Annual Congress
gynécologie suisse

26 - 28 June 2019
Olma Messen St. Gallen

Abstracts
• Free Communications
• Posters
• Videos
## Authors

**FM** = Free Communications  
**P I - P III** = Poster Presentation and Exhibition  
**P** = Poster Exhibition  
**V** = Video Presentation  
*Subject to change*

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Free Communications

FM = Free Communications
WHICH CUT-OFF SHOULD WE USE WHEN SCREENING FOR PREECLAMPSIA IN THE FIRST TRIMESTER?

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Introduction: Combined first trimester screening for preeclampsia (PE) allows the prediction of PE at different gestational ages (GA). Previous studies focused mainly on the detection and prevention of early onset PE <34 weeks (eoPE), however recently the interest shifted towards preterm PE before 37 weeks of gestation (pPE). When PE-screening was introduced at our clinic we had the policy of prescribing 100mg of aspirin (LDA) to all pregnancies with a risk of >1:200 for eoPE. The aim of this study is to compare that approach to the currently recommended screening strategy from the ASPRE trial of considering all women with a risk >1:100 for pPE at risk.

Material and Methods: All women who agreed to first trimester combined screening for PE until June 2017 (before the ASPRE trial) at our clinic were included. Outcomes were obtained from our clinical data system. GraphPad 8.0 was used for statistical analysis.

Results: Between January 2014 and June 2017 we included 1904 women in the study, outcomes were available for 1722 pregnancies (90.4%). 161/1722 (9.3%) pregnancies were screen positive for eoPE using the cut-off of >1:200, while 105 additional pregnancies or 266/1722 (15.4%) were screen positive for pPE using a cut-off of >1:100. This difference in screen positive rate is highly significant (p<0.0001). Of interest, all 161 pregnancies screen positive for eoPE were also screen positive for pPE. The prevalence of eoPE, pPE, and term PE was 0.35% (n=6), 0.64% (n=11), and 1.21% (n=21), respectively. Ten women that developed pPE and 8/21 pregnancies with term PE were screen positive for eoPE. None of the additional 105 women developed pPE, only one developed PE at term without having received a prescription for LDA. Of the remaining 12 cases with term PE all were classified as low risk by both strategies.

Discussion: Screening for pPE by using a cut-off of 1:100 results in a false positive rate (FPR) of almost 15% without an increase in the detection rate of pPE compared to the screening strategy we applied before the publication of the ASPRE trial. While LDA appears to be safe in pregnancies at risk, the effect in reducing PE clearly correlates to compliance and the FPR should therefore ideally be low. Therefore using a stricter cut-off might even improve PE-reduction. Further data also from our changed screening policy after June 2017 as well as the prescription of 150mg aspirin thereafter will hopefully help to answer this question.
Pregnancy related sources of information used by patients at the University Hospital Zurich

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Clinic: Obstetrics, University Hospital Zurich

Introduction: Information acquisition of pregnant women underwent a relevant change during the last decades due to globalization and new sources of information such as internet and social media. Different studies show, that up to 80% of pregnant women seek for information online. Health professional's knowledge about patient's sources of information has been shown to improve understanding and counseling of patients.

Patients and Methods: Over a period of one month, between August and September 2018, a prospective survey on pregnancy related sources of information was performed by means of an electronic questionnaire. The enquiry took place during the postnatal hospitalization including all women that gave birth at University Hospital Zurich. Women after late abortion or stillbirth delivery were excluded. The sources of information were compared by women's parity, nationality, native language, education level and age.

Results: A total of 249 births were registered during the period, 78% (N=197) could be included in the study. 78% of the study participants were overall satisfied with the received information. The most frequent source of information were the internet (60%), the gynecologist (35%) and friends/family (18%). Primiparas used the internet significantly more often as primary source of information in comparison with multiparas (p=0.05). Women with a university degree furnished information significantly more frequently from the gynecologist (p=0.001) and from friends/family (p=0.018). The gynecologist was rated the best source of information before and during pregnancy as well as for birth, whereas midwives received best evaluation for the postnatal phase. In unexpected situations the gynecologist followed by the internet were consulted most frequently. 10% of all women encountered fake news and indicated their principal sources to be internet and friends. 47% of all women asked for more frequent midwife consultations during a next pregnancy.

Conclusion: The presented data underlines the significance of the internet as a widely used source of information throughout pregnancy. Simultaneously, the role of health professionals remains crucial, as the gynecologist is rated the best source of information and women are demanding for more midwife consultations. Nowadays, more than ever, women rely on health professionals as a guidance in the excess of possible sources of information.
Effect of methamphetamine hydrochloride on pregnancy outcome – a systematic review and meta-analysis

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Background: Methamphetamine hydrochloride is one of the most widespread psycho-stimulants in the world. Nevertheless, its effect on pregnant women and their neonates has not been investigated extensively.

Objective: To systematically review the literature for the effect of methamphetamine exposure during pregnancy to neonatal and pregnancy outcomes.

Materials and Methods: A meta-analysis of retrospective, case-control studies was conducted. Inclusion criteria were women who have used methamphetamine during pregnancy, determined by self-report, maternal or neonatal urine test and / or meconium toxicology, compared to control women not taking methamphetamine. Main study outcomes were gestational age at birth, neonatal characteristics (birth weight, head circumference, body length) and prevalence of gestational hypertensive disorders.

Results: Eight studies involving 626 women taking methamphetamine during pregnancy and 2626 controls were included in the meta-analysis. Pregnancies complicated by the use of methamphetamine resulted in younger gestational age at birth [mean difference (MD) -0.90 weeks, 95% confidence interval (CI) -0.11, -1.69], lower birth weight (MD -245 g, 95% CI -137, -353), head circumference (MD -0.88 cm, 95% CI -0.48, -1.28), body length (MD -0.94 cm, 95% CI -0.55, -1.32) and Apgar score (MD -0.94, 95% CI -0.33, -1.54) compared to control pregnancies. On the contrary, there was no statistical difference on the incidence of pre-eclampsia [Risk Ratio (RR) 1.77, 95% CI 0.75, 4.14] and hypertensive complications (RR 1.62, 95% CI 0.37, 7.06).

Conclusions: Use of methamphetamine during pregnancy results in a deterioration of neonatal somatometric characteristics (birth weight, head circumference, body length) but not in excessive pregnancy complications (hypertension).
Prepartum Factor XIII has significant Impact on Postpartum Blood Loss

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Introduction: Postpartum hemorrhage (PPH) is a major cause of maternal mortality and morbidity and besides several known risk factors often occurs unexpectedly. Aim of this study was to assess the possible influence of prepartum activity of coagulation factor XIII on postpartum blood loss.

