 18-25. The majority (166; 96.5%) were Caucasians, 2 (1.2%) Asian, and 3 (1.7%) Black; 46 were treated for Hodgkin lymphoma (3 also having thyroid, breast cancer or leukemia), 40 lymphoblastic leukemia, 21 borderline ovary cancer, 20 breast cancer, 15 no Hodgkin lymphoma, 7 colon-rectal cancer, 5 bone cancer (1 with ovarian borderline cancer), 4 thyroid cancer, 4 urinary system cancer, 10 others. The majority of patients (64.5%) were given a mixed therapy: 73.3% QT, 51.2% RT, surgery 41.9%, bone marrow transplant 39%. Time between being disease-free and ART was 10.7 years on average. Iatrogenic menopause affected 104 (60.5%) women. In 147 (85.4%) of the OD cycles, oocytes were fertilized with partner sperm. ET was performed on day 2-3 of embryo development in 160 cases (93%). Single embryo transfer was performed in 30 (17.4%) cycles, 2 embryos were transferred in 141 (82%) cases and 3 embryos were transferred in 1 case (0.6%). Overall, clinical pregnancy rate as 40.1%, ongoing pregnancy rate 31.4%, and live birth rate 29.8%. When comparing patients who received a bone marrow transplant or not, the differences in reproductive outcomes were not statistically significant (clinical pregnancy: 43.6% vs. 39.1%, ongoing pregnancy 33.3% vs. 30.8%, and live birth 30.1% vs. 28.4%; p>0.05). The main limitation of this study is its retrospective design, and the fact that patients were recruited along a period of 10 years.

Conclusion: Live birth rate in women treated and cured of cancer following OD is 29.8%. According to our results, OD treatments in patients cured of cancer provide satisfactory results, with a live birth rate that is comparable to that reported for women that did not suffer from cancer. Physicians should discuss this option with patients cured of cancer in the context of reproductive counseling.
Short-term application of non-selective COX inhibitors pre-ovulation does not affect ovulation and oocyte competence

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**Introduction:** Cyclooxygenase (COX) inhibitors block regulating enzymes (COX I + II) in the prostaglandin synthesis. Non-selective COX inhibitors such as ibuprofen are over-the-counter analgesics used by many women. Selective COX-II inhibitors have been shown to impair female fertility; whereas there is only little data about non-selective COX inhibitors. They postpone ovulation for a few hours and possibly affect oocyte quality. Hence, in general, COX inhibitors have not been recommended for women trying to conceive. The aim of this study was to analyze whether non-selective COX inhibitors such as ibuprofen have negative effects on ovulation and oocyte competence.

**Methods:** Observational, prospectively performed case-control study at the University of Bern, IVF Center from 2014-1016 including women 18 to 42 years of age with regular menstrual cycles who had undergone Natural Cycle IVF (NC-IVF). They did not receive ovarian stimulation to allow natural follicle recruitment and natural follicle selection. Follicular growth was monitored and if a follicle was mature, ovulation was induced by the injection of 5,000 IE human choriogonadotropin (hCG). If the luteinizing hormone (LH) surged (>10 IU/l) at monitoring, women received 400mg ibuprofen every 8 hours until oocyte pick-up (total six tablets within 38 to 48 hours, 1200mg/day) to avoid preterm ovulation (exposed group). Women without LH surge (LH ≤10 IU/l) received no ibuprofen (control group).

**Results:** In total, 111 women were included, of whom 63 women received ibuprofen and 48 did not. Patient characteristics were similar in both groups. The main outcome measures did not differ between the exposed and the control group. The preterm ovulation rate was 20.6% (95% CI 9.2 – 30.6%) vs. 16.7% (4 – 27.2%), p=0.63; oocyte maturity was 95.1% vs. 97.2%, p=0.22; and the fertilization rate was 68% (57.1%-80.9%) vs. 62.5% (49.6 – 77.5%), p=0.065. The implantation rate did not significantly differ: 27.6% (9.5% – 43.8%) vs. 14.3% (5.2% – 29.3%), p=0.34.

**Conclusion:** Because preterm ovulation rate and parameters of oocyte competence were not negatively affected by the intake of ibuprofen, short-term use of non-selective COX inhibitors seems to be safe for women trying to conceive naturally.
Implementation of breast cancer risk assessment to improve clinical care of patients with benign breast disease

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**Introduction:** Early detection through appropriate mammographic screening in non-selected cohorts can decrease mortality associated with breast cancer. So far no systematic attempts to stratify women according to their individual risk for breast cancer have been adopted in routine care. Currently the potential impact of breast cancer risk estimation on counselling, further screening and treatment recommendations needs to be further delineated.

**Material and Methods:** In order to develop risk-stratified screening approaches for patients with benign breast conditions referred to a specialized university based breast care centre we calculated 10 year and lifetime breast cancer risk using the adapted Tyrer-Cuzick Model taking into account mammographic breast density and family history.

**Results:** Within the pilot phase of the study covering December 2017 and January 2018 sixty-five women received a sonographic breast examination due to benign breast condition. Based on family history 41 of our patients were stratified as low risk, 9 as medium risk and 6 as high risk. According to the IBIS calculation in total 11 women from the low risk group were subsequently categorized as medium and high risk (10 and 1 patient respectively). From the original medium risk group 4 patients according to IBIS should be considered to be at high risk for developing breast cancer. On the other hand assessment of lifetime risk with IBIS allowed us to recategorize patients from high risk to medium and low risk (2 and 1 respectively) and from medium risk to low risk (3 patients). Updated results of a six months period will be presented.

**Conclusion:** We believe that individual breast cancer risk estimation using appropriate models could have major impact on further counselling and screening. More precise risk estimation could also offer some psychosocial relief to those few patients recategorized as low risk.
Effect of CIMicifuga racemosa on metabolic parameters in women with menopausal symptoms – a retrospective cohort study (CIMBOLIC)

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Introduction: Body weight increases during the menopausal transition often accompanied by adverse changes in metabolic parameters on which menopausal hormone therapy (MHT) has a positive impact. Rodent studies with Cimicifuga racemosa (CR) (Ze450, CR extract) also indicate a beneficial effect. The aim of this retrospective study was to compare the impact of Ze450 to MHT on body weight and metabolic parameters in symptomatic menopausal women.

Material and Methods: Monocenter retrospective cohort study. Women above age 40 with first consultation between 2009-2016 were screened. Women treated with either MHT or CR treatment and having at least one follow-up consultation were included into the final analysis. Endpoints were body weight, metabolic serum parameters (lipids, glucose, insulin, HOMA-IR) and menopausal symptoms (Menopause Rating Scale (MRS)-II). Cantonal ethic committee No 2016-01179. Statistical analysis was performed using uni-/multivariate linear mixed-effects regression assuming a linear effect of time.

Results: 769 women were screened, 174 women were eligible for analysis (CR: n=32, MHT: n=142). Baseline characteristics (age, BMI, fasting lipid profile, fasting glucose, insulin, HOMA-IR, blood pressure, serum hormones) did not differ between groups. However, reproductive stage differed significantly with more CR (83%) than MHT (55%) treated women being postmenopausal (p=0.038) while total MRS-II score did not differ between groups. Median follow-up time was 12 months. In both groups, mean change per year was not significant for body weight and serum lipids, glucose, insulin and HOMA-IR. With MHT, total MRS-II significantly improved (-0.99 [95% CI -1.42, -0.55] per year, p<0.0001) as well as the vegetative (-0.24 [95% CI -0.45, -0.03], p=0.022), psychological (-0.48 [95% CI -0.71, -0.25], p<0.0001) and urogenital (-0.28 [95% CI -0.45, -0.11], p=0.001) MRS-II subscores. With CR treatment, the vegetative and the urogenital MRS-II subscores significantly improved (-0.81 [95% CI -1.57, -0.04], p=0.039 and -0.64 [95% CI -1.26, -0.01], p=0.045). Total MRS-II had the same trend (-1.43 [95% CI -3.16, 0.30], p=0.11). Intergroup comparisons did not reveal significant differences for any endpoint or when adjusting for confounders.

Conclusion: In contrast to untreated menopausal women, body weight and metabolic parameters did not change in menopausal women treated with either MHT or CR. Both, MHT and CR significantly improved menopausal symptoms.
“Treatment of symptomatic Pelvic Organ Prolapse (POP) in Uganda: an increasing global reproductive health problem” - A collaboration between Switzerland and Uganda; an observational study over 6 years

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Introduction: POP is a benign female reproductive health disease and a key issue in the sexual health priorities at global level. It is a growing global community health problem affecting women in the developed and increasingly also in the developing world. If symptomatic, POP reduces quality of life, interferes with daily activities and in poor countries also with household economy; the negative impact on daily life, often accompanied by social stigmatization, is obvious. In October 2012 the first Fistula Gynecology-Camp with Swiss and Ugandan participants took place at the Bwindi Community Hospital (BCH), because obstetric fistulas have been the main Pelvic floor Disease in the developing world. Up to now, 2017, one camp, offering treatment free of charges, could be organized each year. During the recruitment phases an increasing number of patients with prolapse or untreated 3rd and 4th degree perineal tears, answered the call. We summarize our clinical experiences.

Material and Methods: Patients are recruited during regular consultation time at the BCH; 4 to 6 weeks prior to the camp also by radio announcements, by information at church, by mouth to mouth propaganda and since 2016 by WhatsApp. Patient data were compiled from the patients' records and the daily operation programs in each camp. Descriptive data were summarized and analysed.

Results: During the six camps a total of 100 patients with 3 main diagnoses (Obstetric fistula/3rd or 4th degree perineal repair/prolapse) underwent surgery: 7 (2/2/3) in 2012, 13 (4/3/6) in 2013, 19 (11/4/4) in 2014, 18 (7/7/4) in 2015, 24 (9/3/12) in 2016 and 19 (3/3/13) in 2017. The age of all patients (100) ranged from 20 to 82 years. Patients with perineal tears were the youngest, mean age 37 (10), followed by the fistula patients, mean age 39 (17) and the prolapse patients, mean age 51 (15). Most surgeries were in spinal anesthesia.

Conclusion: The incidence and prevalence of POP in Uganda are not known and most probably underestimated. Recent numbers from Ethiopia, a comparable developing country, show a prevalence for symptomatic prolapse of 100:10’000 compared to fistula prevalence of 6:10’000 (Ballard et al, 2016). Our experiences show the importance of POP treatment not only in high income but also in low income countries. Ideal surgical treatment options need to be evaluated. They should be easy to teach and learn and cost-efficient for institutions and patients.
An online decision aid for young female cancer patients regarding fertility preservation: first results of a randomized controlled trial


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**Introduction:** Female cancer patients may be confronted with impaired fertility due to cancer treatment. Nowadays, several options to preserve fertility are available. However, having to decide whether or not to opt for fertility preservation (FP), within the short time frame after cancer diagnosis and before treatment start is challenging. Various studies have shown that there is a high decisional conflict (DC) amongst these women and support is highly in demand. According to previous research, decision aids (DA) may be a helpful support in decision-making.

**Material & Methods:** The online DA was developed by an interdisciplinary team of reproductive specialists, gynaecologists and psychologists. The study is a randomized-controlled trial including 51 female cancer patients, who were referred to one of the 8 participating fertility centres in Switzerland and Germany. Recruitment was on-going from July 2016 to December 2017. Participants were either assigned to the control group (counselling only) or to the intervention group (counselling and additional use of the online DA immediately after counselling). They were asked to complete an online questionnaire at three time points: right after counselling respectively after the use of the DA (T1); one month (T2) and 12 months (T3) later. The survey comprised questions about fertility-related knowledge, decisional conflict, decisional regret, attitude towards FP, willingness to undergo FP and sociodemographic data.

**Results:** First analyses of the Decisional Conflict Scale show a statistically significant difference between the intervention and control group regarding DC at T1 (p=0.008). Women, who used the DA in addition to counselling, showed a significantly lower total score on the Decision Conflict Scale (M=23.95, SD=13.48), compared to those in the control group (M=36.11, SD=17.26). The mean score of three out of the four subscales of the Decisional Conflict Scale were also significantly lower for the intervention group compared with the control group.

**Conclusion:** This study contributes to extending the range of nowadays available DA’s about FP, as it is to our knowledge the first randomized controlled trial evaluating a DA covering several cancer types. Furthermore, it is the first and only additional support tool for German-speaking cancer patients regarding FP. The DA seems to serve as a helpful complement of the decision-making process for patients and professionals alike.
Cryopreservation of GV-, M I- and M II- oocytes in addition to ovarian tissue freezing - an additional option for fertility preservation?

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Introduction: Advances in anticancer treatment are increasing survival rates of young patients in their reproductive period. However, as a result of chemotherapy, the incidence of premature ovarian failure is rising. To preserve fertility, cryopreservation of embryos, oocytes and ovarian cortical tissue, containing primordial follicles, are viable options. In women with hormone dependent cancers an ovarian stimulation is not advisable. Even a retrieval of immature oocytes from the ovaries requires some days of ovarian stimulation. At our clinic we tested whether indirectly obtaining oocytes through preparation of laparoscopically removed ovarian cortical stripes is feasible.

Material and Methods: We analyzed the data of all patients undergoing cryopreservation of ovarian cortical tissue during 2015-2017 at the clinic for reproductive medicine and endocrinology at Lucerne cantonal hospital.

Results: From 2015-2017 ovarian tissue freezing was performed in 15 patients for fertility preservation prior to chemotherapy. The most frequent types of cancer were breast cancer (9 patients) and Hodgkin lymphoma (2 patients). Mean age of the patients was 29.4 years. Cryopreservation of germinal vesicle stage (GV)-, Metaphase I- and Metaphase II - oocytes could be performed in 12 of 15 patients. In two patients all three types of oocytes could be isolated, in three patients GV and M II- oocytes, in two patients GV- and M II - oocytes and in 5 patients only GV-oocytes.

Conclusion: Removal of oocytes from ovarian cortical stripes is a feasible additional strategy for fertility preservation. It can be used in women who cannot undergo hormone stimulation and who are at risk of tumor reintroduction as a result of autografting of ovarian tissue. New protocols for in-vitro maturation and a very recent publication (McLaughlin et al. 2018) on in-vitro growth of primordial follicles derived from cortical tissue will greatly enhance the future applications of this approach.
Video Presentation

$V = \text{Video Presentation}$
Vaginal cuff closure with two layer continuous running sutures during laparoscopic hysterectomy

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Introduction: When performing a laparoscopic hysterectomy (LAH), an important issue is the quality of the closure of the vaginal vault, as one of the concerns is the development of a later vaginal cuff fascia dehiscence (VCFD) or an enterocele after many years. There are different ways of closing the vaginal cuff, single versus double layer, interrupted versus running sutures.

Material and Methods: This video shows the technique and the important steps of the closure of the vaginal cuff by means of two layer continuous running sutures. Good visualization and anatomic preparation of the vesicocervical fascia in the region between bladder, ureter and uterine vessels is important, the bladder being filled with a small amount of liquid. Unidirectional barbed monofilament sutures are used. The first running suture (3-0) closes the vaginal skin, at the lateral edges good bites should be taken in order to minimize the postoperative vaginal bleedings at three weeks. The second running suture (2-0) adapts the vesicocervical fascia dorsally with the connective supporting tissue including the uterosacral ligaments and the peritoneum, thus covering the first suture. The final result is shown with and without intraabdominal pressure as well as is shown the vaginal view of the suture.

Results: A total of 1549 LAHs have been performed up to November 9th, 2017, a first group of 1018 cases with single layer continuous running sutures (up to March 4th, 2013), and in the last 531 cases the two layer continuous running sutures have been applied. In the first group there has been one vaginal cuff fascia dehiscence (VCFD) (0.098%), whereas in the second group there was no case of VCFD (0.0%).

Conclusion: The closing of the vaginal vault by means of two layer continuous running sutures gives very good and reliable results with a good elevation of the central part of the pelvic floor. In cases with a central fascia defect, i.e. descensus uteri grade I or II and only small cystocele or rectocele, a laparoscopic hysterectomy done in this way may be the therapy of choice. The suturing time is a little bit longer than in a one layer technique, but it is worth spending this time for the patient.
Diaphragmatic endometriosis: multidisciplinary treatment

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Introduction: Endometriosis is a frequent and complex pathology with various clinical presentations. Selected cases need a multidisciplinary approach, specially given the risk of surgical resection for infiltrative disease.