Methods: In this monocentric, prospective study, prepartum activity of coagulation factors I, II and XIII was analyzed in 1300 patients. Blood samples were drawn within 36 hours prior to onset of delivery. To avoid treatment paradox, all samples were assessed in a batch weeks after the delivery of the last patient. Thus, peripartum management was not biased by the clotting results. Correlations of coagulation factors with measured blood loss (MBL) were assessed by continuous outcome logistic regression, with and without stratification per mode of delivery. In a second step, the impact of potential effect modifiers with either prepartum or both pre- and postpartum available variables was evaluated.

Results: F. XIII demonstrated a high correlation with MBL: for every unit increase of F. XIII, the odds ratio to remain below any cut-off for MBL was 1.011 (95% CI, 1.006 to 1.015; p<0.001, Table 1). Hence, a hypothetical increase of F. XIII activity by 30% would result in a 38.9% increase of the probability not to suffer from PPH. This effect was seen independently of the statistical model applied, after stratification for delivery mode, for any given cut-off for MBL, and likewise after consideration of other risk factors. The effect size of F. XIII on blood loss was evaluated in different clinical subgroups, thus preparing the ground for further clinical trials. According to our analysis, women aged ≤ 28 years, with a single fetus pregnancy and body mass index > 20.7 kg/m² might benefit most from a pre-emptive substitution of F. XIII. For instance, a hypothetical 50% increase of F. XIII activity in this subgroup might reduce the probability of suffering from blood loss ≥ 500 mL by 62.5% and for blood loss ≥ 1000 mL by 66.7%. Interestingly, prepartum F. I did not have any effect on postpartum blood loss.

Conclusion: In this up to date largest analysis of the impact of F. XIII activity on postpartum blood loss, prepartum F. XIII activity was highly correlated with blood loss irrespective of the statistical model or clinical subgroup applied. Interventional studies are required to assess whether increasing F. XIII is effective to lower the probability of PPH.

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<th>Odds Ratio (95% CI)</th>
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<td>F. XIII</td>
<td>1.011 (1.006 - 1.015)</td>
<td>&lt;0.001</td>
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<tr>
<td>F. I</td>
<td>1.001 (0.999 - 1.001)</td>
<td>0.07</td>
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<td>F. II</td>
<td>1.001 (1.001 - 1.004)</td>
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Abstract: Haslinger et al. Prepartum Factor XIII has significant Impact on Postpartum Blood Loss
The prevalence of gestational diabetes mellitus: The influence of changing diagnostic criteria in Switzerland

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Introduction: Gestational diabetes mellitus (GDM) is one of the most common medical complication during pregnancy that affects up to 8% of women. With growing epidemics of obesity and other metabolic disorders as well as delayed childbearing the prevalence of GDM is expected to continue to rise. Moreover, with the introduction of new diagnostic criteria its prevalence may further increase. This research aimed to estimate the trends in GDM prevalence in Switzerland over time while showing the significance of the adoption of the International Association of Diabetes and Pregnancy Study Groups (IADPS) diagnostic criteria in 2011.

Material and Methods: We took advantage of a large retrospective nation-wide cohort that includes 349'755 mothers that gave birth between 2005 and 2016 in Switzerland and assessed GDM, pre-existing diabetes and obesity prevalence as well as frequencies of caesarian section.

Result: Prevalence of GDM only marginally increased from 2.1% in 2005 to 3.6% in 2010 while almost dripped to 9.4% in 2016. However, pre-existing diabetes and obesity prevalence and frequencies of caesarian section do not significantly correlate with the rise of GDM prevalence after 2010.

Conclusion: This project highlights an important increase of GDM prevalence after 2010 due to changes in diabetes screening during pregnancy. These trends of GDM prevalence are independent of obesity epidemics and other metabolic disorders.
Dietary pattern and protein intake in a Swiss cohort of pregnant women

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Objectives: The objective of this study was to evaluate the macronutrient intake and dietary pattern of pregnant women, in a Swiss cohort mainly focusing on protein intake. Protein intake above or below the recommendations in pregnancy can harm the mother and the fetus. We studied data from the Dietary-History nutrition assessment tool used by PEBS. The PEBS program (Präventive Ernährungsberatung in der Schwangerschaft bis ein Jahr nach Geburt) is a nutrition intervention in the Department of Obstetrics at University Hospital Zurich. The aim of the program is to assist and educate pregnant women early in pregnancy to avoid malnutrition and support normal weight gain.

Methods: Trained dieticians counselled 1’969 pregnant women between 2009 and 2018 and collected information on their macronutrient intake (in grams) and dietary patterns (in portions). A sub-study comparing PEBS Dietary History tool with PRODI nutrition software was performed to establish correction factors. Additionally, data on maternal origin was gathered and categorized by the World Bank Ranking (WBR) system into high-, upper-middle-, lower-middle- and low-income countries. Descriptive statistical analysis was performed using the R Studio software.

Results: Of 1’969 pregnant women, 1’563 women (79%) had a complete data set. The maternal age ranged from 16 to 47 years and the average week of gestation at counselling was 18 weeks. The overall mean protein intake was 61.9g/day, 56.6g for Swiss women and 63.1g for non-Swiss women. After grouping the non-Swiss women according to the WBR system, the mean daily protein intake was 63.9g for high-income group, 65.2g for upper-middle-income group, 61.9g for lower-middle-income group and 54.9g for low-income group. 47.7% of all women reached the recommended dietary intake for protein, but only 34.7% of Swiss women achieved this goal. The dietary patterns in comparison with the Swiss Food Pyramid are shown as mean of portions/week (in brackets: recommended portions/week): water 116.7 (140), fruits & vegetables 32.5 (35), legumes 1.2 (2), meats 7 (7), diaries 13.6 (21), fats & oils 19.8 (21) and sweets 14.7 (7).

Conclusion: The origin of the mothers seems to influence the protein intake. More than half of all pregnant women were not able to cover their recommended daily protein intake, mainly because of a low dairy product consumption.
Cohort profile: The Swiss Mother and Child HIV Cohort Study (MoCHiV)

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Introduction: In Switzerland data from HIV-infected pregnant women and their children was collected since 1986 by the Swiss Neonatal HIV Study and since 1989 by the Swiss HIV and Pregnancy Study. In 1999 the former two studies were united into one cohort, the MoCHiV Cohort Study and the full integration into the Swiss HIV Cohort Study (SHCS) was established. MoCHiV is an on-going prospective study, providing longitudinal data of HIV-infected mothers and their children.

Material and Methods: For a dissertation thesis this cohort profile of the MoCHiV-Study was drawn up to outline the content of the collected data. The aim was to present the contribution of the MoCHiV-Study to the prevention of mother-to-child transmission (MTCT) during the past thirty years. Furthermore a literature review was done with analyzing 98 MoCHiV based publications.

Results: Two thirds of HIV-infected women living in Switzerland were registered in the MoCHiV-Cohort. The study includes 1248 mother-and-child pairs, collected form seven hospitals. Zürich has the largest population with 352 pairs. 281 HIV-infected children and 1571 non-infected children are registered. The most common source of HIV-infection is heterosexual transmission (77.38%). Since combined antiretroviral therapy was approved for use during pregnancy in 1998, the percentage of HIV-infected women with non detectable viral-load (VL) at time of birth steadily increased. 43 deliveries by HIV-infected mothers were registered in 2016 with 93.1% of them having a non detectable VL at time of delivery. Through different interventions and the increasing suppression of VL, the vertical MTCT has been steadily reduced to less than 1%. The rate of preterm deliveries before 37 weeks of gestation in the MoCHiV-Study is 12.77%. Gestational diabetes is the most common obstetrical problem among registered HIV-infected pregnant women with 20.53%. Recently and based on MoCHiV data Switzerland was the first country in Europe recommending the abandonment of post-exposition-prophylaxis in children born to HIV-infected mothers in case of fully suppressed VL at the time of delivery. And in 2018 new recommendations on breastfeeding for HIV-infected mothers were published in Switzerland.

Conclusion: The MoCHiV-Study provides a unique longitudinal data collection and is of major importance in the national and international HIV-research community. The Swiss data was a major contributor to many of the most important findings concerning the prevention of MTCT in the past thirty years.
Abnormally invasive placenta in Switzerland 2005-2016

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Introduction: Conditions involving an abnormally invasive placenta (AIP) are potentially life-threatening complications of pregnancy. History of uterine surgery is a known major risk factor for these disorders. We sought to examine how the rate of AIP has changed in recent years in Switzerland and to compare the prevalence of these disorders in patients with and without history of Cesarean section (CS) in the Swiss population.

Materials and Methods: Data from 386,802 singleton deliveries was collected retrospectively from the Arbeitsgemeinschaft Schweizerischer Frauenkliniken (ASF) database 2005-2016. Births were grouped according to maternal parity and history of CS. Trends in the fraction of births to mothers with history of prior CS and the incidence of AIP (placenta accreta, increta, and percreta) were evaluated using linear regression analysis. Statistical significance of data trends was defined as a non-zero slope with p value of p<.05.

Results: Over the 12-year period examined, the fraction of women with history of CS rose significantly from approximately 12% to 14% (p<0.0001). During the same interval, the incidence of AIP remained stable at approximately 0.4%. Among women with one previous birth, patient with history of CS were significantly more likely to develop an AIP than those with no history of CS (p<0.01). Among patients with increased parity, women with up to three previous CS were also more likely to develop AIP in comparison with patients with history of only vaginal deliveries (p<0.01).

Conclusion: As has been already demonstrated for other cohorts, history of CS was associated with an increased incidence of AIP in our study population. Interestingly, despite the rising fraction of births to women with history of C-section, the incidence of AIP remained stable over the studied time period. This finding suggests a significant role for other risk factors predisposing to these AIP diagnoses.
Obstetrical and fertility outcomes following pelvic arterial embolization for postpartum hemorrhage: a cohort follow-up study

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Objectives: Management of severe postpartum hemorrhage (PPH) includes pelvic arterial embolization (PAE). Despite its widespread use, there is still insufficient data regarding fertility and obstetrical outcomes following PAE for PPH. The purpose of our study was to evaluate long-term outcomes of patients who underwent PAE for PPH, particularly with regard to subsequent fertility and following pregnancies.

Material and Methods: 28 patients who underwent pelvic arterial embolization for PPH at our institution between 2009 and 2019 were included in our retrospective study. Data were assessed by reviewing patients’ charts and directly contacting the patients.

Results: Six (21%) patients had elective PAE prior to caesarean hysterectomy in placenta increta/percreta, and were therefore excluded from this analysis. Data from 17 (77%) of the remaining patients could be successfully assessed. 13 (76%) of the interviewed patients reported having regular menstruation after PAE, two of them only after hysteroscopy was performed (either because of cervical stenosis or presence of Ashermann syndrome). In three (17%) patients, menstruation was either irregular or weak. One of the patients reported having lactational amenorrhea. Six women had no desire for a subsequent pregnancy. Seven of the remaining patients (63%) had a total of 13 spontaneous pregnancies. Nine of these pregnancies resulted in a miscarriage in the first trimester, seven of them in the same patient. Of the four patients (36%) who had a successful term pregnancy, one delivered vaginally (25%) and three underwent repeat cesarean section (75%). Two patients (50%) had recurrent postpartum hemorrhage, which could be treated with conservative measures. One patient suffered from recurrent placenta accreta and one pregnancy presented with vasa previa. Of the patients with infertility (n=5, 29%), two (11%) underwent assisted reproductive technology (ART) treatment without success.

Conclusion: Our study suggests that fertility of patients undergoing pelvic arterial embolization due to PPH in a previous pregnancy is limited. In women who become pregnant, first trimester miscarriage as well as recurrent PPH seem to be increased. If this is the consequence of the underlying cause of PPH or of the PAE treatment remains unknown. Larger follow-up cohorts are needed. In the meantime, patients who desire pregnancy after PAE for PPH should be counseled accordingly.
Natural history of ventriculomegaly in fetal agenesis of the corpus callosum

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**Clinic:** 1) Maternal Fetal Medicine Unit, Department of Obstetrics and Gynaecology, 2) Obstetrics Unit, Department of Mother and Child, University Hospital Lausanne, 3) Neuroradiology, Department of Diagnostic Imaging, Hospital for Sick Children and University of Toronto, 4) Department of Pediatrics/
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**Introduction:** Isolated agenesis of the corpus callosum (ACC) is associated with good neurodevelopmental outcomes in up to 70% of the cases. However, it is unknown whether cases with ACC and ventriculomegaly can still be considered as ‘isolated’ and have similar outcomes to ACC without ventriculomegaly. The aim of this study was to assess the natural evolution of the size of the fetal lateral ventricles throughout the pregnancy in fetuses with callosal anomalies in an attempt to further clarify its potential impact on postnatal outcomes.

**Material and Methods:** Retrospective analysis of all cases of fetal callosal anomalies assessed at the Fetal Medicine Unit at Mount Sinai Hospital, Toronto, between 2008 and 2018. Cases were classified as isolated or complex based on the presence of other structural or genetic anomalies. (Longitudinal) ultrasound studies were reviewed and postnatal outcomes were retrieved for isolated cases.