Material and Methods: Throughout this video, we demonstrate safe and complete surgical treatment of a patient suffering severe pelvic and diaphragmatic endometriosis. She complained menstrual dyspnea and shoulder pain persisting despite hormonal treatment, associated with persistent dyspareunia and pelvic pain despite a previous laparoscopic surgery.

Results: Multidisciplinary case discussion in the Endometriosis Center was planned preoperatory. Patient positioning and anesthesia were adapted to the special requirements of the surgical technique and the expected risks. The operation consisted of the exposure of the right diaphragma by mobilisation of the liver, CO2 laser vaporisation of left and right diaphragmatic lesions, nerve-sparing excision of infiltrating nodes and pleural exploration. Finally, we performed an excision of pelvic endometriosis.

Conclusion: Participation of three surgical teams to this procedure allowed a safe and complete laparoscopic treatment with resolution of pain symptoms at 1 and 3 months follow-up.
Successful treatment of ectopic pregnancy in the cesarean scar with the rendez-vous-technique after conservative treatment with cook-catheter and methotrexate

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Introduction: Cesarean scar defects are a frequent complications of cesarean delivery with a prevalence of 56-84%. Cesarean scar pregnancy (CSP) occurs in the fibrous scar and is a rare occurrence of ectopic pregnancy. The diagnosis and treatment is challenging since it can be associated with serious maternal complications.

Method: We present the case of an asymptomatic 33 year-old woman, G3 P1 at 6+0 weeks of gestation. Her past obstetrical history was significant for one Cesarean section and one curettage. Transvaginal ultrasound demonstrated a viable pregnancy in the cesarean scar. The serum bHCG was 5858 IU/l. A conservative approach was chosen to terminate the pregnancy and prevent severe hemorrhage by inserting an intrauterine Cook catheter. Under ultrasound observation the lower balloon was placed with direct pressure on the gestational sac and filled with 20ml until the gestational sac was flattened and showed a non-viable pregnancy. After 3 days the cook catheter was removed. Ultrasound showed a residual echogenic mass with minimal perfusion and the serum bHCG was 3362IU/l. In the following a single dose of methotrexate was administered due to rising bHCG levels. 87 days after the intervention the bHCG levels were undetectable but the mass continued to show perfusion. As the patient presented with low level vaginal bleeding over two weeks with a decline in hemoglobin we decided to perform minimally invasive surgery combining a laparoscopic and hysteroscopic approach.

Results: Operative findings revealed a mass in the cesarean scar which was resected hysteroscopically under laparoscopic guidance. After laparoscopic dissection of the bladder from the lower uterine segment, the scar was excised over a length of 3cm under hysteroscopic guidance and closure was performed with 4 interrupted stitches. The operation was performed without complications. Histological examination showed decidual tissue and the uterine scar demonstrated necrosis and chronic inflammation.

Conclusion: This case is an example of CSP which was managed successfully without severe maternal complications. Treatment options include expectative management, systemic or local administration of drugs until hysterectomy. Best management however, is unknown. The major benefit of our approach is the ability to localize and excise the scar pregnancy through the magnified view provided by hysteroscopy while at the same time excising an refreshing the prior scar by laparoscopy.
A novel needle holder model for needle positioning

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Introduction: Laparoscopic suturing can be difficult to learn. Correct needle positioning in the needle holder is one task that often takes a substantial amount of time to master. A novel needle holder model is now available which aims to facilitate needle positioning. A short video is chosen to examine the properties of this new instrument.

Material and Methods: The needle holder model was bought from the instrument company. A pelvi-trainer with suturing models is used to demonstrate the possibilities. Intraoperative video during gynecological endoscopic surgery was acquired to show its application. A modified version of the needle holder is compared to the commercial model.

Results: This new needle holder model facilitates needle positions before and even during suturing. The commercial model is available and approved to be used in patients. Usability of the official commercial model can be difficult. A different needle holder model where needle positioning is similar, but with mechanic and ergonomic differences seems to be more intuitive in its usage. This short video demonstrates the mechanics of both needle holders in vitro and in vivo.

Conclusion: Needle positioning is a difficult task in laparoscopic suturing. Since late 2017 a new needle holder model is available, which can make needle positioning easier. Correct needle positioning in regular needle holders is an elemental skill that needs to be mastered. New instruments could facilitate this task, resulting in reduced difficulties in suturing, and eventually shorter duration of surgery. The mechanical construction should be subject to further modifications to enhance surgeon ergonomics.
Laparoscopic findings of the liver – a tutorial for the attentive caregiver

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**Introduction:** During laparoscopic surgery it is desirable to achieve a holistic view of the abdominal cavity instead of focusing on the (sub-)specialty’s characteristic organs. All viscera should be viewed and photos taken, especially in case any special finding appears. In gynecologic surgery this is particularly true for the upper abdomen with an emphasis on the diaphragm since ovarian cancer lesions or endometriosis might be missed if no systematic diagnostic laparoscopy is performed. Frequently, variants and abnormal findings of the liver, stomach and intestine occur.

**Material and Methods:** During laparoscopic surgeries we collected video sequences of liver findings. The video material was discussed and interpreted with a hepatologist and linked with the patient’s histories.

**Results:** Our work resulted in a tutorial video of liver findings and their interpretation.

**Conclusion:** During laparoscopic surgery we should not neglect the opportunity to inspect the whole abdominal cavity. If we only focus on obvious pathologies in the pelvis there is a risk of missing peculiarities in other abdominal areas. Our tutorial video aims at describing liver findings any surgeon could possibly be confronted with during surgery. Surgeons carrying out laparoscopic operations should be familiar with such findings to allow for intra-operative decision-making.
Transcervical intrauterine sonography-guided radiofrequency ablation of symptomatic uterine fibroids

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Introduction: Uterine fibroids are highly prevalent. Heavy menstrual bleeding and pelvic pressure or pain are common symptoms impairing the quality of life of affected women. Various treatments exist, all of them with some limitations such as being invasive, requiring general anesthesia or not being suitable for treatment of submucous and intramural fibroids at the same time. We present a new treatment option for symptomatic fibroids with a transcervically inserted device for sonography-guided radiofrequency ablation.

Methods: Videodemonstration of a new technique

Results: The presented System combines intrauterine ultrasound with radiofrequency ablation in a single handpiece allowing a targeted fibroid ablation under continuous sonographic visualization. After dilation of the cervical canal up to Hegar 9 the treatment device is inserted into the uterine cavity. After checking the exact location of the myoma, a trocar tipped introducer is inserted into the center of the fibroid and needle electrodes are advanced and controlled radiofrequent energy is applied. The sonography screen displays a real-time graphic overlay on the live ultrasound image. Two zones are visible on the screen during the radiofrequency ablation:

a) The ablation zone: a two-dimensional representation of the average region of tissue ablation for the selected ablation size.

b) The thermal Safety Border shows the distance at which tissue is safe from the potential of thermal damage.

Conclusion: Transcervical intrauterine sonography-guided radiofrequency ablation of fibroids is a promising new treatment option for affected women particularly when the predominant symptom is heavy menstrual bleeding.
Burch colposuspension for recurrent stress urinary incontinence after tension-free vaginal tape surgery

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Introduction: Stress urinary incontinence affects 4 to 35 percent of women (1). It is defined by the International Continence Society as a complaint of involuntary loss of urine on effort or physical exertion including sporting activities, sneezing or coughing (2). Conservative approaches like pelvic floor muscle training, and incontinence pessaries, are first proposed. For women who decline or have insufficient improvement following conservative therapy, there are a variety of surgical treatments. Midurethral slings, introduced in the 1990s, have a shorter operative duration and a lower risk of certain postoperative complications than other surgical approaches (1). They are recommended as first-line treatments. Majority of women are adequately treated with this procedure, but up to 15 percent of women require further treatment for persistent or recurrent stress urinary incontinence (3). For these patients, or for those who don't desire repair using vaginal mesh, laparoscopic Burch colposuspension is an alternative. We believe this surgical technique is crucial to know for optimal stress urinary incontinence surgical care, thus urogynaecological surgeons should be trained for.

Material & Method: This didactic video explains the surgical steps of Burch colposuspension in women previously treated using tension-free vaginal tape (TVT) technique. In the Burch procedure, the endopelvic fascia adjacent to the mid and proximal urethra at the bladder neck is attached to the pectineal (Cooper's) ligaments on the posterior surface of the superior pubic ramus.

Results: We present a case of a 54-year-old patient who complained about stress urinary incontinence only partially improved by a midurethral sling (TVT). The TVT was indicated for a stage II stress urinary incontinence due to intrinsic urethral insufficiency. Eight months later, she consults for persistent urine loss when coughing. The urodynamic evaluation shows a urethral hypermobility associated with valsava incontinency resolved with the Ulmsten and Bonney maneuver.

Conclusion: The Burch colposuspension has rarely been performed since the onset of midurethral slings. Nonetheless, this technique is effective when stress urinary incontinence persists after.
Poster Exhibition

\( P = \text{Poster Exhibition} \)
Fetal and newborn head circumference measurements
how accurate are we?

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Introduction: Fetal head circumference (HC) influences delivery mode. To use it as a predictor for obstructed delivery it needs to be measured correctly sonographically as well as postpartum. However, sonographically measured fetal HC is underestimated in comparison to postnatal HC and postpartum measurements appear to change within few days after delivery. Surprisingly, although HC is an important parameter for prediction of obstructed delivery, only one study was performed in order to analyze differences in postpartum measurements, with a conclusion that newborns HC shrinks during first week after delivery. Aim of this study was therefore to assess the accuracy of newborn HC measurements and compare these to US measurements.

Material and Methods: In this prospective study, 51 patients were included who were planned for cesarean section (CS) with gestational age ≥ 37+0 weeks and fetus in cephalic presentation. Fetal HC was measured sonographically 1 day prior to CS, by doctor in charge (US). Newborns HC was measured twice on the day of delivery, routinely by midwife in charge (D0_M) and by Master student (D0_F) and once 48 Hours after delivery by Master student (D2). Inter observer variability, US vs D0_M, US vs D0_F, US vs D2 and D0_F vs D2 were analyzed using t-Test and Bland-Altman plot. Systemic error (SE) of the US measurement was calculated according to this formula: ((US - D0)/D0)*100). SE has been calculated once using HC value of the newborn on day 0 (mean value of D0_M and D0_F) and once using D2 value.

Results: Inter observer variability of newborn head measurements was insignificant (p>0.05). Ultrasound and newborn HC values however showed significant differences: US vs D0_M(p<0.001), US vs D0_F(p<0.001), US vs D2(p<0.05), and D0_F vs D2(p<0.05). Limits of agreement (LOA) for US vs D0_M according to Bland-Altman was between -3.32 and 0.79 cm, for US vs D0_F between -3.49 and 0.66 cm, for US vs D2 between -3.00 and 1.49 cm and for D0_F vs D2 between -0.42 and 1.74 cm.

Conclusion: Newborn HC measurements made on day of delivery are not influenced by inter observer variability. US measurements underestimate fetal HC compared to measurements made on day of delivery. Although newborn HC measurements made two days after delivery tend to be closer to the US measurements, the difference stays significant. Sonographic fetal head measurement at the end of pregnancy should be improved to use it for prediction of obstructed delivery.
Success rate and long-term effects of embolization of pelvic arteries for the treatment of postpartum hemorrhage

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Introduction: Postpartum hemorrhage (PPH) is the leading cause of peripartum maternal mortality and accounts for 25% of all maternal deaths worldwide. The most common causes of PPH are uterine atony, retained placenta or morbidly adherent placenta. Treatment of PPH depends on the etiology and includes administration of uterotonic drugs and curettage if retained placental tissue is suspected. In severe refractory PPH, hysterectomy has been the ultima ratio for many decades. In recent years the interventional embolization of the pelvic arteries (PAE) has become a valid alternative. Besides being a highly effective minimal-invasive method, PAE avoids hysterectomy with consecutively reduced morbidity and mortality. However, data concerning the long-term effects of PAE on fertility and menstrual cycle is scarce.

Methods: In this single-center study all women who underwent a PEA between January 2012 and 2016 in the University Hospital of Zürich were included. Descriptive characteristics of the study population, clinical course during PPH, and effectiveness of PAE -defined as cessation of bleeding- were analyzed retrospectively. Furthermore, all the patients were contacted and asked to complete a questionnaire to obtain a long-term follow up regarding pattern of menstruation and fertility after embolization.

Results: Twenty patients with PAE were included. Success rate of PAE was reported in 95% of the patients, only one patient underwent a further PAE. No patient needed a hysterectomy or any other surgical intervention. The reason for PPH differed according to the mode of delivery. After spontaneous delivery, the main reason of PPH was retained placenta (83%), while after cesarean section, this was uterine atony in most cases (66%). Twelve patients answered the follow-up questionnaire. Most of them reported a regular pattern of menstruation with shorter duration (72%) and lower or similar intensity (62%) than before PAE. Dysmenorrhea decreased in 90% of the patients. Four patients were planning a new pregnancy, of those only one had become pregnant without assisted reproductive technology in the previous pregnancy. This patient became pregnant spontaneously as well after PAE.

Discussion: Our study confirms the effectiveness of PAE in PPH. This additional method obviates severe surgical interventions and thus reduces morbidity. The success of PAE seems to not depend on the primary cause of PPH. Furthermore, PAE might increase patient’s quality of life due to short convalescence and no side effects on menstrual pattern in the long-term follow up. Our results may encourage the promptly decision to perform PAE in the management of severe PPH.
Surgical skills training for cesarean section using inexpensive material obtainable in every supermarket

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Introduction: Surgical skills training improves performance and reduces errors. Medical students and junior doctors should be encouraged to train before performing their first operations themselves. Skills training often depends on special, expensive models which are not readily available.

Material and Methods: We describe an easy to build, low-cost method constructed out of material obtainable in every supermarket and used in every kitchen to improve surgical skills by simulation-based training. Operative techniques involving some of the most crucial steps in cesarean section such as suturing of the uterotomy and fascia can be trained alone (focusing on technique) as well as with an assistant (second focus on communication skills and skills of the assistant).

Results: It is possible to build an inexpensive model to use for everyday surgical skills training concerning motor skills for cesarean sections. The surgical steps and techniques used in real surgery can be trained on this model, adjusted to speed and skill level of the trainees. A slow, educational approach with 2 surgeons simulating surgeon and assistant is possible, increasing surgical and communication skills while protecting patients from unnecessary risks.

Conclusion: This easy to build and inexpensive model will provide simulation-based training to junior obstetricians to make and correct mistakes in a safe and controlled learning environment without compromising patient safety.
Contributing factors to postmastectomy pain

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Introduction: Post mastectomy pain (PMP) is a potential long term complications after mastectomy. The aim of our study was to delineate if dissection of the axilla or radiation are contributing factors for PMP.

Patients and Methods: The study was approved by the local ethical committee. All patients were informed about the study and signed an informed consent. We included 173 female patients who had undergone either a uni- (152 patients) or bilateral (21 patients) mastectomy between January 2010 and December 2015 at the department of women at the University Hospital of Basel. All patients received a questionnaire. Statistical comparisons between study groups were done using Mann-Whitney U-tests or Fisher’s exact tests as appropriate.

Results: The completed questionnaire was returned by 69 (39.9%) patients. 20 Patients (29%) reported PMP and 49 (71%) no pain (NP). The number of patients reporting PMP among 31-receiving axillary surgery was 12 (30%) whereas out of 29 who underwent sentinel node biopsy 8 (27%) and out of 9 who received both procedures 3 (33%) reported PMP. The comparison of these groups did not indicate a significant difference (p=1.0). Among 69 patients who did or did not opt for breast reconstruction 4 out of 12 (33%), and 16 out of 57 (28%) experienced PMP, without a significant difference (p=0.73). Among 13 and 54 patients who received or did not receive postoperative irradiation 2 (15%) and 18 (33%) reported PMP, without a significant difference (p=0.299).

Conclusion: Within this retrospective cohort we could not identify surgical procedures or postoperative irradiation as a major contributing factor to PMP. However, the number of patients in this cohort is too small to draw firm conclusions.
Cu-IUB: first experiences after introduction

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Introduction: Since 2016, the IUB-MIDI complements the range of IUDs currently available in Switzerland. The manufacturer has made claims that there is less pain and irritation of the endometrium. The results of the few previous studies are controversial. We started inserting IUBs in January 2017 by following our usual guidelines for IUD insertion. In order to elucidate the advantages and possible problems with the new method we wanted to record and analyse our first experiences with this new device.

Material and Methods: For each IUB placement, the following parameters were documented during the insertion of the device and at the first follow-up appointment: indication, complications during insertion, and complaints at the first follow-up. In addition, the complications recorded in the in-patient dossier were collected retrospectively. The analysis is descriptive.

Results: So far, the copper ball was inserted in 20 patients. Especially patients, who want a hormone-free method of contraception opted for the IUB. Thirteen of the patients had previously used either condoms or no contraception at all. Six patients were very dissatisfied with the current hormonal method and wanted a hormone-free contraception. In 3 cases the insertion was associated with problems, such as increased pain twice and circulatory troubles once. 5 patients reported new onset of heavier menstrual flow at the first follow-up visit, whereas another 5 were completely satisfied with the IUB. In 6 patients menorrhagia and in 4 women dysmenorrhea were documented. In one of the cases, a dislocation of the ball was detected at the first follow-up. In another case, it was found that the sonographic control of the IUB was correct at the first follow-up control, but a dislocation was noted at a later date and an unwanted pregnancy in the 5th SSW could be detected.

Discussion: According to our experiences, the insertion of an IUB is as uncomplicated as of other IUDs. Nevertheless, there was a relatively high rate of complications in this small number of cases. To what extent this might have to do with the still limited experience of the doctors placing the device, remains to be investigated. It will certainly be crucial to shape range of indications for this new device even more precisely. In addition, the patients' long-term satisfaction with bleeding pattern and pain needs to be evaluated in order to justify the higher price of the IUB compared to other copper IUDs.
Association of the implementation of obstetrical surveillancetools to birth trauma: a retrospective cohort study

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Lacerations are common in vaginal births. Those can result in immense physical and psychological morbidity. Ongoing effort takes place to reduce birth trauma. We evaluated the association of the implementation of different obstetrical surveillance tools in the labor ward to the incidence and distribution of different types of birth lacerations in nulliparous and multiparous women.

In February 2015, various surveillance tools and evaluation instruments were introduced at the Obstetrics Clinic of the University Hospital Zurich during labor. We retrospectively analyzed nulliparous and multiparous women with singleton term pregnancies in vertex presentation, who gave birth vaginally in our tertiary care center between October 2014 and September 2015. We evaluated three different time intervals (T1=4 months before the implementation of different surveillance tools, T2=0-4 months and T3=5-8 months afterwards). Outcome measures were the incidence and distribution of the different types of birth lacerations. The statistical data analysis was preformed separately for nulliparous and multiparous women by x2-test and ANOVA with SPSS at the significance level of p<0.05.

The baseline characteristics of nulliparous and multiparous women in the 3 time periods as well as the fetal outcome are shown in Tab 1 and Tab. 2. The neonatal outcome remained unchanged over the 3 periods. The incidence of all types of birth trauma non-significantly decreased from 95.52% in nulliparous and 68.53% in multiparous women at T1 to 89.92% and 62.27% at T3, with a decrease of perineal and vulvar/labial lacerations to an increase of vaginal lacerations. The rate of episiotomies and third-/fourth-degree perineal tears remained stable for nulliparous (33% and 3%) and multiparous (10% and 0.4%) women.

The overall incidence of birth lacerations is high, with lacerations predominantly appearing as first- and second-degree perineal tears and vaginal and labial lacerations. The initiation of different obstetrical surveillance and assessment tools is associated with a reduction in the incidence and distribution of birth traumas, probably due to a more careful management by the obstetrical staff. The lacerations shift from the external to the internal compartment. The implementation of such tools might help to improve obstetrical management and laboring women might benefit. However, it is important to realize the effect of monitoring and observation itself in the course of observational studies.
Bryophyllum pinnatum press juice enhances the tocolytic effect of nifedipine on in vitro myometrium contractility

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Preterm labour is the most important determinant of infant morbidity and mortality. Tocolytic therapy has proven to prolong average pregnancy time, but treatment with single, well tolerated tocolytic drugs, such as nifedipine (in off-label use), is not always equally effective in different women. Herbal preparations of Bryophyllum pinnatum have been used as tocolytic agents in anthroposophic medicine and, recently, in conventional settings mainly as an add-on medication. A combination of different drugs might help to achieve a prolongation of pregnancy in more patients. In the present in vitro study, we investigate the effects of B. pinnatum leaf press juice and nifedipine, alone and in combination, on the contractility of human myometrial tissue in vitro.

Myometrial biopsies were collected during elective Caesarean section. In each experiment, four myometrial strips were placed under tension into a myograph chamber, and spontaneous contractions were recorded. After a 30 min period of regular contractions, Krebs solution (control; two strips) or nifedipine (final concentration 9 nM; two strips) was added and contractility was recorded for 30 min. To measure the effects of B. pinnatum alone and of the combination, B. pinnatum press juice (final concentration 0.25% corresponding to 2.5 μg/mL) was then added to all chambers, and contractions were recorded for 30 min. After a washout period, vitality of strips was observed. Area under the curve (AUC) and amplitude of contractions were determined as a measure of the strength of contractions. Results are expressed as percentage of initial value.

Results show that all test substances inhibited myometrium contractility, i.e. they led to significantly lower AUC and to lower amplitude compared to control (in all cases p<0.05). Nifedipine lowered AUC to 71.0 ± 6.45%, and B. pinnatum decreased it to 78.4 ± 6.69%, whereas the combination of B. pinnatum and nifedipine lowered the AUC to 38.3 ± 8.53%. Nifedipine lowered the amplitude to 86.4 ± 8.33% of initial contraction, and B. pinnatum to 91.9 ± 8.13%, while the combination of B. pinnatum and nifedipine lowered the amplitude to 64.6 ± 9.36%. In both cases, the effect of the combination was significantly stronger from those of nifedipine alone (p<0.05).

In conclusion, B. pinnatum and nifedipine, alone or combined, exert inhibitory effects on spontaneous myometrial contractions. A combination of both substances in the clinical practice appears promising.
Increased nuchal translucency and normal karyotype in a foetus with caudal regression syndrome

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Introduction: Increased (>95%) nuchal translucency (NT) may be the cause of an abnormal combined first trimester test. Although most foetuses with an increased NT and normal karyotype present no anomalies, there is a clear relationship with structural (CNS, chest, gastrointestinal, genitourinary and musculoskeletal) anomalies. This is the case of rare conditions such as caudal regression syndrome.

Material and Methods: A 36 years old I gravid nulliparous non-diabetic woman consulted for the combined first trimester test at 12+0 GW. A nuchal translucency of 2.5 mm was measured (>95%) resulting in high risk (1/114) for trisomy 21. A chorionic villous sampling was performed with a normal (46, XX) karyotype. Ultrasound examination performed at 18 weeks demonstrated numerous musculoskeletal malformations (absent lumbar vertebrae, sacral agenesis, fused iliac bones) which led to the diagnosis of caudal regression syndrome. The couple decided for a medical termination of pregnancy. A post mortem X-ray and the autopsy confirmed the diagnosis.

Results/Discussion: CRS is a rare condition with an estimated prevalence between 1/50,000 and 1/100,000 pregnancies. The syndrome may feature different anomalies ranging from isolated lumbar agenesis to a complex of anatomical deformities, involving central nervous system, gastrointestinal tract, genitourinary system and many others. The aetiology is still unknown, but it seems that multiple causes, both genetic and environmental, could interact in producing this phenotype. Notwithstanding the abnormal result of nuchal translucency, in our case the invasive prenatal testing showed a normal karyotype. As recently stated in the “Avis d’experts No52” issued on January the 1st 2018 by the swiss society of gynecology and obstetrics, pregnancies with first trimester ultrasound anomalies and a normal karyotype should be assessed by an expert obstetrician in order to rule out malformations, other than those related to aneuploidies. Once again, ultrasound confirms its importance in the prenatal evaluation of foetuses at high-risk for malformations.

Conclusion: Rare diseases, such as caudal regression syndrome, can be difficult to diagnose even for experienced clinicians. Thorough evaluation and a meticulous ultrasound examination could help in the diagnosis of such conditions, even when other means fail this aim.
Disseminated Tuberculosis causing acute chorioamnionitis. A case report and literature review

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Introduction: Tuberculosis is a widespread disease, with one-fourth of the world’s population being infected. Congenital TB is a very rare condition which may arise through haematogenous spread from an infected placenta. Miliary tuberculosis is a common manifestation of congenital tuberculosis in neonates and shows a high mortality up to 44 percent.

Case report: A primigravida referred with PPROM at 27 2/7 weeks of gestation. The patient had migrated in 2014 from Eritrea through Sudan and Libya to Switzerland. In September 2014, the patient had been diagnosed with TB in Sudan and treated with a quadruple therapy from 09/2014 to 02/2015. On admission, the patient complained of productive cough with yellowish sputum, weight loss of 6kg and night sweat for the past 2 months. She was tachycardic and febrile (39.7°C) with slightly elevated inflammatory markers in the blood. Laboratory findings showed further evidence of anemia and thrombocytosis. Tocolysis, betamethasone administration and antibiotic therapy were started. At 27 5/7 week of gestation electronic fetal monitoring showed a non reassuring fetal heart rate tracing, the patient was febrile again, so a cesarean section was performed because of amniotic infection syndrome. A female newborn of 850g (Apgar score 1/5/10, cord arterial pH 7.32) was delivered. The placenta showed prominent, whitish necrotic adhesions. Histopathologic examination of the placenta confirmed widespread infiltration by mycobacteria. The results of the sputum taken on arrival turned out to be positive for TB. A chest CT showed consolidations and infiltrations of the inferior pulmonary lobes on both sides as well as a hilary lymphadenopathy on the left with possible involvement of the spleen. The mother was consecutively treated for totally 8 months and recovered well. In the newborn, a prophylactic therapy with rifampicin and isoniazid was started. Further evaluations didn’t show any signs of tuberculosis. Therefore, a connatal TB could be ruled out and the prophylactic medication was discontinued. The newborn developed well and was discharged in the age of 9 weeks after an uncomplicated course.

Discussion: In times of increasing migration it’s important to be aware of tuberculosis, specifically in pregnant women. Although very rare, mycobacteria infection should be considered as a differential diagnosis of infectious agents causing acute chorioamnionitis in pregnancy, especially in women from endemic regions.
Case report of a FIGO Stage IB1 cervical cancer in pregnancy

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Introduction: With an estimated incidence of 0,8-1,5 cases per 10000 births, cervical cancer is one of the most common malignancies in pregnancy. It is often detected in early pregnancy, due to routine PAP screening. Treatment is challenging and needs to be reflected in a multidisciplinary team of obstetricians, gynaecologists, oncologists and neonatologists to achieve the best possible outcome. Generally treatment options are not different to those in non-pregnant patients. Besides, the woman’s decision and gestational age have to be considered. In this case report, the patient’s choice to proceed with the pregnancy and to use neoadjuvant chemotherapy was discussed in a multidisciplinary team very carefully.

Case report: A 34 year-old G3 I P was referred at 16 0/7 weeks of gestation with a known CIN III in cytological smear for colposcopic review. Colposcopy findings showed major changes in the dorsal part of the cervix between 5 and 6 o’clock, in the sense of changes in the epithelium and vessel abnormalities. A biopsy revealed invasive squamous cell carcinoma of the cervix uteri beside extensive carcinoma in situ positive for p16. To assess the size of the tumor, a diagnostic conisation and a cerclage (Shirodkar) were performed under indometacin tokolysis at 18 0/7 weeks of gestation. The histology showed a squamous cell carcinoma of the cervix uteri TNM pT1b1G2. Staging was performed with low dose CT-Thorax and was negative for metastases. In accordance with the tumorboard recommendations, a neoadjuvant chemotherapy with carboplatin and paclitaxel was administered. At 34 weeks of gestation, delivery by caesarean section followed by radical hysterectomy with pelvic lymph node dissection was performed.

Discussion: Even if cervical cancer is one of the most common malignancies in pregnancy, available data are sparse. In review of current literature neoadjuvant chemotherapy with carboplatin and paclitaxel seem to be a reliable treatment for patients considering proceeding with their pregnancy.
Green urine: a reason to worry?

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Introduction: Any observed discoloration in urine color is alarming to the patient and physician. Frequently observed discolorations of urine are usually due to differences in urine concentration, metabolic changes or exogenous substances such as medication or food dyes ingestion. We report the case of a 33 year-old gravida I para 0 patient presenting with green discoloration of urine.

Case report: The patient presented with middle lower abdominal and pelvic pain of over 3 weeks after removal of a dislocated intra-uterine device (IUD). Urogynaecological examination, perineal ultrasonography and a cystoscopy investigations were unremarkable except for a gaudy green, poisonous-green coloration of the urine. Extended anamnesis revealed that the patient had been taking an over-the-counter medication for “UTI prevention”. The prophylactic drug contained moss plant extracts, most likely to be the cause of the urine color change. We recommended discontinuation of the drug and shortly afterwards, the urine color turned back to clear and yellowish.

Conclusion: Green urine is an unusual finding. Although alarming, a patient’s history and a significant clinician examination can lead to an early cause recognition and limit unnecessary investigations. The most common cause of green coloration is intake of pharmacological products (e.g. propofol, cimetidine). Usually, stopping the drug leads to rapid normalisation. However, caution is warranted as chronic accumulation of such products can lead to potential toxicity in patients with compromised renal failure.
Myofibroblastoma of the breast with a history of recurrent urogenital angiomyofibroblastoma

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Background: Myofibroblastoma is a rare benign tumor of the mammary stroma, which usually presents itself as a solitary slow growing nodule. Angiomyofibroblastoma is another very rare tumor of the superficial soft tissue like an urethra.

Methods/Results: Here we present a case of a 63-year-old woman with two myofibroblastoma in the left breast, with a medical history of two recurrent urethral angiomyofibroblastoma detected in the interval of seven years (2007 and 2014). No cases as such, or any other tumors known in the patients family. The patient was never treated with hormone replacement therapy and presented no clinical signs of the myofibroblastoma.

Conclusion: This is the first time we report, occurrence of myofibroblastoma in a patient with a history of recurrent angiomyofibroblastoma. There might be external and/or hereditary factors leading to recurrent myofibroblastoma in the breast, as well as angiomyofibroblastoma in the vulvar soft tissue of women.
Hands-on experience with the PraenaTest: Test performance and discussion of special cases

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Introduction: As one of the first genetic laboratories in Switzerland, LMZ Dr. Risch started to implement NIPT (non-invasive prenatal test) with the PraenaTest from LifeCodeXX, Konstanz. Here we summarize how well the PraenaTest performed and discuss special cases.

Material and Methods: The PraenaTest technique is a NIPT based on random massively parallel sequencing with subsequent statistical computation. The cffDNA (cell free fetal DNA) fraction is quantified by a qPCR method, which uses differential methylation patterns between fetal and maternal DNA.

Results: Close to 4000 PraenaTests have been processed by LMZ Dr. Risch so far. Several trisomies 21, 18 and 13 have been detected as well as several types of gonosomal aneuploidies. Among the special cases of the past two years was a patient with renal cancer, several vanishing twins and a case that was influenced by heparin medication.

Conclusion: The PraenaTest is a reliable and accurate NIPT with a very low failure rate. The accurate prediction of relevant numerical aneuploidies and a high detection rate results in a valuable test for the gynecologist and the mother-to-be.
Case report of a septic ovarian vein thrombosis in early third trimester

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Introduction: Septic ovarian vein thrombosis is a rare complication peri- and postpartum. The incidence is about 1: 600 to 1: 2000. We report about a case with a septic ovarian vein thrombosis in the beginning of the third trimester.