**Results:** We retrieved 135 fetuses with corpus callosal anomalies, of which 33 had isolated agenesis of corpus callosum. At the time of first presentation, 97 fetuses (72%) had ventriculomegaly. Fetuses who first presented after 24 weeks gestation were more likely to have ventriculomegaly (N=58/68; 85%) than those who presented prior to 24 weeks (N=39 of 67; 58%, p<0.001; figure 2). In 79 cases who had longitudinal follow-up, the mean increase in ventricular width was 0.6mm per week, without significant difference between isolated and complex cases (0.6 ± 1.5mm vs 0.6 ± 1.1mm; p=0.45). Postnatal follow-up was available at a mean age of 20 months (range 8-36 months) for 7 infants with prenatally isolated agenesis of the corpus callosum. All had severe ventriculomegaly at birth. Five had normal neurodevelopment (71%) and two had mild delay.

**Conclusion:** Both isolated and complex callosal anomalies are frequently associated with progressive ventriculomegaly and 85% will have ventriculomegaly in the third trimester of pregnancy. Normal neurodevelopmental outcome is possible even with severe ventriculomegaly. In summary, our results suggest that ventriculomegaly is part of the disease spectrum, and that there is, until now, no clear link between severity of ventriculomegaly and neurodevelopmental outcome.
Prediction of Pathological Complete Response in Breast Cancer Patients during Neoadjuvant Chemotherapy: Is Shear-Wave Elastography a useful Tool in Clinical Routine?


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**Introduction:** For breast cancer patients, methods to differentiate between residual tumour tissue and a pathological complete response (pCR) during or at the end of neoadjuvant chemotherapy (NACT) could be of great clinical relevance for a refined therapy decision, individually reduced surgical approaches, as well as for patient’s prognosis. However, standard clinical assessment methods have not yet shown sufficient accuracy to predict pCR. Shear-wave elastography (SWE) as an additional assessment tool in breast diagnostics monitors tissue stiffness and is already used for the differentiation of benign and malignant lesions. The objective of this study was to compare the validity of Shear Wave Elastography (SWE) for the preoperative assessment of pathological complete response (pCR) to standard clinical assessment in breast cancer patients undergoing neoadjuvant chemotherapy (NACT).

**Materials and Methods:** This prospective, consecutive clinical trial was conducted under clinical routine conditions in a certified breast unit. Analysis included 134 patients. SWE served as index test, final pathology as reference standard. PCR (ypT0) was defined as primary endpoint. Elasticity changes were compared for the pCR- vs. non-pCR group. To determine the validity of shear wave velocity (Vs), ROC analyses and diagnostic accuracy parameters were calculated and compared to the final standard clinical assessment by physical examination, mammography and B-mode ultrasound (ycT+ vs. ycT0).

**Results:** Vs was significantly reduced in pCR and non-pCR groups during NACT (pCR: ∆Vs(abs)=3.90 m/s, p<0.001; non-pCR: ∆Vs(abs)=3.10 m/s, p<0.001). The pCR-group showed significant lower Vs for all control visits (t1,2,END: p<0.001). ROC analysis of Vs yielded moderate AUCs for the total population (t0: 0.613, t1: 0.745, t2: 0.685, tEND: 0.718). Best AUCs were observed for the subgroup of Her2 negative tumours (t0: 0.710, t1: 0.795, t2: 0.714, tEND: 0.703). Compared to standard clinical assessment, Vs(tEND) (cut-off: ≤3.35 m/s) was superior in sensitivity (79.6% vs. 54.5%), NPV (86.4% vs. 77.5%), FNR (20.4% vs. 45.5%), inferior in specificity (58.6% vs. 77.5%), PPV (46.3% vs. 54.5%), FPR (41.4% vs. 22.5%).

**Conclusion:** SWE measures significant differences in tumour elasticity changes in pCR vs. non-pCR cases. SWE shows improved sensitivity compared to standard clinical assessment, high NPV and low FNR, but failed in specificity in order to predict pCR in a clinical routine setting.
Comparison of the diagnostic accuracy between radial and conventional meander-like breast ultrasound in a clinical setting

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Introduction: Radial breast ultrasound (rUS) complements conventional meander-like ultrasound (mUS) in the case of intraductal pathologies but is rarely applied by itself in routine breast ultrasound. Here we compare rUS and mUS with respect to the diagnostic accuracy and detection rate of malignancies.

Materials and Methods: This prospective, single-center study was conducted from August 2011 to August 2014 at the University Hospital Basel, Switzerland. Consenting women of an unselected, mixed collective received a bilateral whole rUS and mUS by two independent examiners using the same type of US equipment. A 92mm probe was used for rUS, and a 50mm linear probe for mUS.

Statistics: For both methods, the sensitivity, specificity, PPV, NPV and accuracy were calculated with a 95% confidence interval. The histologic diagnosis served as gold standard. The difference between benign and malignant lesions was compared using t-test and chi-square test. The examination time was compared between the mUS and rUS using a Wilcoxon signed rank test with continuity correction.

Results: In 2131 eligible combined US examinations, 168 (7.9%) suspicious lesions were detected in 148 patients, and 36 (1.7%) breast cancers were diagnosed. The patients had a mean age of 47.12 years. Women diagnosed with breast cancer (57.82 years) were significantly (p<0.001) older than women with benign lesions (44.05 years). Sensitivity was 88.9% for both methods. Specificity was 86.4% for mUS and 89.4% for rUS. Accuracy, PPV and NPV were 86.9%, 64.0% and 96.6% for mUS and 89.3%, 69.6% and 96.7% for rUS. Two malignant breast lesions were characterized as BI-RADS 3 by both methods, corresponding to a false negative rate of 5.6%. Two breast cancers were missed by one method but correctly identified by the other (cancer missed rate: 5.6%). The false positive rate was 13.6% (n=18) for mUS and 10.6% (n=14) for rUS. The number of benign lesions not revealed was one (0.8%) for mUS and three (2.3%) for rUS. The mean examination time for rUS (14.73 min) was significantly (p<0.01) shorter than for mUS (22.54 min).

Conclusion: Radial breast ultrasound can safely be performed as an alternative method to conventional meander-like ultrasound in routine whole bilateral breast examination, since cancer detection rate, sensitivity, specificity, accuracy, cancer missed rate, and false negative rate of the two methods are similar. However, examination time is significantly reduced in rUS.
Routine Axillary Ultrasound in asymptomatic patients leads to unnecessary biopsies

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**Introduction:** The axillary ultrasound (AUS) is a non-invasive and fast method to assess lymph node status in the preoperative staging of breast cancer patients and in follow-up. However in many breast centers it is also performed in addition to breast ultrasound in asymptomatic patients. With the increased use of breast ultrasound for different indications, sonographic abnormal axillary lymph nodes as an incidental finding are not rare and may lead to unnecessary biopsies. The aim of our work was to assess the utility of routine AUS in asymptomatic patients.