Case report: Admission of a 19-year-old patient during the first pregnancy in 33 weeks of gestation with recurrent episodes of fever and abdominal pain since three days and one episode of vomiting. In between she felt good. The pregnancy so far was inconspicuous. No history of medical problems or previous operations. On clinical examination the patient presented a slightly painful and swollen mons pubis without other signs of inflammation. Ultrasound showed normal fetal growth, a posterior placenta and normal amniotic fluid. The patient had no contractions. Laboratory findings indicated leucocytosis of 24.9x10E3/ul and CRP 269mg/l. MRI scan showed a dilated right ovarian vein of 21mm diameter with a thrombosis. On suspicion of a septic pelvic thrombophlebitis therapeutic anticoagulation with low-molecular-weight heparin and intravenous antibiotics with piperacillinum 4.5g every 8 hours was initiated. Two days later the patient presented without fever and the laboratory parameters were normalized. Blood culture showed staphylococcus hominis. Eight days later the patient was discharged from the hospital in good condition. The antibiotics were given for a total of 14 days and the therapeutic anticoagulation was continued. The further course of pregnancy was uneventful. Labour was induced at 40 weeks of gestation. We bridged the low-molecular-weight heparin with intravenous heparin until start of first stage of labour. The patient had a spontaneous delivery of a healthy newborn without any complications and an estimated blood loss of 400ml. Low-molecular-weight heparin therapy was continued one day after birth for a 3 month period. Control MRI scan 3 month after birth showed a resolution of the thrombosis in the ovarian vein.

Conclusion: Septic ovarian vein thrombosis during pregnancy is published very rarely because it occurs mainly postpartum. The diagnosis can be difficult because there are no specific signs and symptoms. Evidence for this septic event is pain, fever, chills and mild gastrointestinal symptoms. In this situation, the diagnosis must be made early by appropriate imaging and the therapy must be initiated immediately.
Ectopic pregnancy after salpingectomy: don’t look the other way

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Introduction: Intersitial pregnancies are situated in the intramural part of the fallopian tube and represent 2.5% of all ectopic pregnancies. A personal history of salpingectomy is an important risk factor in addition to smoking, pelvic inflammatory disease, IVF and previous ectopic pregnancy. Patients might present a long asymptomatic course (until 7 to 12 weeks of amenorrhea) before brutal signs of rupture. The initial rate of bhCG is often higher compared to tubal pregnancy. The early diagnosis is important to avoid severe complications, which can be life-threatening. Interstitial pregnancies account for 20% of all ectopic pregnancy associated deaths.

Material and Method: Throughout this case presentation, we aim to illustrate clinical manifestations and management of a ruptured interstitial pregnancy by a patient at 6 weeks amenorrhea known for a previous ipsilateral salpingectomy.

Results: The 32 year old patient known for a left salpingectomy three years ago for stage III endometriosis complained of generalized abdominal pain since four days predominantly in the left iliac fossa. Blood bhCG raised to 13000 U/l. The ultrasound showed a thin endometrium, free abdominal fluid and blood clots. On a second look, a 4mm sac was to be seen in the left uterine horn. Diagnostic laparoscopy revealed a ruptured left interstitial pregnancy with a 400ml haemoperitoneum and active bleeding from the uterine horn. Pregnancy was extracted with an Endobag and effective hemostasis was achieved by selective bipolar coagulation and Tabotamp placement, avoiding the need for cornual resection. A complementary treatment with methotrexate was prescribed at day 1. Clinical and biological evolution was adequate with bhCG rates of 1000 U/l at day 2 and 100 U/l at day 7. bhCG negativation was advocated.

Conclusion: Interstitial pregnancies become symptomatic later on and more abruptly than tubal pregnancies. A personal history of ipsilateral salpingectomy is a risk factor and bhCG levels are typically high. The management is by surgery in the case of rupture and can be completed by methotrexate.
TRANSPERINEAL DELIVERY AT TERM WITH INTACT VAGINAL ORIFICE

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Introduction: Vaginal deliveries can be complicated by high degree perineal tears: while incidence of obstetrical anal sphincter injuries (OASI) is as high as 10%, only few cases of perineal damage with intact vaginal orifice have been described. Known risk factors are: occipitoposterior presentation, high perineal body, macrosomia and precipitous labour. OASI cause fecal or flatus incontinence in up to 64% of cases; moreover, injuries of the different components of the pelvic floor can cause pelvic organ prolapse. Thus a correct diagnosis and management of birth-induced perineal tears is mandatory.

Case: In 2012 a 27-years old primigravid woman was transferred to our hospital after delivery at home. No relevant medical, surgical or obstetrical history was reported. The midwife present at the delivery described a precipitous birth. At the examination vulva and vaginal introitus were intact and a large perineal tear between vulva and anus with a 4th degree lesion of the sphincter was diagnosed. Surgical repair was performed in the operation theatre under spinal anaesthesia. A median episiotomy was performed to allow exposure of the structures. Perineal reconstruction was performed according to the technique described by Sultan et al: anal mucosa was sutured using PDS 3-0 surgical thread, internal and external anal sphincters were identified and separately reconstructed with a detached end-to-end technique. Vaginal wall presented multiple tears, which were closed by continuous suture with 2-0 Vycril. Perineal muscles were sutured with interrupted stitches of Vycril 2-0. An intradermic suture with Vycril 3-0 completed the reconstruction. At the end of the procedure a rectal examination demonstrated an adequate anal tone. Antibiotic prophylaxis (amoxicillin/clavulanic acid) was started together with a proper analgesic and laxative therapy. The patient was discharged in day 1. In 2014 the same patient was admitted to the hospital for a therapeutic abortion at 24+4 gestational weeks. In 2015 she delivered at home at term and no perineal tears occurred. After 5 years the patient does not refer urine, fecal or flatus incontinence, does not complain dyspareunia and does not show signs of descensus on urogynecological examination.

Conclusions: A proper immediate tear diagnosis and reconstruction is necessary to obtain a good outcome in case of OASI. In case of successful surgery, vaginal birth at subsequent pregnancies may be considered after adequate counselling.
In utero hepatitis B immunization during fetal surgery for myelomeningocele

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Introduction: Outcomes after fetal surgery for myelomeningocele (MMC) compare favorably with those after postnatal repair, particularly in terms of hydrocephalus shunting, mental development, voiding functions, and independent ambulation. In the MOMS-Trial protocol, maternal hepatitis B is a strict exclusion criterion for fetal surgery (risk of vertical transmission). Here, we present the case of a fetus with spina bifida, perfect candidate for in utero repair, residing in a hepatitis B positive, but otherwise healthy, woman.

Case report: A 29 year-old woman was diagnosed with a fetus suffering from a lumbo-sacral MMC. The woman was healthy, except for chronic hepatitis B. Her viral load was very low (< 10 U/ml), indicating a low chance of vertical transmission. Standard evaluation identified mother and fetus as ideal candidates for prenatal MMC-repair. Yet, maternal hepatitis represented an exclusion criterion. Since the mother firmly declined TOP and wanted to pursue fetal surgery, a multidisciplinary expert team, including in particular adult and pediatric infectiologists with special expertise in hepatitis, devised a plan to allow fetal surgery with a transmission risk not bigger than associated with the current routine (caesarean section at term followed by postnatal MMC repair). After extensive non-directive prenatal counselling with particular focus on all pertinent maternal and fetal/neonatal hepatitis issues, a written informed consent was obtained. Maternal antiviral treatment with Tenofovir was initiated 3 weeks before the intervention, fetal MMC-repair was performed at 25+4 weeks with active and passive fetal intramuscular immunization before the fetal part of the operation was commenced. The postoperative course was uneventful and the baby was born by caesarean section at 32 weeks gestation due to intractable premature labor. The now 15 month-old patient does not require ventricuoperitoneal shunt, is mentally normal, demonstrates normal voiding functions and approaches independent walking. Hepatitis serology is negative.

Conclusion: This is the first case worldwide where a creative immunization plan allowed for successful fetal surgery and an equally successful management of a vertical transmission risk for hepatitis B. Generally speaking, eligibility criteria for fetal surgery can be challenged under certain circumstances for the benefit of the patient.
A CASE REPORT: SPONTANOUS HETERO TOPIC PREGNANCY WITH SUCCESSFULL LAPAROSCOPIC RESECTION OF THE ECTOPIC PREGNANCY

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Background: The simultaneous occurrence of an intra- and an extra-uterine pregnancy is very rarely spontaneous.

Case report: A 40-year-old patient, referred with severe left supra pubic pain, tested positive to a urinary pregnancy test at 5 1/7 weeks of gestation. Her medical history revealed an appendectomy, 2 vaginal deliveries, no history of PID, endometriosis or ectopic pregnancy nor any prior attempt at medically assisted procreation. On clinical examination, her abdomen was surgical with provoked pain in the left iliac fossa. The speculum examination showed traces of bleeding. The vaginal touch was painful, especially at mobilization of the uterus and the dual palpation of the left adnexa. The serum BetaHCG was positive at 20030 U/L. Ultrasonography showed a retro-verted uterus with an intrauterine gestational sac of 13 mm and an embryo with positive cardiac activity as well as a suspicious left adnexal mass of 14 x 14 mm containing a gestational and yolk sac. The left and right ovaries were well identified, with a corpus luteum in each. There was little peritoneal fluid in her pelvis. The identification of a viable intrauterine pregnancy concomitant with a left ectopic pregnancy confirmed the diagnosis of a heterotopic pregnancy. The suggested emergency laparoscopy was performed, revealing a left ampulla ectopic pregnancy treated by salpingectomy without complication. The histological report confirmed the diagnosis of a tubal segment with a gestational sac corresponding to 6 gestational weeks. Day 1 post-operative Ultrasound control confirmed the preservation of a vital and evolving intra-uterine pregnancy. This pregnancy is evolving without complication.

Discussion: A heterotopic pregnancy is one with 2 implantation sites. The most common being the coexistence of an intrauterine and an ectopic pregnancy predominantly in the fallopian tubes, in the abdomen, in the cervix, in the ovaries or in the caesarean section scar. Diagnosis may be complicated due to nonspecific symptoms or the misleading coexistence of an intrauterine pregnancy which may hamper further exploration. Early management is the key to the prognosis of the residual intrauterine pregnancy.

Conclusion: The diagnosis of heterotopic pregnancy is difficult in spontaneous pregnancy. Laparoscopic surgical treatment remains the gold standard in stable patients, but medical treatment with Potassium Chlorid injection seems to be an alternative to be further explored in the future.
**Fulminant Preeclampsia and concomittant ruptured aortic aneurysm in a pregnant women with Takayasu’s disease**

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**Introduction:** Takayasu’s disease is a chronic inflammatory arteritis of unknown etiology affecting preferentially women in child-bearing age and characterized by the involvement of the large vessels. Vascular inflammation progressively resulting in a thickening of the vessel wall lead to fibrosis, stenosis, thrombus formation and in some cases to the development of aneurysms. Pregnancy does not interfere with the progression of the disease but high blood pressure can be associated with adverse pregnancy outcomes.

**Case report:** A 30-year-old, gravida 2 para 2 presented with 33 3/7 weeks of gestation complaining of persistent high blood pressure up to 201/77 mmHg despite her antihypertensive medication and severe headache. She was known for Takayasu’s disease, diagnosed in 2015. Her obstetric history showed a caesarian section for pre-eclampsia and intrauterine growth restriction at 36 5/7 weeks of gestation in 07/2012. The course of this pregnancy was from the beginning complicated by hypertension. The fetal development had been unremarkable. On admission, the arterial pressure was within the normal range. One hour later she suddenly started complaining of severe pain between the shoulder blades and abdominal pain in the upper right quadrant and presented severe hypertension. The laboratory findings showed elevated liver enzymes and a significant proteinuria. The diagnose of a severe preeclampsia was made. Magnesiumsulphate and Labetalol infusion were started and emergency cesarean section was performed under spinal anesthesia. A live healthy female newborn of 2365g was delivered in an uneventfully operation. During the postoperative course, the thoracic pain worsened. A thoracoabdominal CT showed an aortic dissection Stanford type A extending to the right femoral artery. Emergency thoracolaparotomy was performed: An ascending aorta and aortic arch replacement to the left subclavian artery and aortic valve reconstruction was successfully performed using a Gelweave™ Graft under moderate hypothermia (26°C). After 14 days, she was discharged to a rehabilitation center and recovered well.

**Conclusion:** We report for the first time a case of concomitant preeclampsia and acute life-threatening aortic dissection in a patient with Takaysu arteritis. While hypertension and preeclampsia are known complications in pregnant women with Takayasu arteritis, the combination with acute aortic dissection may occur and must be considered in these women if presenting with persistent epigastric pain and preeclampsia.
Perivascular epitheloid cell tumor located in the lower abdominal wall – a case report

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Introduction: Perivascular epitheloid cell tumors (PEComas) are rare neoplasms expressing melanocytic and smooth muscle immunomarkers. The uterus and the retroperitoneum are the most common pelvic sites of origin. Due to immunohistochemical similarities such as, e.g., expression patterns of HMB-45 (a melanocytic marker), distinction between PEComas and endometrial stromal sarcomas, leiomyosarcomas and myomas can be difficult. Although uterine PEComas are usually clinically benign and curative therapy consists of complete resection, malignant transformations with metastases and peritoneal spread may occur up to 15 year after the first diagnosis. Because of the rarity of cases and since guidelines are missing, further adjuvant therapies such as chemotherapy, molecular targeted therapy and radiation are applied according to expert opinion. To date, the non-neoplastic counterpart of PEComas has not yet been identified.

Case: We report the case of a 62-year-old postmenopausal woman who presented with a three-month history of lower abdominal pain and discomfort. Sonography revealed an undetermined intraabdominal mass of about 8 cm in size with calcified elements suggesting a myoma. Notably, the patient had undergone vaginal hysterectomy for hypermenorrhea without signs of malignancy 20 years ago. The pelvic MRI detected a pelvic mass of inhomogenous content with contrast behavior resembling a teratoma. The intraoperative site revealed a lobulated and solid 10.5 cm tumor broadly adherent to and infiltrating into the right abdominal wall and the bladder. Complete excision and bilateral adnexectomy were performed. Histologic analysis revealed an inhomogenous tumor with regressive alterations and a small necrotic area as well as high cellularity with <2 mitoses/10HPF. Immunohistochemistry was positive for HMB-45, TFE-3, MelanA, Desmin and estrogen receptors. In this case, the malignant potential according to WHO criteria was classified as uncertain.

Conclusion: PEComas of all origins are extremely rare neoplasms with potentially malignant behavior. In this case, 20 years after hysterectomy, a PEComa arising in the right broad ligament is the most probable pathophysiology of the tumor. However, a primary PEComa of the abdominal wall is also imaginable. The third possibility is a metastasis of an ancient uterine PEComa undiagnosed 20 years ago. As PEComas have a malignant potential, careful long-term follow-up is warranted after complete surgical resection.
Systemic Methotrexate high dose treatment in ruptured heterotopic intramural pregnancy

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Introduction: Heterotopic pregnancy is defined as an intrauterine pregnancy coexisting with one (or more) extrauterine pregnancies. It is a very rare condition in spontaneously conceived pregnancies (1:30,000 pregnancies). The rupture of an extrauterine pregnancy is a much-feared complication in early gestation.

Case Report: Presentation of a 36 y-o IIG IP at 8 weeks of gestation with acute abdominal pain and hypovolemic shock without vaginal bleeding. Patient history: spontaneous delivery in 2016, appendectomy 1990, no risk factors for an ectopic pregnancy, actual urgent childwish. Immediate diagnostic laparoscopy showed massive intraabdominal bleeding, and right intramural uterus rupture with arterial bleeding could be localized. Haemostasis was managed by coagulation of the ruptured part. Blood loss was 2000ml. In transvaginal sonography a twin heterotopic pregnancy could be identified, one intrauterine, and one intramural pregnancy. Both pregnancies were vital. The patient was treated systemically with a high dose Methotrexate (MTX) scheme (Wong LC et al. 2000) as well as two doses of Mifepristone. Subsequently, due to the persistence of high βhCG levels, a MTX multidose regime was applied. Folinic acid adapted to MTX blood levels was started 24h after the first MTX dose. When βhCG levels had decreased to more than 50%, MTX therapy was stopped. The patient was dismissed 2 weeks after the initial operation. Post control was continued until βhCG level was below 2mUI/ml. 6 months after the incident no sonographic residual of the ectopic pregnancy could be seen.

Conclusion: In this case of a ruptured heterotopic intramural pregnancy the patient was successfully treated with systemically applied Methotrexate and Mifegyne after laparoscopic haemostasis. A review of the literature showed that there is insufficient evidence to recommend any single treatment modality for heterotopic intramural pregnancies. The decision should be based on such factors as clinical presentation, surgeon’s expertise, side effects, and the patient’s preference. In times of an increasing use of assisted reproductive techniques or if there is a history of PID or adnexal operation or even when there are no such risk factors, the visualization of a normal pregnancy in the ultrasound examination does not release the examiner from precise imaging of adnexa and myometrium (Talbot K et al. 2011).
Diagnosis of severe intrauterine CMV disease in the 2nd trimester of pregnancy – would serological testing in early pregnancy have changed anything?

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**Introduction:** Approximately 1 in 200 newborns is congenitally infected by the cytomegalovirus (CMV). 10 to 15% show apparent disease and are severely ill. 80 to 85% are asymptomatic, but every forth to fifth child will develop sensorineural hearing loss in early childhood. The risk of materno-fetal infection is highest in cases of maternal primary CMV infection during pregnancy, which occurs predominantly in pregnant women with little children at home. Nevertheless around half of all materno-fetal transmissions take place in former seropositive mothers due to CMV-reactivation or reinfection. So far there has been no proven therapeutic strategy to prevent materno-fetal transmission or fetal disease. We present a case of a disastrous fetal CMV disease in 22nd week of gestation in a woman with low CMV-IgG positivity and negative IgM in early pregnancy.

**Case report:** In 22nd week of pregnancy the screening ultrasound of the fetus of a healthy 31-year-old gravida II para I (history of one vaginal birth 1 ½ years before) showed brain damage with ventriculomegaly, intracranial calcifications, periventricular echogenicity, hepatomegaly, liver calcification, hyperechogenic bowel and doppler sonographic signs of severe anemia. Serological CMV testing at the time of the ultrasound findings showed positive IgG and negative IgM. Amniocentesis confirmed fetal CMV infection with high CMV viral load. Karyotype was unremarkable. Serological testing of blood from early pregnancy showed low positive IgG, negative IgM, but low avidity. Therefore primary maternal CMV infection in very early pregnancy or preconception has to be assumed, although reactivation or reinfection cannot be fully excluded. The patient opted for pregnancy termination in 24th week.

**Conclusion:** Keeping good hygiene remains the primary prevention in all preconceptional and pregnant women independent of their serological status. The reported case confirms the actual recommendation of the Swiss society of gynecology and obstetrics against routine CMV screening in early pregnancy.
Factor VII deficiency and pregnancy: A case report

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Introduction: Factor VII deficiency is a rare coagulation disorder, affecting an estimated 1 in 350,000 to 500,000 people. It is however the most common of the rare bleeding disorders (RBDs), as it constitutes 36 percent of rare coagulation disorders. The majority of the patients are heterozygotes and relatively asymptomatic.

Case Presentation: We present a case of FVII deficiency of a 30 year old Caucasian woman in the third trimester of pregnancy with gravida 2, para 1. She initially presented in the 40th week of pregnancy (39+2 week of pregnancy) with a 2-day history of headache to exclude a preeclampsia. Clinical examination revealed no signs of preeclampsia. The blood test showed a Quick value of 12% and a high INR of 5.7. All other blood tests were within normal ranges. The patient presented no symptoms of unexplained bleeding and following a hysteroscopy did not bleed more than usual. She had a negative family history regarding bleeding disorders. The diagnosis could be then confirmed with the appropriate specific tests, which showed a factor VII activity level of <5 percent (normal levels between 60−120 %). After thorough discussion of whether to perform a planned cesarean versus a planned vaginal delivery we decided to deliver the baby by cesarean. We decided against prophylactic factor VII replacement therapy. The cesarean section was performed under general anesthesia with the administration of Tranexamic acid intravenously and was successfully executed without unusual bleeding.

Conclusion: Factor VII (FVII) deficiency is a rare bleeding disorder, and experience in the field of obstetrics is still limited. We report herein the case of a successful cesarean section with FVII deficiency. No formal guidelines have been established to manage the treatment of such patients. Decisions regarding the delivery mode and the use of prophylactic therapy and management during pregnancy should be made on a case-by-case basis, ideally in consultation with a hemophilia treatment center.
**Primary cutaneous lymphomas und primary lymphomas of the breast**

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**Introduction:** If a patient presents with changes of the mammillae the most common differential diagnosis are morbus Paget and eczema. We present three cases of lymphomas of the mammillae: two primary cutaneous B-cell lymphomas and one primary follicular breast lymphoma. Primary cutaneous lymphomas (PCL) belong to the group of extranodal non-Hodgkin lymphomas. Their incidence varies from 0.5-1/100,000. Approximately one forth of all PCL are B-cell derived and can be divided in three subgroups: Primary cutaneous marginal zone lymphoma (PCMZL), primary cutaneous follicle center lymphoma (PCFCL), and primary cutaneous diffuse large B-cell lymphoma, leg type (PCDLBCL, LT). Primary lymphomas of the breast and especially follicular lymphomas of the breast are very rare: primary breast lymphomas constitute less than 1% of all the non-Hodgkin's lymphomas, <0.5% of all breast malignancies and <5% of extranodal lymphomas. The most common type of primary breast lymphoma is the diffuse large B-cell Lymphoma (DLBCL), followed by the follicular lymphoma (FL) and marginal-zone lymphoma (MZL).

**Material and Methods:** We included all patients with cutaneous symptoms of the mammillae leading to the diagnosis of a lymphoma from 2015 to 2017. We discuss the diagnostic findings, differential diagnosis and therapy of these three very rare lymphomas in comparison to former presented cases and reviews on pubmed.

**Results:** All three patients presented with mild not typical changes of the mammillae and had no other abnormalities in the mammography and ultrasound, so that only a punch-biopsy of the skin lead to the correct diagnosis. The first case was a 42 years old male patient with primary cutaneous follicle center cell lymphoma (PCFCCl). The Patient received a radiotherapy and is currently in full remission. The second case was a 63 years old female patient with primary cutaneous marginal zone lymphoma (PCMZL). She had spontaneous remission and under observation only. The third patient with a low grade B-cell follicular lymphoma of the breast was also successfully treated with radiation only.

**Conclusion:** Although a lymphoma of the mammillae is a rare diagnosis, it should be considered especially if only untypical mild changes of the mammillae are seen.
Desmoid fibromatosis after gynecological surgery

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Introduction: We present a case of a rare sequelae of a desmoid fibromatosis after laparoscopic myomectomy.

Case report: A 21-year-old Caucasian woman referred to the emergency department with symptoms of bowel obstruction one year after laparoscopic myomectomy. An ultrasound examination demonstrated an obstructive mass of the ileocecal area and ascites. CT scan revealed a large, solitary mass of attenuation equal to that of muscle without pathologic adenopathy. In her medical history, she had an anaplastic astrocytoma diagnosed ten years ago with tumor resection, chemotherapy and radiotherapy. The patient had no relevant family history. Starting with a diagnostic laparoscopy the surgery required an open ileocecal resection because of the infiltrative tumor. The postoperative course was uneventful, and the patient was discharged on the seventh postoperative day. The patient remained well, with no evidence of tumor recurrence.

Discussion and Conclusion: Desmoid tumors, also known as aggressive fibromatosis, are rare neoplasms of the connective tissue. The estimated incidence in the general population is 2 to 4 per million per year. These tumors occur mostly between the ages of 15 and 60 and affect mainly young women in their reproductive age. There is a strong association with familial adenomatous polyposis syndrom. Further risk factors are prior abdominal or pelvic surgery, trauma and estrogen therapy. Radiological findings depend on the tumor’s composition. In our case the tumor appeared in CT scan similar to the attenuation of muscles. The treatment of choice is the complete excision of the mass without involved margins to decrease the risks of a local recurrence. Recurrence occurs up to 77% depending on the location of the tumor and extent of resection. Alternative methods like chemotherapy, radiation therapy and endocrine therapy can be considered especially in cases of inoperable tumors. With this case report we want to emphasize the importance of including rare entities into consideration as differential diagnosis of pelvic tumors.
Total and acute puerperal uterine inversion after operative vaginal delivery: a case report

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Introduction: Acute puerperal uterine inversion after vaginal delivery is extremely rare complication characterized by life-threatening shock and serious metrorrhagia. Although the cause is still unknown, the mismanagement of the third stage of labour characterized by premature umbilical cord traction and fundal pressure seems to play an important role in the puerperal uterine inversion.

Material and Methods: We report a case of total uterine inversion occurred to a woman, who delivered spontaneously after an operative vaginal delivery.

Results: A 29-year-old, primigravida with an unremarkable personal/family history was admitted to our department at 39+6 weeks of gestation with contractions. The first and second stage of labour were 1.5 hours and 2 h and 34 minutes respectively. After an uneventful first stage of labour, the second part was characterized by intermittent pathological fetal heart tracing treated successfully with hexoprenalin sulfas. Due to a birth standstill, an uncomplicated operative vaginal delivery (vacuum) was performed. The APGAR score of a healthy male newborn was 7/8/9 at 1, 5 and 10 minutes, respectively with a birth weight of 3500g. Prophylactic oxytocin was administrated routinely after birth. However, a prolonged third stage occurred, and a complete placenta delivered only after cord traction and Credé’s manoeuvre. The patient developed acute abdominal pain, and immediately after, a postpartal hemorrhage (PPH) occurred. Despite the administration of uterotonic drugs as 40 IU Oxytocin-solution, 800 mcg Misoprostol rectal and Sulproston the PPH increased, and a hypovolemic shock occurred. A transabdominal ultrasound showed a non-delineable uterus but the vaginal examination made the postulate diagnosis. The patient was immediately transferred in the surgery room and a manual opposing pressure in through the vagina on uterus fundus, associated with relaxing agents, resolved the inversion. The PPH stopped with a total blood loss of 3 liters and a haemoglobin value of 5.2 g/dl (initially 13.3 g/dl). After 5 days the patient was discharged from the hospital in a good general condition.

Conclusion: The extremely low incidence of uterine inversion after vaginal delivery associated with poor experience in resolving this obstetrical emergency makes this complication serious. Early diagnosis, immediate treatment of shock and their manual or surgical correction are essential to improve patient’s outcome.
When curettage can be harmful: uterine arteriovenous malformations

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Introduction: A uterine arteriovenous malformation (AVM) is a direct communication between the arteries and veins of the myometrium without the interposition of capillaries. Uterine AVMs are rarely congenital. They are more commonly diagnosed after uterine trauma (such as curettage, hysteroscopy, or cesarean section) during a pregnancy or a gestational disorder. Lack of meticulous diagnosis or scarcity of knowledge on the subject can lead to significant hemorrhage.

Clinical case: Ms S.U, a 33 year-old G3P2 patient without any significant past medical history, except two cesarean sections, is referred for a spontaneous abortion for which expectant management is carried at her request. The patient consults urgently 10 days later for metrorrhagia. At this time, the endovaginal ultrasound confirms the expulsion of the gestational sac and the endometrium measures 24mm. The Doppler ultrasound is unremarkable. A conservative treatment by misoprostol is administered which is initially followed by clinical improvement. After 2 months the patient complains of persistent spotting. An endovaginal ultrasound shows a thickened endometrium measured at 10mm and an irregular anechoic image at the fundal myometrium measuring 15mm by 15mm with hypervascularization and increased flow as evidenced by doppler. An uterine arteriovenous malformation is suspected and the diagnosis is confirmed by MRI. An elective embolization of the uterine arteries is performed with good clinical response.

Conclusion: The diagnosis of an uterine arteriovenous malformation must be excluded before surgical intervention even in the absence of previous surgery. The persistence of metrorrhagia after a miscarriage might be a clinical sign of the presence of an AVM. Since the incidence of uterine arteriovenous malformations is very low, all current clinical studies are small-group and retrospective. Due to its simplicity, endo-vaginal 2D ultrasound coupled with color and flow doppler holds a significant role in the diagnosis of AVMs which can then be confirmed by MRI. The selective embolization of the uterine arteries is the treatment of choice for the symptomatic AVMs and allows for the preservation of fertility. In cases in which the patient is hemodynamically stable, the administration of methotrexate may be an alternative treatment but it requires a longer follow-up.
Small-cell neuroendocrine carcinoma of the endometrium - underrecognized Tumor?

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Introduction: Small-cell neuroendocrine carcinoma (SCC) of the endometrium is a rare condition, presenting <1% of all endometrial carcinomas.(1)(2) Primary SCC of the endometrium needs to be distinguished from the metastatic form from other organs, f.e. the lung, which is the most common site of SCC(2). The therapy is also based on the therapy standard of neuroendocrine tumors of the lung. The identification of SCC can cause a diagnostic challenge for pathologists. There are immunohistochemistry (IHC) markers, which are useful in the detection - CD56, chromogranin A, synaptophysin, p53 and p16 (3)(4). Because of the aggressive character of SCC, it has a poor prognosis.

Case Report: We present a 79-year-old woman with a postmenopausal vaginal bleeding. The diagnostic hysteroscopy with curettage revealed a diagnosis of carcinosarcoma. Pre-operative IHC showed positivity for CD 10. Retrospective analysis showed also expression of CD56, calretinin and synaptophysin. She then underwent a complete cytoreductive surgery. The final pathological diagnosis was SCC of the endometrium (>90%) and a small focus of endometrioid adenocarcinoma with a small gastrointestinal stromal tumor of omentum and metastasis of SCC in 28/48 pelvic and para-aortic lymphnodes(pT3b, pN2). The IHC in the SCC component showed immunoreactivity for CD56, synaptophysin, MAP2, CD10 within the tumor. p53 was immunoreactive detected while p16 was negative. The recommended adjuvant chemotherapy, based on carboplatin and etoposide was declined by the patient. She returned to our institution a month later with clinical progression and died 6 months after the diagnosis.

Conclusion: The SCC needs a good pathological diagnosis based on the histotype and IHC, because 89% of the tumors are underrecognized.(5)

BRIC2 as a rare cause of jaundice after controlled ovarian hyperstimulation

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Background: Benign recurrent intrahepatic cholestasis type 2 (BRIC2) is a rare autosomal recessive form of genetic cholestasis related to mutations of the ABCB11 gene. It can present in childhood or later in life and is characterized by intermittent generalized itching, anorexia, jaundice and malabsorption that can last for several weeks or months, resolving spontaneously, without progression to end-stage liver disease. Laboratory findings include conjugated hyperbilirubinaemia with or without mild transaminase elevation. It can cause cholelithiasis and can be triggered by pregnancy or combined hormonal contraceptive use.

Case report: A 25-years-old woman of Afghan origin was referred because of primary infertility due to severe oligozoospermia. She had a history of cholecystectomy for acute biliary pancreatitis and autoimmune thyroiditis; her family history was negative. Controlled ovarian hyperstimulation (COH) using an antagonist protocol was performed (HMG 225 IU per day). HCG was used for ovulation trigger on day 15, with an estradiol of 7.44 nmol/l. On the day of ovocyte retrieval, the patient reported generalized itching and the appearance of jaundice since one week. Total bilirubin was 229 µmol/l, direct bilirubin 199 µmol/l, ALT 85 U/l, AST 72 U/l, AP 109 U/l, and gamma-GT 9 U/l. Investigations for viral hepatitis and autoimmune liver disease were negative. At oocyte retrieval, 8 ovocytes were collected, 5 fertilized (ICSI) and frozen as zygotes. Liver biopsy showed canalicular cholestasis and some anisokaryosis but no inflammation or fibrosis. Genetic analysis revealed a novel heterozygous variant of the ABCB11 gene and a known polymorphism associated with reduced enzyme activity on the second allele, allowing to conclude to BRIC2. After resolution of the cholestasis, 1 blastocyst was transferred, followed by a successful pregnancy. Ursodeoxycholic acid at a dose of 900 mg per day was started during the second trimester, without any recurrence of cholestasis. Labor was induced at 40 weeks because of oligohydramnios, with emergency cesarean section performed for fetal distress and delivery of a healthy boy. Both the mother and the boy were well at the 6-week follow-up visit.

Conclusion: An episode of jaundice was likely triggered by COH in this patient with BRIC2. BRIC should be considered in the differential diagnosis of patients presenting with jaundice during or after COH.
Live birth after uterine rupture with fetus in herniated amniotic sac

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Background: Uterine rupture during pregnancy is a serious obstetrical complication. The presence of a previous uterine scar is the most important risk factor, whereas ruptures in an unscarred uterus are very rare.