**Material and Methods:** We performed a retrospective analysis of a data set from 82 patients who underwent an axillary lymph node biopsy +/- fine needle aspiration in our certified breast center between 01.2014 and 01.2019. We collected information about patient’s characteristics, medical history, clinical examination, ultrasonographic findings and histological and/or cytological results.

**Results:** 82 consecutive patients underwent a lymph node biopsy and/or fine needle aspiration. Indications were follow-up for breast cancer (BC) in 26 (31.7%), newly diagnosed BC in 25 (30.5%), abnormal axillary lymph nodes in other previous imaging in 16 (19.5%) patients. In 15 (18.3%) women AUS was performed as a part of the breast evaluation for screening, mastodynia or benign breast diseases. The mean age in these patients was 51 years (36-76y). In one out of 15 patients histology showed a chronic lymphocytic leukemia already known in this patient. All other biopsies showed a benign result. Clinical exam of the Axilla was also only of limited utility. 7 (46.7%) women had clinical positive lymph nodes with negative histological result in 6 out of 7.

**Conclusion:** In our collective AUS in the work-up of benign breast diseases or screening in asymptomatic patients lead to unnecessary biopsies in 14 patients. The routine use of AUS in patients without pathological findings in breast imaging should be discussed.
Involuntary reflexive pelvic floor muscle training in addition to standard training versus standard training alone for women with stress urinary incontinence: a randomized controlled trial

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**Introduction:** Even though fast involuntary reflexive pelvic floor muscle (PFM) contractions seem crucial during stress urinary incontinence (SUI) provoking situations the focus of PFM training so far is on voluntary PFM contractions. Training procedures for involuntary reflexive muscle contractions are widely implemented in rehabilitation and sports but not yet in PFM rehabilitation. Therefore, the research group developed two PFM training protocols, one including standard physiotherapy (PT) and one additionally focusing on involuntary reflexive PFM contractions. The study aim was to compare the two PT programs regarding their effect on SUI.

**Material and Methods:** The present study was designed as a prospective, triple-blinded (participant, investigator, outcome assessor) randomized controlled trial (intention to treat) with two PT intervention groups: CON = control group (standard PT), EXP = experimental group (standard PT + involuntary reflexive PFM training). The primary outcome was the International Consultation on Incontinence Modular Questionnaire Urinary Incontinence short form (ICIQ-Ulsf). This trial was registered on clinicaltrials.gov (NCT02318251) and the study protocol published in Trials (2015). Ninety-six participants were included (48 per group). To analyze group differences (CON vs. EXP) and the development over time (pre, PT1, …, PT9, post) concerning the primary outcome, mixed effect regression models were used, which allow to account for within-participant correlations by random effects. The significance level was $P \leq 0.05$.

**Results:** The analysis of intervention effects revealed that the total score of the primary outcome decreased significantly over time (pre/post) by about 3 points for both groups (EXP: 10.3/7.4; CON: 10.0/7.0), however, did not differ between groups.

**Conclusion:** This study showed clinically relevant improvements in SUI in the CON as well as in the EXP group. However, there was still moderate SUI present in both groups after the intervention. These results are comparable to former physiotherapy intervention studies. Future studies should, on the one hand, investigate criteria oriented and not time-oriented PFM training programs, i.e. individualize PFM training protocols. And, on the other hand, training methods for PFM hypertrophy, intramuscular coordination and (involuntary reflexive) force development rate, which are comparable to conventional skeletal muscle training, i.e. performed with higher intensities and workout, should be tested.
ICG in endometriosis – Visualization of endometriosis with laparoscopy and near infrared optics with indocyanine green

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**Introduction:** Endometriosis is a public health problem with an increasing incidence and various symptoms. Surgical treatment relieves pain and improves fertility by radically removing endometriotic lesions. However, peritoneal endometriotic lesions may vary significantly in their appearance in standard white light (WL) laparoscopy and therefore may be difficult to be identified. Because endometriosis is associated with hypervascularisation the visualization of tissue perfusion by additional use of near infrared (NIR) fluorescence imaging with indocyanine green (ICG) may improve the detection of peritoneal endometriotic lesions.

**Material and Methods:** In a single-center, prospective pilot study patients undergoing laparoscopic surgery for suspected endometriosis and/or infertility were recruited. All patients had first WL imaging with systematical visualization and documentation of all suspicious areas of the pelvis, the whole peritoneum and the domes of diaphragm. Then ICG was administered intravenously at 0.3mg/kg and the near infrared imaging was activated and an identical documentation of suspected lesions was performed again. After removal, the specimen were send to pathology.

**Results:** Sixty-three patients were enrolled. Median age was 33.7 years and a median BMI 23.4 kg/m². Nine patients (14.3%) had no endometriosis and 33 (52.4%) had deep infiltrating endometriosis (DIE). The majority of the patients had preoperative hormonal treatment (57.1%). Mean operation time was 163.5 minutes and mean blood loss 110.8ml. No complications due to the administration of ICG occurred. In total 173 suspected lesions were identified and excised with both methods and 150 of them were histologically proven endometriosis. 166 lesions were detected in WL and 149 of them were endometriosis, positive predictive value (PPV) for WL of 89.8%. 32 lesions were detected with ICG and 22 of them were endometriosis, PPV for ICG of 68.8%. Of the seven additional lesions that were identified with ICG alone, only one was proven to be endometriosis in final pathology.

**Conclusion:** NIR-imaging with ICG in endometriosis is feasible; however, the positive effect in detecting endometriosis seems minimal. Surgeon experience and high-resolution imaging in laparoscopy contribute to a larger share to the high efficacy of WL imaging alone. In our experience, ICG did help to define the boarders of DIE and to delimit it from the surrounding tissue.
Poster Presentation and Exhibition

P I – P III = Poster Presentation and Exhibition
Comparative analysis of caesarean section rate in 2013 and 2016 using the Robson ten group classification

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Introduction: The Robson ten group classification system (RTGC) uses obstetric characteristics to categorize all women admitted for delivery into one of ten mutually exclusive and totally inclusive groups. The World Health Organization (WHO) and the International Federation of Gynecology and Obstetrics (FIGO) recommend the RTGC as a global standard for assessing, monitoring and comparing Cesarean section CS rates. The RTGC was imbedded in our documentation system 2013. The aim of the study was to compare the CS rates over time together with maternal and neonatal outcome.

Material and Methods: This retrospective study included all women and their newborns who delivered ≥24+0 weeks in a single center in the year 2013 and 2016. The study was accepted by the ethics commission of northwest- und central Switzerland. In 2013 2227 women and their 2327 newborns were included in the RTGC, compared to 2513 women and 2653 newborns in 2016. Maternal characteristics, mode of delivery and neonatal outcome according to the different groups were analyzed.

Results: Maternal age, BMI and the CS rate did not differ between the groups 2013 and 2016. Obstetrical management did not change except the protocol for induction of labor. In 2016, 577 women had an induction of labor, mostly with one medication. CS rate after receiving one medication was 23.5%. There was a significant decrease in CS in multiparous low risk women and a tendency in nulliparous women. (Table 1) In 2013, 21.5% (n=292) of the neonates were transferred to the neonatal intensive care unit. The neonate outcome of 2016 is in progress.

Conclusions: The CS rate in 2013 and 2016 were similar. An established and integrated RTGC-system helps to understand the CS rate in different patient populations, allows a detailed analysis of the development of the CS rate. It reflects changes in obstetrical management taking into account neonatal outcome.

<table>
<thead>
<tr>
<th>RTGC</th>
<th>2013 CS rate (%)</th>
<th>2016 CS rate (%)</th>
<th>Difference</th>
<th>Significance level</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<td>606(18.5)</td>
<td>3.40%</td>
<td>P = 0.1234</td>
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<tr>
<td>2</td>
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<td>379(46.4)</td>
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<td>P = 0.2739</td>
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<td>2a</td>
<td>27(4.8)</td>
<td>31(15.8)</td>
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<td>P = 0.0545</td>
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<tr>
<td>2b</td>
<td>39(10.0)</td>
<td>60(18.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>504(6.5)</td>
<td>522(2.5)</td>
<td>3.00%</td>
<td>P = 0.0017</td>
</tr>
<tr>
<td>4</td>
<td>172(27.3)</td>
<td>150(13.9)</td>
<td>13.40%</td>
<td>P = 0.0028</td>
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<tr>
<td>4a</td>
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<td>144(15.6)</td>
<td>0.40%</td>
<td>P = 0.0084</td>
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<tr>
<td>4b</td>
<td>25(10.0)</td>
<td>14(10.0)</td>
<td></td>
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<tr>
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<td>264(7.4)</td>
<td>356(47.7)</td>
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<td>47(91.1)</td>
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<tr>
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<td>133(75.9)</td>
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<td>9</td>
<td>12(100.0)</td>
<td>7(100.0)</td>
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<tr>
<td>10</td>
<td>14(38.2)</td>
<td>167(48.5)</td>
<td>9.30%</td>
<td>P = 0.0993</td>
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<tr>
<td>Total</td>
<td>2227(34.3)</td>
<td>2513(34.9)</td>
<td>0.10%</td>
<td>P = 0.9693</td>
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</table>
Maternal and fetal complications following fetal myelomeningocele repair – the first 100 cases operated at the Zurich Center for Fetal Diagnosis and Therapy

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Introduction: Despite the unequivocal benefits of open fetal myelomeningocele (fMMC) repair, this intervention remains associated with maternal and fetal risks. The advantages of a systematic classification of the maternal risks after fMMC repair according to a therapy-oriented classification of surgical complications by Clavien-Dindo have been shown earlier. The aim of this study was to systematically categorize the first 100 cases operated at the Zurich Center for Fetal Diagnosis and Therapy applying the above mentioned system for both, the mother and the fetus.

Patients and Methods: Between 2010 and 2018, 100 patients underwent fMMC repair at the Zurich Center for Fetal Diagnosis and Therapy. We prospectively collected and analyzed all maternal and fetal complications following fMMC repair according to the Clavien-Dindo classification (Grade 1 = minor complications not requiring any treatment, Grade 2 = complication requiring pharmacological treatment, Grade 3 = complications requiring surgical intervention, Grade 4 = life-threatening complication requiring IC/ICU management, Grade 5 = death). For additional quality control, this data were compared to the results of the ‘MOMS-Trial’.

Results: Gestational age (GA) at surgery and birth were 25.0+/-0.8 weeks and 35.5+/-2.0 weeks (MOMS: 34.1 +/-3.1) respectively. Birthweight was 2586.5+/-479g (MOMS: 2383+/-688g). No complications occurred in 21% of the cases. Maternal complications were observed as followed (overall/operation related): Grade I 60%/48%, Grade II 44%/34%, Grade III 26%/13%, Grade IV 8%/6%, Grade V 0%. In 33% premature rupture of membranes was noted (MOMS: 46%), 17% chorioamniotic membrane separation (MOMS: 26%), 2% pulmonary edema (MOMS: 6%), 0% blood transfusion (MOMS: 9%), 9% placental abruption (MOMS: 6%), 11% chorioamnionitis (MOMS: 3%), 1% uterine rupture (MOMS: 1%). Additionally 3% of pulmonary embolism were observed. As for fetal complications, there was one intrauterine resuscitation with consecutive delivery directly after the fMMC repair due to a placental abruption, 1% of severe preterm birth < 30. weeks, 29 % between weeks 30-34, and 35 % late preterm births after 34. weeks.

Conclusion: This study refreshes the consciousness of complications following open fMMC repair by showing serious maternal complications in 8% of all cases. The hereby-applied systematic classification of complications allows a tide quality control and blazes the trail for further management improvement as well as for comparisons between different centers.
Measurement of cervico-vaginal placental alpha-microglobulin-1 (PAMG-1) combined with cervical length to predict preterm birth in twin pregnancies with preterm labor

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Objective: More than 50% of twins are born before the 37th week of gestation. One of the risk factors for preterm birth (PTB) in twin pregnancies is preterm labor (PTL). Less than 50% of women with PTL in a twin pregnancy will give birth within 7 days of presentation. An accurate diagnostic test would avoid unnecessary hospital admissions and therapy. The placental alpha-microglobulin-1 (PAMG-1) is a protein that can be found in high concentrations in the amniotic fluid and in lower concentrations in the vaginal secretion in patients with signs of preterm labor without rupture of membranes. The test has been evaluated for singleton pregnancies and seems to be reliable in predicting PTB in these patients. The purpose of our study is to evaluate the accuracy of the PAMG-1 test (Partosure®) in twin pregnancies.

Material and Methods: We included 37 twin pregnancies (between 24 0/7 and 36 6/7 gestational weeks) in this prospective observational trial. All patients presented with symptoms of PTL. We evaluated the sensitivity (SN), specificity (SP), positive predictive value (PPV) and negative predictive value (NPV) of PAMG-1 measurements. The performance of the test was calculated for a presentation-to-delivery interval of ≤2, ≤7 and ≤14 days. In addition, we calculated PAMG-1 performance in combination with other variables, such as ultrasonographic cervical length (CL) measurements.