Case Report: We report the case of a 26 year-old primigravid woman with fundal uterine rupture at 22+2 weeks of gestation. She had undergone hysteroscopy and chromolaparoscopy because of dyspareunia, dysmenorrhea and infertility two years prior to this pregnancy. The patient presented to the emergency department with lower abdominal pain and vaginal bleeding. Ultrasonography showed the amniotic sac with the fetus` lower body part protruding into the left side of the mother`s abdomen with an anterior/fundal placenta. Intravenous tocolysis with β-agonists was started because of painful contractions. The patient was confined to bedrest with continuous tocolysis. An MRI obtained at 22+5 weeks confirmed fundal rupture with an intact amniotic sac. The anterior/fundal placenta did not reach the scar. A steroid course with 12 mg of Dexamethason was started at 23+3 weeks of gestation and magnesium sulfate at 23+5 weeks for fetal neuroprotection. At 27+2 weeks of gestation, the patient complained of lower abdominal discomfort. An ultrasound showed that also the head of the fetus had dislocated through the uterine scar into the mother`s abdomen. The amniotic sac was still intact. Doppler of the umbilical artery showed normal perfusion and a normal CTG was obtained. Later that same day, the patient experienced severe lower abdominal pain, ultrasound showed fetal bradycardia. An emergency c-section was performed delivering a boy of 990 g. The fundal rupture was closed using a single-stitch technique. The child was admitted to the neonatal care unit and was discharged home 10 weeks after birth.

Conclusion: Uterine ruptures are serious emergencies that usually require immediate laparotomy leading to termination of the pregnancy to reduce maternal morbidity. In this case, the fundal rupture occurred gradually and allowed for a conservative approach leading to the delivery of a preterm but otherwise healthy child. Even though a previous uterine scar is the most important risk factor, uterine ruptures also need to be considered in a presumably unscarred uterus. The patient had most probably suffered unnoticed uterine damage from the previous hysteroscopy and chromolaparoscopy with a uterine manipulator. The risk for uterine rupture may be increased after any uterine surgery.
From fibroepithelial breast lesion to borderline phylloid tumor: clinical evolution and genetic profile

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Introduction: Breast fibroepithelial lesions (FELs) include fibroadenomas (FAs) and phylloides tumors (PTs). FAs are the most frequent benign tumors of the breast; whereas PTs account for only 0.3-1.0% of all breast cancers (Anderson BO. 2004). Progression from FAs to PTs has been previously hypothesized. Recent data demonstrating similar mutation profiles in both FAs and PTs with frequent co-occurrence of MED12 and RARA mutations support the hypothesis that FAs and PTs may be clonally related. Potential drivers of progression such as TERT promoter mutations have been recently identified (Piscoglio S. 2016). We describe the case of a 59-year old woman with a FEL who refused surgery and presented 1 year later with a disfiguring phylloid tumor.

Clinical case: In May 2016, a 59-year old woman was diagnosed with polymyositis. A CT scan revealed a left breast mass. A mammogram showed a 5.5x5cm mass on the left breast and a 6x7 mm mass on the right breast. A tru-cut needle biopsy of both lesions was performed. Histopathological examination revealed a FEL on the left side (B3) and a FA of the right side (B2). Surgical excision of the B3 lesion was scheduled but shortly before surgery the patient canceled the operation and was lost on follow up. In June 2017, the patient presented to our Emergency Department with massive swelling and redness of the left breast. On physical examination the left breast was massively enlarged and tender with a flattened nipple, engorged superficial vessels, and deeply erythematous skin. Breast ultrasound showed a heterogeneous mass underlying the left breast with an extensive fluid collection. A diagnostic fluid puncture was performed as well as a new tru-cut needle biopsy. 1200ml of bloody fluid were retrieved and histology showed a borderline Phylloid tumor. Due to the large size of the tumor, breast conserving surgery was not possible and mastectomy was performed. Histology revealed clear margins (>1cm). Eight months after treatment, the patient continues to do well with no evidence of disease recurrence. To correlate the genomic profile of the tumor with its clinical evolution and possibly identify new tumor drivers, we are currently performing parallel sequencing analysis. Data will be analyzed and ready to be presented by June 2018.

Conclusion: This case demonstrates the natural course of a borderline PT after refusal of surgery. The clinical utility of genomic profiling is currently unclear but could potentially facilitate to categorize the malignant potential of FELs.
LARGE CELL NEUROENDOCRINE CARCINOM OF UTERUS – CASE REPORT OF A RARE UTERINE MALIGNANCY

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Introduction: Neuroendocrine carcinomas of the female genital tract are extremely rare and very aggressive tumors. Large cell neuroendocrine carcinoma (LCNEC) of the uterine corpus is the least common type and seems to carry the poorest prognosis. WHO defines large cell neuroendocrine tumor as aggressive carcinoma composed of large malignant cells which display neuroendocrine characteristics.

Material and Methods: Case report of an 82-year-old patient with large cell neuroendocrine carcinoma of the uterine corpus, our treatment methods and follow-up.

Result: An 82-year-old female presented with abdominal pain of unknown origin and elevated CEA marker. CT of the abdomen revealed a large uterine mass with peripheral vascularisation and unclear borders. Hysteroscopy showed multiple uterine synechiae and yellowish uterine mucosa. Histological examination of the curettage specimen confirmed large cell neuroendocrine carcinoma. At first it was unclear whether the tumor originates from the uterus or whether it metastasized from another organ. CT of thorax, abdomen as well as MRI of pelvis were performed. Multiple retroperitoneal pathologically enlarged lymph nodes were found at the level of the left kidney hilus. There were no pathological findings in the thorax. MRI revealed a large inhomogenous mass in the uterus, (4,5x5,5x6cm) which infiltrated endometrium and myometrium and seemed to transcend the uterus wall. There were multiple suspect lymph nodes. No indication of bone metastases. Preoperative tumor stadium was FIGO IIIC2. An exploratory laparotomy, radical hysterectomy, bilateral salpingo-oophorectomy, omentectomy and pelvic and paraaortic lymph node dissection were performed. No gross residual disease was noted at the end of the procedure. The postoperative tumor stadium was pT3b pN2 (7/29) L1 V0 G3, R1. The patient had an uneventful postoperative period. No further treatment was recommended due to a poor clinical prognosis and poor performance status of the patient. Thorax and abdomen CT 3months after the surgery revealed pulmonal metastases and enlarged supra- and infradiaphragmal lymph nodes. The patient was symptom-free and she rejected palliative chemotheraphy.

Conclusions: Endometrial LCNEC is an extremely rare malignancy, which due to its unspecific presentation can be often misdiagnosed. Limited publications on the given topic failed to provide optimal therapy guidelines, which makes the treatment of LCNEC difficult and challenging.
Pregnancy in a rudimentary horn, a case report

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Introduction: Pathological pregnancy is associated with a higher incidence of uterine congenital anomalies. These anomalies affect 1 to 3% of women. Unicornuate uterus constitute about 5% of the uterine malformations.

Materials and methods: We present a case report of a patient gravida-4 para-2 with history of ectopic pregnancy treated by methotrexate and status post cesarean section and one vaginal delivery, addressed because of a suspicion of ectopic pregnancy to the emergency room at centre hospitalier universitaire vaudois (CHUV) in January 2018.

Results: During diagnostic and therapeutic laparoscopy we found out perioperatively that the pregnancy was situated in the rudimentary horn of an unknown unicornuate uterus and we excised the rudimentary horn.

Conclusion: Uterine anomalies are often unknown and discovered in circumstances of adverse pregnancy issue. We will show with this case report laparoscopic images and typical ultrasound images of a pregnancy which developed in a rudimentary horn allowing the clinician to assess the diagnosis echographically.
Introduction: Different locations of the placenta in utero lead to specific risks during pregnancy and labor. Whereas multiple studies show a significantly higher risk to develop a recurrent placenta previa after a placenta previa in an earlier pregnancy, hardly no such data is available for any of the other placental locations. Therefore, we performed a retrospective data analysis to study correlations between placental locations in subsequent pregnancies.

Material and Methods: We analyzed all women, who gave birth to her first and at least one more following child at our tertiary care hospital. We included all singleton pregnancies ≥ 24+0 weeks of gestation between 2007 and 2016. Exclusion criteria were fetal malformations and missing maternal consent for data use. Exact placental locations were extracted from ultrasound examination charts of the 2nd or 3rd trimester. Placental locations were divided into the following groups: anterior, posterior, right, left, fundal, and placenta previa marginalis/totalis. Data were analyzed using SPSS version 22; p-values <0.05 were considered statistically significant.

Results: 1867 women fulfilled the inclusion criteria. Missing data concerning placental location were found in 210 women. Therefore, data of 1657 women were used for the analysis. The distribution of placental locations was presented as followed: 49.5% anterior, 33.7% posterior, 2% right, 2.4% left, 10.7% fundal, 1.6% previa marginalis and 0.2% previa totalis in the first pregnancy. In the subsequent pregnancy: 44.3% anterior, 39.5% posterior, 2.1% right, 1.8% left, 10.9% fundal, 1.1% previa marginalis and 0.2% previa totalis. 231 women had a third subsequent pregnancy, where the distribution was as followed: 45.5% anterior, 39.4% posterior, 1.3% right, 3.5% left, 8.7% fundal, 1.3% previa marginalis and 0.4% previa totalis. 14 had a fourth consecutive pregnancy: 64.3% anterior, 35.7% posterior. Generally, anterior was the most frequent location followed by posterior, fundal, and right/left. Statistical analysis shows no significant correlations in subsequent pregnancies regarding placental locations except placenta previa.

Conclusion: Placental locations seem not to be influenced by previous pregnancies except placenta previa. Therefore, no prognosis for placental location can be made concerning upcoming pregnancies.
Enhanced myometrial vascularity and persistence of beta hCG: grey area between Retained Products of Conception, AV-Malformation and Gestational Trophoblastic Disease

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Introduction: Uterine vascular lesions with enhanced myometrial vascularity pose diagnostic and management dilemmas especially in cases with persistent beta hCG. They can represent a true arteriovenous malformation, retained products of conception or gestational trophoblastic disease/neoplasia (GTD/GTN). Because of their life threatening potential and due to a grey zone in diagnosis appropriate management is challenging. Here we present a case series, describe diagnostic findings and discuss therapeutic options.

Material and Methods: We review and present the clinical and pathological data of the cases of four patients with vascular uterine lesions following early pregnancy loss or delivery of a term pregnancy.

Results: All patients showed large vascular lesions (2-7 cm) originating from the myometrium 5 to 16 weeks after pregnancy/early pregnancy loss. 3 of 4 patients had vaginal bleeding whereas one patient presented with amenorrhea. Beta hCG levels ranged from 0 to 1719 U/l at initial presentation. Management and outcome between the cases varied widely due to a difference in prior treatment and suspected diagnosis. There was one case with cesarean scar pregnancy that had prior therapy with D&C, Cytotec and systemic methotrexate (MTX). She opted for hysterectomy after a period of follow up. The second case presented after D&C after missed abortion, received repeat D&C plus intraoperative embolization due to massive vaginal bleeding. Postoperatively she had tumor staging due to suspected GTD. The third case presented with six months amenorrhea after D&C for missed abortion. She first received MTX with minimally decreasing levels and resectoscopy without excessive blood loss. The forth case presented 6 weeks after CS with negative hCG with pain and massive vaginal bleeding. She was treated with uterine artery embolization.

Conclusion: Management of large vascularized myometrial lesions ranges from an observational approach to demanding surgeries with the risk of high blood loss. They might stem from placenta accreta or residual tissue after early pregnancy loss or term delivery, caesarean scar pregnancy or GTD. D&C seems to carry a high risk of excessive bleeding and should be carried out with the stand-by option of uterine artery embolization. Preoperative awareness of this condition by ultrasound is crucial and follow-up by gynecological oncologists needs to be carried out in cases of suspected GTD.
Severe post-partum infection following asymptomatic uterine rupture

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**Introduction:** We present the case of a 37-year old patient, gravida 3 para 2, with uterine rupture which first became symptomatic with severe infection two days after delivery.

**Case report:** 4 years previously the patient had had a caesarean section for failure to progress during second stage of labour, after which normal wound healing was observed. The patient was admitted with spontaneous onset of labour at 39 weeks of gestation. She received epidural anaesthesia and amniotomy was performed. First stage of labour was completed fast, as was second stage under augmentation of labour with oxytocin. Since CTG showed pathological findings, a ventouse delivery was performed. The neonate showed delayed adaptation with an APGAR score of 2/7/9, whereas umbilical cord pH was normal (7.26). Blood loss during delivery was normal with 300ml. Two days after delivery the patient reported lower left abdominal pain. We found both elevated temperature and elevated levels of leucocytes and c-reactive protein. A CT scan of the abdomen showed pneumoperitoneum and a lesion next to the uterus. Emergency laparoscopy showed a retroperitoneal mass on the left side of the uterus. After opening the peritoneum we found a murky greenish exudate, presumably meconium. The abdominal cavity was cleaned thoroughly and we noted a rupture of the left part of uterotomy which extended into the parametrial space. Due to acute infection, we opted against immediate closure of the uterine rupture. The patient spent 2 days in intensive care unit with SIRS. Intraabdominal swabs showed a growth of Prevotella bivia, Bifidobacterium bifidum and Gardnerella vaginalis. Antibiotics were administered for 2 weeks, and resulted in normalisation of blood results and patient’s wellbeing. A secondary closure of the ruptured uterotomy was not recommended since the patient planned no further pregnancies.

**Conclusion:** This is to show a rare case in which uterine rupture did not cause complications during pregnancy or delivery, but in the puerperium.
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Lymphocytic mastopathy: suspicious radiologic pattern for a benign pathology

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Introduction: Lymphocytic mastopathy also known as diabetic fibrous mastopathy is a rare pathology, accounting for less than 1% of all benign breast lesions, but it is encountered in up to 13% of insulin-requiring diabetic women and also occurs in association with other auto-immune diseases. Its precise etiology remains unclear. This pathology has suspicious clinical and radiologic features, mimicking malignancy, and therefore often requires a biopsy confirmation. Once the diagnosis is established, surgery is not needed and there seems not to be an increased risk for breast cancer.

Material and Method: Throughout this case presentation, we aim to illustrate clinical manifestations, radiologic and pathologic features of a 29 year old woman known for type I diabetes presenting with a breast mass diagnosed with diabetic fibrous mastopathy on core needle biopsy.

Results: A 29 year old woman known for a longstanding type I diabetes and status post vulvar epidermoid carcinoma complained of a painful breast mass. Clinical examination revealed a 4 cm tender mass on the right outer quadrant. Ultrasound showed an irregular hypoechoic mass of 5x3x5cm with marked posterior acoustic shadowing and a suspicious axillary node. Asymmetry in density was only seen on mammography and MRI did not show malignant features. Biopsy was performed because of the ultrasound findings and revealed a lymphocytic mastitis with B cells surrounding the ducts and vessels and dense stromal fibrosis, excluding malignancy. On multidisciplinary case discussion, symptomatic treatment and diabetes equilibration were recommended.

Conclusion: Lymphocytic mastopathy is a benign pathology encountered among young women with longstanding type I diabetes or other auto-immune diseases. Diagnosis is based on core needle biopsy. Awareness of this pathology must be raised in order to avoid unnecessary surgical management because of the highly suspicious radiologic features.
Vaginal glassy cell carcinoma – a case report

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Introduction: Glassy cell carcinoma is a rare neoplasm that occurs most frequently in the uterine cervix. It is classified as the most poorly differentiated form of adenosquamous carcinoma. Until today only two cases of glassy cell carcinoma of the vagina are described worldwide.