Results: 36 (97%) women were hospitalized and received tocolytics and corticosteroids. 7 (18%) patients gave birth within the first week of hospitalization. Mean (±SD) test-delivery interval was 33.85 (±23.77) days. We detected for CL<15 mm a SN of 0.57 in the ≤7 days interval, a SP of 0.73, a NPV of 0.88 and a PPV of 0.33. For PAMG-1 test only, SN was 0.14 in the ≤7 days interval and SP was 1, PPV was 1 and NPV was 0.83. When PAMG-1 diagnostic was combined with a prognostic factor such as CL <15 mm, we obtained a SN of 0 and a SP of 1 for all intervals. NPV was 0.81 and PPV could not be determined, as no positive tests were found in this subgroup.

Conclusions: As shown before in singleton pregnancies, the use of PAMG-1 test alone, as well as in combination with CL measurements in twin pregnancies has a high SP, as compared to CL measurement only. PPV was high for the test alone but could not be determined when combined with CL measurement. PAMG-1 combined with CL measurement seems to be an effective tool in predicting PTB in twin pregnancies, although further investigations are needed.
Maternal bariatric Surgery in a Swiss matched Cohort Study: More Harm than Good?

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Introduction: Obesity is increasing worldwide amongst the population at reproductive age and is a known risk factor for reproductive health problems and adverse pregnancy outcome. Nowadays bariatric surgery is a therapeutic option for women who do not achieve weight loss through dietary modifications and exercise. This study is the first matched cohort study to compare fetal and maternal outcomes after bariatric surgery at a tertiary hospital in Switzerland.

Material and Methods: All women with a history of bariatric surgery who delivered at our institution between 2005 and 2018 were identified retrospectively. Data on pre-pregnancy parameters and pregnancy outcomes were extracted from our database. Propensity score matching was applied to identify a cohort of gravidae without previous bariatric surgery, but accounting for age, pre-pregnancy Body Mass Index, parity, multiples, preexisting diabetes and hypertension. Matching was performed in a 3:1 ratio. Cohorts were compared using chi-square or Mann Whitney-U test, as appropriate.

Results: We identified 40 gravidae with previous bariatric surgery (n= 39 for gastric bypass, n=1 for gastric banding). There were no cases of pre-pregnancy diabetes mellitus type I or II in the group of post-surgery gravidae. Compared to the matched cohort of 120 non-surgery gravidae, we did not find significant differences in gestational weight gain (10.0 kg [6.0-14.3] vs. 12.0 kg [7.2-17.0], p=0.126) nor in prevalence of gestational diabetes (10.0% (n=4) vs. 20.8% (n=25), p=0.123) or preeclampsia (5.0% (n=2) vs. 5.8% (n=7), p=0.843). However, there was a significantly increased number of late spontaneous abortions (7.5% (n=3) vs. 0%, p=0.002) and newborns had significantly lower birth weight (35.7 percentile [19.5-61.0] vs. 52.7 percentile [26.3-77.9], p=0.036) in post-surgery gravidae.

Conclusion: Our findings suggest that pre-pregnancy bariatric surgery poses the fetus at risk for a lower birth weight. We assume that it is of importance to monitor these pregnancies closely for adequate fetal growth as well as to optimize the nutritional status of the women before and during pregnancy.
Levator ani avulsion in women after their first vaginal birth: a prospective cohort study

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Clinic: 1) Obstetrics, University Hospital Zurich, 2) Cantonal Hospital Baden

Introduction: Childbirth related birth trauma of the pelvic floor, especially of the levator ani muscle, is common after vaginal birth. Levator ani avulsions are strongly associated with prolapse and prolapse symptoms and mainly occur after the first vaginal birth of a woman. The aim of our study was to determine the incidence of levator ani defects in primiparous women after their first vaginal birth in a Swiss cohort and to evaluate its feasibility within the first days after birth.

Material and Methods: Between 3/2017 and 1/2019 we evaluated 225 women in a prospective observational study, who gave birth vaginally to a singleton in vertex presentation ≥ 36+0 gestational weeks at the University Hospital of Zurich. Within their first 2-5 days after birth, we performed a 2D and 3D/4D transperineal ultrasound examination of the levator ani muscle and assessed levator ani trauma (complete avulsion, partial avulsion, hematoma and tears within the body of the muscle) on both sides.

Results: A total of 105 levator ani traumata occurred in 73 woman (32.4% of our cohort). 16 from the 73 women solely suffered from hematomas/tears within the body of the muscle, so that the remaining 57 suffered from any form of levator ani avulsion (25.3% of the cohort). We found 16 complete avulsions (15.2% of trauma), 68 partial avulsions (64.8% of trauma) and 21 hematomas/tears within the body of the muscle (20.0% of trauma). 32 of the women with a trauma suffered from bilateral defects (43.8%). Complete avulsions were more frequent on the right hand side (10 vs. 6), partial avulsions almost equally distributed (33 left and 35 right hand side) and hematomas/tears within the muscle body more frequent at the left hand side (12 vs. 9). Transperineal ultrasound was technically not feasible or inconclusive in 5 women (2.2% of women) only.

Conclusion: Levator ani trauma frequently occurs after the first vaginal birth and can reliably be diagnosed with transperineal ultrasound during the first days after vaginal birth.
Transferral rates, interventions and mode of delivery in women admitted to the midwife-led birth unit of the Kantonsspital Aarau – a field report

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Clinic: Perinatal Center, Cantonal Hospital Aarau

Introduction: In Switzerland, the majority of births take place in hospital settings. However, there is a trend towards giving birth at a midwife-led birth unit (MLBU). The Kantonsspital Aarau is the first hospital offering births at a MLBU on hospital grounds. The aim of this field report was to evaluate quality features of this seminal project, which combines the low intervention rate of MLBUs with the safety offered by the proximity to a perinatal centre (PC).

Methods: Medical reports of all women admitted to the MLBU in 2018 were retrospectively analysed and evaluated using the following criteria: Transferral rate to the PC, rate of interventions during labour (epidural anaesthesia, oxytocin administration), reason for interventions, and mode of delivery.

Results: Of the 112 women admitted to the MLBU, 28 (25%) were transferred to the PC. Twelve were transferred due to failure to progress in the first stage of labour, 9 because of labour pain, five because of failure to progress in the second stage of labour, one woman because of suspected preeclampsia, and one woman for induction of labour 24 hours after premature rupture of the membranes. Twenty-three women (20.5%) received intravenous oxytocin and 18 women (16%) had an epidural anaesthesia. In total, 76.8% of women did not need any medical intervention. One hundred and eight (96.4%) women had a vaginal birth and four women (3.6%) had a caesarean section. Of the 28 women transferred to the PC, 85.7% had a vaginal birth and 14.3% had a caesarean section. There were no critical incidents before or after transferral. All women transferred to the PC were primiparous.