Case presentation (Material and Methods): The 29-year-old woman was admitted to our colposcopy unit with a painless vaginal tumor of 4 cm in size. The vaginal cytology showed an ASCUS, biopsy revealed a glassy cell carcinoma with positivity for HPV 16. The CT-Scan demonstrated a retrocervical mass with unclear cervical infiltration as well as suspicious lymphnodes in the iliac and the presacral area. The patient was treated by laparoscopic approach with ICG sentinel lymphonodectomy, pelvic and presacral lymphadenectomy, salpingectomy and ovaropexy with regard to a future radiotherapy. The final classification was: glassy cell carcinoma of the vagina, FIGO IIA2, TNM cT2 pN0(0/94) M0. The postoperative course was uneventful. The multidisciplinary tumorboard of our departement recomme-nded an adjuvant treatment with radiochemotherapy including Paclitaxel and Carboplatin

Discussion (Results): Our therapy followed the guidelines for the treatment of vaginal carcinoma according to the FIGO classification. As glassy cell carcinoma is a rare tumor entity, valid recommendations for this treatment are not available and those that were published had the same approach. This is the third case of a vaginal manifestation of a glassy cell carcinoma. Glassy cell carcinoma may very rarely occur on other unusual locations, as the urethra, the uterus or the fallopian tube. With three cases of vaginal glassy carcinoma, and therefrom two in young women, we do not have enough evidence that glassy cell carcinoma of the vagina may predominantly manifest in young women, even if some data showed that patients with cervical glassy cell carcinoma may have a younger median age compared to patients with other types of cervical cancer. The glassy cell carcinoma in our patient was tested positive for HPV 16, as most cases of vaginal and cervical cancer.

Conclusion: In glassy cell carcinomas the risk for distant metastasis is high and prognosis is poor. Our patient is still under treatment; the outcome cannot be reported yet, but the follow-up must be accurately observed in consideration of future patients. Furthermore, this case reveals the importance of a careful inspection of the vagina in every gynaecological ex-amination.
Struma ovarii associated with pseudo-Meigs’ syndrome mimicking advanced ovarian cancer

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Introduction: Struma ovarii is the most common type of monodermal ovarian teratoma, which predominantly contains thyroid tissue (greater than 50%). It accounts for 2.7% of all ovarian teratomas. Most frequently these are benign tumors, however, very rarely the malignant variant may present itself in 0.01% of all ovarian tumors and in 5-37% of all struma ovarii. The peak age incidence of struma ovarii is the fifth decade. Rarely these tumors are associated with pleural effusion, ascites and increased CA 125. In such cases, the pseudo-Meigs’ syndrome mimics advanced ovarian cancer. Reported ovarian tumors responsible for pseudo-Meigs’ syndrome are mucinous or serous cystadenomas, ovarian metastases of stomach or colon cancers, germ cells tumors and struma ovarii tumors. In pseudo-Meigs’ syndrome (associated with struma ovarii) peritoneal and pleural effusions are explained by the irritation of the peritoneum/pleura by the tumoral obstruction of the lymphatic vessels such as the discrepancies between the arterial supply and the venous and lymphatic drainage. So these effusions are caused by a transudative process.

Case Report: A 52-years old postmenopausal patient was referred to our unit with of suspected advanced ovarian cancer. The patient presented with abdominal distention and shortness of breath. Physical examination revealed a large pelvic mass. Gynaecological vaginal ultrasound indicated a right ovarian tumor that measured 19 cm with solid and cystic components. The CT scan showed in addition to the right ovarian mass voluminous ascites and total pleural effusion on the left. The patient’s serum CA-125 level was 2578 kU/l (normal value <35 kU/l), CA-19-9 16 kU/l (normal value <14 kU/l) while the carcinoembryonic antigen and the thyroid hormones were within the normal range. A staging laparatomy with bilateral salpingo-oophorectomy and hysterectomy was performed including frozen section of the right ovary. The final histopathological diagnosis showed a benign struma ovarii. Absence of ascites and pleural effusion persisted after surgery.

Conclusion: Struma ovarii is a very rare cause of ascites and hydrothorax (pseudo-Meigs’ syndrome) and elevated CA-125. However this rare condition should be considered as differential diagnosis in patients with an abdominal mass presenting with ascites and pleural effusions.
A pregnant woman with Kleine-Levin Syndrome – A Case Report

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Introduction: Kleine-Levin Syndrome (KLS) is a very rare sleep disorder characterized by recurrent periods of hypersomnia, ranging from days until weeks (Table 1). The etiology and treatment are still unknown. Several neurophysiological studies have been conducted. During periods of hypersomnia, patients demonstrate a generalized poor sleep efficiency and show a decrease of the REM sleep.

Materials and Methods: We report, to our knowledge, the first case in literature of a pregnant woman affected by KLS.

Results: A 29-year-old primigravida, with KLS, was referred to our department in the 14th week of gestation for maternal and fetal monitoring throughout the pregnancy. The patient has no further notable personal or family history. In 2008, after the onset of several unexplained periods of hypersomnia, the diagnosis KLS was made using the criteria summarized in Table 1. During the following years, the recurrent periods of hypersomnia decreased. However, with the spontaneous occurrence of this pregnancy, the phases of sleeping again increased, reaching more than 16 hours a day. A neurophysiological examination was repeated, confirming a generalized poor sleep, with remarkably an increase of the REM sleep to up to eight times a day. Currently, the pregnancy is developing normally without complications. With support of her mother, the patient can eat and drink almost normal during periods of excessive sleeping, which she interestingly can’t remember afterwards. Because of increased immobility during these periods, low-molecular-weight heparin is administered. Calcium is supplemented throughout pregnancy. Intravenous fluids are occasionally administered to prevent dehydration. The estimated date of delivery is 09.05.2018.

Conclusion: Kleine-Levin Syndrome is a rare sleep disorder characterized by recurrent hypersomnia, and as a result long periods of immobilisation. In the obstetrical field, this aspect can increase maternal and fetal morbidity. The increase of REM sleep in our patient, rather than a typical decrease, could possibly be explained by the hormonal changes in pregnancy. The mode of delivery for our patient remains unclear. Even though the patient could be supported to eat during periods of hypersomnia, we do not know how the patient will cooperate during labour if having a period of hypersomnia. Furthermore, independently of the mode of delivery, the patient will most likely not remember it, which could have a strong emotional impact.
Catch me if you can or the challenge of vaginal melanomas

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Introduction: Vaginal mucosal melanomas are rare (1% of all melanomas are mucosal of which 3% are vaginal). Their prognosis is worse than those arising from cutaneous sites. 20% of mucosal melanomas are multifocal and 40% are amelanotic; therefore their diagnosis and management represent a challenge.

Case report: 78 years old G2P2 followed every 6 month by her gynecologist and a colposcopist because of atypical cells on the cervico-vaginal smear. HPV screening test negative. Transvaginal ultrasound, cervicoscopy, endocervical brushing and LEEP conisation are in the standards with no suspicious cells. After 3 years of follow up, the immunohistochemical profile of the smear cells indicates cells compatible with amelanotic melanoma. The patient is referred to our university hospital. A pelvic MRI shows a 5mm suspicion zone in the center of the cervix without argument for an ectopic extension and PET-CT founds discreet and aspecific hypercaptation of the uterus with no other suspicious lesion. On inspection, there are dark, brownish-black areas in the distal third of the vagina, affecting the suburethral region and the lateral and posterior vaginal walls. Biopsies are performed on these lesions and confirm the presence of an in situ melanoma with early infiltration of the corium (Breslow 0.38 mm). A vulvo-colpectomy with bilateral inguinal dissection is performed showing a 0.5 mm Breslow vaginal melanoma extending circumferentially over 70 x 35 mm with no positive lymph nodes (0/12) but proximal positive margins. The patient is therefore re-operated (total colpectomy with total hysterectomy and bilateral adnexectomy) and an in situ melanoma of the vagina with a Breslow at 0.12 mm is found extending over 60 x 25 mm with multiple millimetric foci on the cervix and negative margins.

Conclusion: Every smear test with atypical cells requires a precise evaluation and must be referred to a competent center in the absence of finding by the usual primary diagnostic methods; melanomas and amelanotic melanomas are part of the differential diagnosis. Wide excision offers the best chance of survival but complete resection with negative margins is frequently difficult (amelanotic pattern, multifocality and anatomic constraints). Prognosis remains poor (5 year survival of 5-25%) and treatment recommendations are based almost only on small retrospective studies; therefore their care must be done in specialized centre.
POST PARTUM HELLP SYNDROME COMPLICATED BY MASSIVE RETROPERITONEAL HEMORRHAGE AND INFERIOR VENA CAVA THROMBOSIS

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Introduction: HELLP syndrome affects 0.5 to 0.9% of all pregnancies and predisposes to life-threatening complications such as disseminated intravascular coagulation (DIC) but also hemorrhage. Mortality rate is estimated in 1.1% and the management can be very challenging.

Case: We report a 35yo patient, G1P1, transferred to our unit at the second day after vaginal delivery induced at 37 weeks of gestation for suspected fetal anemia. Before the delivery she showed no signs of pre-eclampsia. Immediately after delivery she manifested uterine atony with hemorrhage, genital hematoma, visual deficit and hypertension with systolic value at 180 mmHg. Laboratory values revealed HELLP syndrome (Hb 74 g/L, bilirubin 38.3 umol/L, ASAT 92 U/L, ALAT 42 U/L, LDH 1194 U/L, platelets 36 x10E9/L). Computed-tomography (CT) performed to study the extension of the hemorrhage showed bilateral vaginal hematomas but also the presence of a floated coat of at least 6cm length in inferior vena cava (IVC), near to renal vessels. The patient received 3 sacks of red blood cells and platelets each and the hematomas were transvaginally evacuated. After initial multidisciplinary discussion, positioning of a vena cava filter was excluded and the patient was treated with intravenous heparin therapy and antibiotic prophylaxis. 24 hours later the patient complained increasing vaginal pain and progression of the hematomas was confirmed on CT exam. Hb dropped to 66 g/L. Arterial embolization was evaluated but excluded because of no clear origin of the bleeding. Repeat surgical intervention was excluded for increased hemorrhagic risk. Vaginal packing was performed and then we transferred the patient to a tertiary care center were IVC filter was introduced and vaginal hematomas were drained surgically. The patient recovered and was dismissed 2 weeks after intervention.

Discussion: HELLP syndrome and its possible complications can be life-threatening. In our case, the management was challenging due to the risk of massive pulmonary embolism and the risk of continuous bleeding. A multidisciplinary approach is mandatory.
Umbilical cord cyst – prenatal presentation of a persistent urachus

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Introduction: Umbilical cord cysts can be classified as true cysts or pseudocysts. True cysts derive from the allantois or the omphalomesenteric duct or may be amniotic inclusion cysts. They are typically located close to the fetal cord insertion and covered by epithelium. Allantois cysts can be associated with omphalocele, persistent urachus and obstructive uropathy. Omphalomesenteric duct cysts may be associated with defects in the abdominal wall. Pseudocysts show no epithelial covering and are caused by focal degeneration within Wharton’s jelly or focal lack after degeneration. The prenatal differentiation between these entities can be difficult but appears to be important in respect of prognosis.

Case Report: A 39-year-old primigravida was referred to our unit with a large umbilical cord cyst at 19 weeks of gestation. The pregnancy was conceived after IVF-treatment and first-trimester screening showed normal anatomy and a low risk for trisomy 21. At presentation ultrasound showed an umbilical cord cyst of 37 x 47 x 36 mm close to the fetal cord insertion and a single umbilical artery. Further findings were a placenta previa totalis and high Doppler indices in both uterine arteries. Fetal anatomy and echocardiography were normal. The patient opted for NIPT which was inconspicuous for trisomy 13, 18, and 21. Follow-up exams showed a reduction in size of the umbilical cord cyst. Placenta previa totalis as well as high Doppler indices of both uterine arteries persisted and fetal growth restriction (Gratacos I) developed at 30 weeks of gestation. At 38 weeks of gestation caesarean section was performed due to a pathological CTG. A female neonate was delivered (1970g; <3. percentile). After delivery the child showed leaking of urine through the umbilicus. The diagnosis of a patent urachus was confirmed by MCU. The child underwent surgical resection for a patent urachus at 12 days of age and was discharged 3 days after surgery in good condition.

Conclusion: The urachus is the intra-abdominal part of the allantois which connects the apex of the urinary bladder with the umbilicus and usually obliterates during embryological development. Although pseudocysts are more common the sonographic finding of an umbilical cord cyst should include the differential diagnosis of a patent urachus which might lead to a urinary fistula requiring treatment after delivery. Prenatal detection is crucial to ensure optimal postnatal care.
Kinesio Taping: a new approach to control Pregnancy-Related Low Back Pain

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Introduction: Management of pain during pregnancy is a great challenge for the gynaecologist. Pregnancy-related low back pain is a common condition during 2nd and 3rd trimester. Paracetamol is commonly used by the gynaecologist as the main treatment while AINS are not allowed. Kinesiotaping is a new approach used by physiotherapists for low back pain patients and could be used safely during the pregnancy.

Method: Kinesiotape is a drug-free elastic therapeutic tape of 5cm wide which is currently applied on muscles and joints [1]. The main effects of this technique are to allow a loosening of the lumbar musculature and a reduction of the stresses on the lumbar spine. It also improves vascularization and tissue drainage. For the moment only one study [2] has investigated the short-term effects of lumbar Kinesiotaping on pain intensity and disability in women with pregnancy-related low back pain. The pain intensity and Roland-Morris Disability Questionnaire scores improved significantly in both groups at 5 days compared with baseline.

Conclusions: Kinesio taping is a new approach that can be used as a complementary as Paracetamol to achieve effective control of pregnancy-related low back pain. It is safety and cheap. At the end of the session kinesio taping will optimize the effect of the session and relieve pain in the longer term.
Sickle cell disease and vaso-occlusive crisis in pregnancy - a case report

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Introduction: Sickle cell disease is a group of genetic disorders characterized by predominance of hemoglobin S. Due to migration and child adoption, a growing number of patients with sickle cell disease are seen in Switzerland. As more and more sickle cell affected women reach reproductive age, challenges have developed, including the management of complications caused by sickle cell disease during pregnancy.

Case report: A 28-year old African Women, G2 P0, suffering from homozygous sickle cell disease was transferred to our hospital for antenatal check-ups. In her medical history the women had multiple sickle cell crises leading to severe osteonecrosis of the femoral head in both legs and osteonecrosis of the right humeral head with the indication for joint replacement after pregnancy. During the ongoing pregnancy there were repeated consultations needed for the treatment of pain crises. On account of the orthopedic condition a primary caesarean was planned. At 36+4 weeks of gestation the patient presented with onset of severe pain in the abdomen and lower extremities especially located at the knees and hips due to vaso-occlusive events. Treatment with rehydration, oxygen application and adequate pain medication reduced the symptoms successfully. The fetal-placental circulation presented as normal. Because of the recurring sickle cell crises and the planned Caesarean the indication of an exchange transfusion was made by the interdisciplinary team of obstetricians and hematologists. After the transfusions the patient developed premature contractions, consequently resulting in premature labor. The Caesarean was carried out at the 36+6 weeks of gestation and a healthy boy with a birth weight of 2815g was delivered. The patient was monitored at the intermediate care unit for 24 hours. With the exception of a subsequent blood transfusion the postpartum period was uneventful.

Discussion: Pregnancy in women with sickle cell disease is a high risk situation. The details of appropriate prenatal care and perinatal management are still a matter of debate.

Conclusion: To date, data suggests that with a multidisciplinary approach in Swiss centers of perinatal care the overall outcome of pregnancy in women with haemoglobinopathies is equal to the outcome of a healthy pregnancy. However, it remains a rare and challenging situation for obstetricians in our country.
Case Report and review of the literature: 16-year old girl with an isolated torsion of the fallopian tube

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Fallopian tube torsion is an uncommon event in women with symptoms such as abdominal pain, nausea and vomiting. This is a case report of a 16-year old virgin girl who was misdiagnosed with as having an ovarian cyst and acute appendicitis or enteritis. The definitive diagnosis was based on a diagnostic laparoscopy. Because of the rarity of the above diagnosis in combination with the non specific symptoms, there is usually a misdiagnosis and a delayed therapy. We summarize our experience and we provide our conclusions after reviewing 12 relevant studies.
Rare manifestation of an Echinococcus granulosus cyst in the adnexal region – a case report

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Introduction: Echinococcosis, also known as hydatid disease, is an infection with larval form of the cestode Echinococcus. In Europe those species, which cause the most infections in humans, are Echinococcus granulosus (cystic hydatid disease) and Echinococcus multilocularis (alveolar hydatid disease). Infestation by echinococcosis in humans most frequently occur in the liver (63%) and the lung (25%). They can also be found in muscles, bones, kidney, brain and spleen. A localization of a hydatid cyst in the pelvis is very rare. The incidence being given is 0.2-2.25%. In case of a cyst in this location, the ovaries and the uterus are the most commonly affected organs. Far more often the involvement is secondary to a cyst’s dissemination from another site.

Case Report: Admission of a 39 y old woman with progressing abdominal pain for three days and dyspareunia for three weeks. The clinical examination revealed tenderness in the lower abdomen on deep palpation. Laboratory results showed leukocytosis (13,000 leukocytes/ µl) and slightly elevated CRP value (6 mg/l). Transvaginal ultrasound as well as abdominal CT scan demonstrated a tubo-ovarian mass on the right side, with a bizarre configuration, measuring 13cm x 5cm x 6cm. With hypothesis of a tubo-ovarian abscess the patient underwent laparoscopy. Intraoperative a large cystic mass as seen on the CT scan was found freshly ruptured and adhesively fuse with the right ovary, the rectosigmoid part of the large bowel and the omentum majus. In collaboration with the colleagues of the surgery department, the whole cyst and parts of the omentum majus were removed. Postoperative recovery was uncomplicated. The diagnosis of an Echinococcus granulosus cyst was confirmed by histological examination and serology. The patient was put on medical treatment with Albendazole 400 mg orally twice a day for 6 month and was discharged from hospital on the 6th postoperative day.

Conclusion: Discovering an Echinococcus cyst in the adnexal region is a rare event. Due the uncharacteristic clinical symptomatology, associated with unspecific and atypical findings in ultrasound and radiological images, it is difficult to establish the correct diagnosis in the emergency situation. The optimal treatment is a careful and complete surgical excision of the cyst, followed by a medical treatment according infectiological guidelines.
A case report: Combined therapy of a cervical pregnancy with intra-amniotic KCL and methotrexate injection and surgical intervention without hysterectomy

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Introduction: Cervical pregnancy represents < 1% of ectopic gestations and is associated with high morbidity because of hemorrhage. In this report, we present our successful experience with the combination of KCL and methotrexate (MTX) injections and surgical intervention with curettage and ligation of cervical uterine branches in early pregnancy. The goal of this procedure was to preserve the integrity of the uterus and therefore the fertility of the patient.

Case Report: A 31-year-old nullipara in her 7th week of amenorrhea was admitted to our department with mild abdominal pain and slight vaginal bleeding. The external cervical os was partially open. TVUS showed an empty uterine cavity with endometrial thickness of 12 mm, a gestational sac with increased vascularisation within the cervical canal and a vital embryo with a CRL of 6.7 mm. β-HCG was 27.107 IU/L. Since the patient was in a stable condition we inserted 5 mmol KCL through the cervix into the amnion, which was successful, no fetal heart activity more recordable. Nevertheless β-HCG increased to 51.018 IU/L after one week. Therefore 80 mg MTX was administrated i.m. and β-HCG decreased to 22.861 IU/L. Accordingly, the collapsed gestational sac was observed on TVUS. On day 10 after conservative treatment the patient presented excessive vaginal bleeding. Her Hb level was 13 g/dl. TVUS revealed a 35x42 mm intra-cervically tissue with strong vascularization. We inserted a Foley catheter into the cervix to stop the bleeding. Nevertheless, the vaginal bleeding continued and therefore a surgical treatment was indicated. A curettage with ligation of the descending branches of the uterine arteries at 3 and 9 o`clock at the cervico-vaginal junction with Vicry 1-0 was performed. Tachosil was inserted into the cervix and a tamponade into the vagina. Bleeding was reduced significantly. Postoperative Hb was 11 g/l. She was dismissed in good condition 2 days later. After 10 weeks of follow-up β-HCG levels fell below 1 IU/L.

Conclusion: Intramuscular administration of MTX in combination with intraamniotic KCL injection has been described as an effective treatment in the case of early cervical pregnancy. However, in this case study it was not sufficient to prevent cervical bleeding. In conclusion, early diagnosis and the appropriate application of MTX in cervical pregnancy could help to preserve the integrity of the uterus and future reproductive potential, even a surgical intervention was required.
Hemorrhagic Shock in bicorporeal uterus: a clinical case report

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Introduction: Hemorrhagic shock is a severe but rare complication in gynecology. Female genital tract anomalies affect 4% of women, bicorporeal uterus corresponds to 30-50% of all these anomalies.

Material and Method: We present the case of a 35-year-old patient 1G1P known for amytrophic lateral sclerosis, rheumatoid arthritis and caesarean section in 2009 who is hospitalized in emergency for loss of consciousness at home. Notion of long-standing metrorrhagia treated with continuous oestro-progestative pill. At arrival: conscious, confused, tachycardia 140/min, hypotensive 85/40, tachypnea 28/min, hypothermia 35.2°. Physical exam: no peritonism, no hemoperitoneum. Gynecological exam: 2 hemivaginas with septa on the 1/3 distal and active bleeding from the left hemivagina. Vaginal ultrasound: 2 uterus with 2 cervix and a cervical mass of the left hemiuterus of 38mm suggestive of myoma. Laboratory: Hb 54g/l, creatinine 215 (AKIN III pre-renal insufficiency), BHCG <1. Grade III hemorrhagic shock.

Results: transfer to intensive care with transfusion. Surgical management: total conservative abdominal hysterectomy. Complete bicorporeal uterus (under U3B class) with double cervix (C2 class) and non-obstructive partial longitudinal septum (V1 class).

Conclusion: There is a lack of literature regarding hemorrhagic shock in the context of female genital tract anomaly. Management of symptomatic myoma is continuous contraceptive pill to avoid menstruation, conservative surgical treatment preceded by Ullipristal of Acetate or radical surgery. For our patient, because of pill failure, comorbidities and lack of desire for future pregnancy, a total conservative hysterectomy was performed. Like 50% of patients, its uterine malformation had remained asymptomatic. The total hysterectomy performed by Pfannenstiel revealed no associated urinary malformation as in 10-50% of cases.
Case report: primary diffuse large B cell lymphoma of the uterine cervix successfully treated with combined R-CHOP chemotherapy

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Introduction: Diffuse large B cell lymphoma (DLBCL) is the most common lymphoma and accounts for about 25% of all non-Hodgkin lymphoma (NHL) with the primary site usually in the lymph nodes and other lymphoid tissues. In approximately 1/3 of cases, NHL affects extranodal regions, including the female genital tract. Because of the rarity of this tumor and the non-specific symptoms, diagnosis, staging, and therapy of cervical DLBCL are often difficult and delayed. Management of this disease is not standardized.

Material and Method: A 50 year-old postmenopausal women presented with vaginal bleeding. Gynecological examination revealed an invasion of the left lateral fornix. Histology showed B cell proliferation. Biopsy of the lesion found a DLBCL. Complete staging was performed: thoraco-abdominal CT-scan showed a 3.4x4.5cm mass in the cervix performing an extrinsic compression of the left ureter generating ureteral and pyelocaliceal dilation. There was no hepatosplenomegaly or lymphadenopathy. PET-CT revealed no suspicious uptake at the osteomedullary level. Bone marrow biopsy and total blood cell count were normal. Routine laboratory analysis showed elevated LDH at 283U/L. On immunohistochemistry, cells tested negative for BCL6, BCL2 and MYC. The International Prognostic Index (IPI) was 2/5. The patient was diagnosed with DLBCL, GC type, stage IE, IPI 2/5. She was treated with 6 cycles of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisolone) and 2 cycles of rituximab alone. The patient was known for chronic hepatitis B infection and benefited from add-back therapy with entecavir to prevent reactivation under rituximab.

Results: After completion of the chemotherapy, response assessment by PET-CT showed total resolution of the lesion. Gynecological exam found no residual mass confirming complete clinical remission of the lymphoma. Viral serology for hepatitis B by PCR came back negative.

Conclusion: Primary malignant lymphoma of the cervix is very rare. Diagnosis is made through the absence of nodal or other extranodal involvement. Cervical cytology is often normal as tumours arise from the cervical stroma. Investigations including full blood workup, bone marrow biopsy, and thoraco-abdominal CT must be done to set the stage of the tumor, following the Ann Arbor staging classification. Immunochemotherapy (rituximab+CHOP or CHOP-like regiment) with/without radiotherapy is the most common and most effective treatment; surgery should be avoided.
Subcapsular liver hematoma in postpartum HELLP syndrome

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Introduction: HELLP syndrome is defined as a serious complication of preeclampsia characterized by hemolysis, increased lever enzymes and thrombocytopenia. The exact pathogenesis of the syndrome is not yet fully understood, but most likely it is related to microangiopathy developed during the pregnancy and the subsequent endothelial dysfunction with activation of the intravascular coagulation cascade. It usually develops before birth. But in 1/3 of the cases it can be observed postpartum as we present in this case. Through hemolysis and fibrin deposits in the hepatic sinusoids liver enzymes increase and in some cases formation of subcapsular liver hematoma or even a liver rupture can occur. Hemodynamic stable patients can be treated conservatively, whereas in case of a liver rupture or an hemodynamic unstable patient emergency surgical therapy is indicated.

Case report: A 32 year old puerpera was transferred to the intensive care unit with strong pain on the right upper abdomen as well as suspected diagnosis of HELLP syndrome with onset 2 days after spontaneous delivery in a regional hospital. Transabdominal ultrasound showed a subcapsular liver hematoma of 14.6cm x 7.1cm and perihepatic fluid collection. Furthermore the patient showed elevated blood pressure up to 222/142mmHg and biochemical signs of HELLP syndrome (thrombocytes 149 10^3/μl, ASAT 101 U/l, ALAT 163 U/l, LDH 563 U/l, Haemoglobin 91 g/l). During the hospitalization antihypertensive, analgesic therapy and endovenous magnesium for 48 hours as eclampsia prophylaxis was administered. Under the therapy the patient showed rapid clinical and biochemical improvement. After 2 days the patient was transferred to the maternity ward of our hospital. There were no more clinical signs of preeclampsia and the blood pressure under regular antihypertensive therapy remained normal. The size of the liver hematoma remained unchanged. After a total of 10 days the patient was discharged in good clinical condition. Sonography after 6 weeks showed a regression of the hematoma at 2/3 of the previous findings (11cm x 5.9cm) with no signs of active bleeding. Besides clinical and biochemical check-up also follow-up sonography was suggested. For future pregnancies prophylactic administration of aspirin is recommended.

Conclusion: In this particular case we would like to indicate that HELLP syndrome can develop not only before birth but also postpartum. A subcapsular liver hematoma is a rare but in some cases life-threatening complication of this condition.
HEL(L)P before 20 completed weeks of gestation: a case report

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Introduction: HELLP is a life-threatening situation and it usually occurs during the last trimester of pregnancy or uncommonly after birth. Rare cases are reported in earlier stages of pregnancy. The cardinal features are hemolysis, elevated liver enzymes and low platelet count. Common symptoms are epigastric pain and malaise but presentation can also be unspecific. Failure to recognize HELLP early can lead to increased morbidity and mortality. The only effective treatment is delivery.

Case report: A 32-year-old primigravida at 19+0 weeks of gestational age was admitted to our facility with isolated intermittent pain in the right upper abdomen. Her pregnancy had been otherwise unremarkable. Her history was significant for allergic asthma and migraine without aura. The initial blood test showed a mild thrombocytopenia (145 G/l) and slightly elevated transaminases (maximal 85 U/l). The patient was hospitalized. An abdominal ultrasound showed unremarkable upper abdomen organs and hepatitis was excluded. A 24-hour urine collection was negative for protein. She had no hypertension. Over five days of hospitalization the abdominal pain persisted, the platelet count decreased to a nadir of 63 G/l, transaminases further increased (maximal 215 U/l), the total bilirubin was slightly elevated (maximal 24 μmol/l), haptoglobin decreased (< 0.08 G/l) and a blood smear showed elevated reticulocytes and schistocytes. Fetal growth and Doppler examinations were normal but uterine artery Doppler showed elevated resistive indices and notches. The sFlt-1/PIGF quotient at 19+4 weeks of gestational age was elevated (402, reference value < 38). Eclampsia prophylaxis with magnesium was given and the patient was transferred Cantonal Hospital Lucerne for a medical termination of pregnancy. Dexamethasone was given postpartum because of worsening thrombocytopenia to 19 G/l. The transaminases peaked at 600 U/l. The patient was discharged five days after delivery in good health and normal laboratory values.

Conclusion: This report demonstrates one of the really rare cases of early-onset HELLP before 20 completed weeks of gestation. As in later stages of pregnancy, the first symptom was epigastric pain which should be taken seriously at any gestational age. Comprehensive and repetitive laboratory tests are essential. Diagnosed and treated too late, the complications can be life-threatening.
Fetal Complex Ovarian Cyst: Case Report and Literature Review

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Introduction: Ovarian cysts are the most common abdominal anomalies diagnosed in the female fetuses, with an estimated incidence of 1 in 2600 pregnancies. There is usually a benign functional anomaly resulting from excessive hormonal stimulation of the ovaries.

Material and Methods: We present the case of a female fetus with a complex ovarian cyst, first diagnosed at 33 weeks of gestation. The mother is a 25 years old nullipara, with a low risk pregnancy. The cyst measure 40 mm of its biggest diameter and the differential diagnosis is made between a hemorrhagic cyst and a mature teratoma. Its dimensions and morphology remained constant until the last echography at 36 weeks of gestation.

Results: We will follow the postnatal evolution and will present an up to date of the fetal outcome. According to the literature, about half of all cysts resolved spontaneously during or after birth, especially simple cysts smaller than 40 mm (84.8%). Those with intracystic hemorrhage are more likely to be already torsioned. An intrauterine aspiration can be discussed for simple cysts, when compressive signs appears or in order to avoid ovarian loss, especially when they are bilateral. Complex cysts and those more than 40 mm, are less likely to disappear and torsion appears in 6% from simple small cysts, until 44.9% for big and complex cysts. Intracystic hemorrhage occurs globally in 6.8%, with a big variability depending of the size and complexity. Surgery intervention is made in 39.5% of fetuses, more often if the cysts are large or complex. Ovarian loss, according to the literature occurs in 25% of cases.

Conclusion: We present the diagnosis of a fetal ovarian complex cyst. There are small series of retrospectives studies regarding prenatal ovarian cysts and only a few cases concerning prenatal teratoma.

Keywords: prenatal ovarian cyst, teratoma, torsion
Uterine Arteriovenous Malformation after Cesarean Section as cause of postpartum hemorrhage – a case report

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Introduction: Arteriovenous malformation (AVM), defined as abnormal and nonfunctional connection between artery and vein, is a rare but potential life-threatening source of bleeding. In obstetrics and gynecology AVM may be acquired as result of surgical intervention, such as cesarean section or curettage, trauma or in the setting of a preexisting pathologic process of the uterus. AVM is one of the extremely rare causes of postpartum hemorrhage and presents great difficulty in detection. The treatment of choice in symptomatic AVM in patients wishing to preserve fertility is embolization of the uterine artery.

Case Report: A 30y secundi-gravida with a history of emergency cesarean section (Sectio parva) after a suicide attempt at 6th month pregnancy with intrauterine fetal death in 2004 underwent a repeat cesarean section. During surgery an incomplete uterine scar rupture from previous Cesarean section was found and repaired in layers. Hemostasis was visualized. The intraoperative blood loss was moderate. Postoperative the haemoglobin level decreased from 9.1 g/dl to 5.5 g/dl. The patient was posted for exploratory relaparotomy. The procedure revealed an active bleeding from a uterine vessel which was ligated. The patient received 6 units packed red cells in total, the haemoglobin value stabilized at 8.6 g/dl. Because of fever with increasing inflammatory markers a CT scan was performed which showed a Uterine high-flow Arteriovenous Malformation of 37 x 23 mm and a hematoma between uterus and bladder. For further treatment the patient was referred to interventional radiology unit in a center hospital. Bilateral uterine artery embolization was performed using Gelfoam Slurry. A re-laparotomy was performed to remove the hematoma. The patient made an uneventful recovery and was discharged 8 days after the embolisation.

Conclusion: Uterine AVM is a rare cause of postpartum hemorrhage that can be potentially life threatening. In the case of an intractable postpartum hemorrhage, there should be high index of clinical suspicion especially in the presence of risk factors such as prior surgical intervention. Uterine artery embolization is an excellent treatment option, due to its minimal invasive nature and high success rate.
Impressum

Publisher:
Swiss Association for Gynecology and Obstetrics, gynécologie suisse

Original texts from the authors.
The publisher has made no corrections.

Editorial:
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Publication:
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