Conclusion: The MLBU on hospital grounds is safe and allows women to give birth vaginally also after transfer to the maternity ward. Comparing our data to a report by the Swiss association of midwife-led birth units (SAMLBU) of the year 2016, our transferral rate was higher (25% versus 17%). However, our rate of caesareans was lower (3.6% versus 9%). Even after transfer, women had a remarkable chance of giving birth vaginally. The defining quality features of the MLBU are not yet conclusively determined. A case-control study will allow comparing outcomes between low risk women admitted to the MLBU and those admitted to the PC.
Peripartum red blood cell transfusion in Switzerland from 1998 to 2016 and implications for patient blood management

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Introduction: In recent years, red blood cell (RBC) transfusions have been used more restrictively across medicine as part of patient blood management (PBM). PBM aims to minimize anemia and patient blood loss and subsequent administration of RBC by applying safe and alternative medical methods. In several medical fields, specific PBM guidelines have been implemented successfully. In obstetrics, effective use of PBM is still lacking. RBC administration has been shown to be associated with an increased morbidity and mortality. Furthermore, studies have shown that patients with restrictive RBC administration have better clinical outcomes. The main goal of our study was to assess trends in obstetric RBC transfusions in Switzerland from 1998 – 2016.

Material and Methods: We used the ASF (Arbeitsgemeinschaft Schweizer Frauenkliniken) database to assess RBC administration across Switzerland. ASF collects data on 40% of all deliveries in Switzerland. We analyzed RBC administration as well as overall obstetric data. Statistical analysis was based on aggregated data per year. We calculated overall means as weighted mean of means and overall standard deviations applying Cohen’s formula for a pooled standard deviations. Odds ratios and p-values to quantify the association between categorical variables and time period were derived from the confidence intervals. We investigated non-linear trends of number and type (spontaneous and instrumental vaginal deliveries or cesarean section) of deliveries over time.

Results: As expected, number of cesarean sections and instrumental vaginal deliveries has increased in the past 18 years, while the number of spontaneous vaginal deliveries has decreased. The number of one to two RBC transfusions administered in the acute or subacute peripartal phase has increased after 2012, however, the number of three or more RBC administered has decreased in both acute and subacute phase after 2012. All of these changes are significant. However, overall RBC administration in the acute phase has decreased over the past 18 years.

Conclusion: As has been previously described, there was a trend for increasing PPH in the past 20 years. However, based on our data, we can see that excessive RBC administration in the acute and subacute peripartal phase is decreasing after 2012. This coincides with the implementation of new Swiss guidelines on PPH and anemia in pregnancy. However, further studies and recommendations are needed, leaving potential for optimizing PBM in obstetrics.
Astrocyte polarization in perinatal white matter injury and its contribution to disease outcomes


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Introduction: White matter injury (WMI) is the most common form of brain injury in preterm infants and a major cause of long-term neurological morbidity. WMI is characterized by reactive microgliosis and astrocytosis, delayed oligodendrocyte differentiation, and in severe cases, neuronal death. Two different types of reactive astrocytes are recognized in brain injury, A1 astrocytes (A1s), which promote neurodegeneration and A2 astrocytes (A2s), which support neuronal survival and tissue repair. At present, the specific nature of astrocyte reactivity after WMI (A1s, A2s, or other) remains obscure. Given recent findings that A1 formation is induced by reactive microglia and that these astrocytes delay oligodendrocyte differentiation and promote neuronal death, we hypothesize that A1s play a central role in WMI and may be an exciting therapeutic target for this disease. Here we report the results of experiments aimed to investigate the formation of A1 astrocytes in WMI.

Materials and Methods: WMI was induced in 2 day-old rat pups using a combination of hypoxic-ischemic and inflammatory insults. In situ hybridization with probes for A1–specific mRNA transcripts was performed on brain tissue from injured and control neonatal rat brains at multiple post-injury timepoints. We used immunopanning to purify astrocytes from brains of injured and control rats. mRNA isolated from these cells was used for qRT-PCR analysis.

Results: In situ hybridization experiments demonstrate a significant increase in the prevalence of A1 astrocytes in subcortical white matter tracts after WMI in our rodent model. An astrocyte immunopanning protocol optimized for our disease model yields acutely purified, viable primary astrocytes from injured and control neonatal rat brains. qRT-PCR using mRNA from these cells reveals regulation of A1-specific transcripts over time after injury.

Conclusion: We demonstrate the formation of A1 reactive astrocytes in a rodent model of WMI. This result is an important step towards understanding astrocyte polarization in WMI and opens the door to novel treatments for improving outcomes after neonatal brain damage in preterm birth.
Umbilical cord stem cell-derived exosomes have neuroprotective potential in a model of preterm white matter injury

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Objective: Survivors of preterm birth are at risk to suffer from white matter injury (WMI) leading to subsequent neurodevelopmental deficits. Preterm-specific WMI is characterized by a disruption of normal developmental myelination of the brain. In animal models of WMI, Wharton’s jelly mesenchymal stem/stromal cells (WJ-MSC) derived from umbilical cords restore normal myelination, in part through the release of cell-derived extracellular vesicles like exosomes. We aimed to test the therapeutic potential of WJ-MSC-derived exosomes in an animal model of preterm WMI.

Study Design: We isolated exosomes from WJ-MSC culture supernatants using serial centrifugation. Consistent with the etiology of WMI in preterm infants, we introduced brain injury in 3-day old rat pups with lipopolysaccharide i.p. and unilateral carotid artery cauterization followed by hypoxia (8% O2). As a treatment, animals received an intranasal administration of infrared-labeled exosomes which were traced inside the bodies of the animals. In a short-term experiment, we analyzed cortical apoptosis and myelination using TUNEL-assay, real-time RT-PCR and Western blot. In a long-time experiment, we tracked the survival and learning capacity of the animals using the Morris water maze assay.

Results: Intranasally administered exosomes rapidly translocated to the brain and arrived within 30 min after administration. Treated animals exhibited reduced cortical apoptosis and diminished hypomyelination 9 days after brain injury as the exosomes rescued the loss of myelin basic protein (p<0.05). Exosome treatment doubled the animal’s overall survival rate (p<0.01) and improved their learning capacity (p<0.05) 1 month after WMI.

Conclusion: Treatment with WJ-MSC-derived exosomes improves survival, partially restores normal developmental myelination and alleviates associated neurodevelopmental deficits. Intranasal administration of WJ-MSC-derived exosomes represents a minimally-invasive and effective treatment for WMI.
Improvement of outcome after adjuvant small field pelvic radiation in lymph node negative high risk Stage IB cervical cancer patients – report of 20 year follow-up data

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**Introduction:** The use of adjuvant treatment for node negative FIGO stage IB cervical cancer patients is inconsistent. The Gynaecology Oncology Group (GOG) proposed a prognostic risk scoring system in 1990, hereby identifying a patient risk group with a score ≥120, which had a 3-year risk of recurrence of as high as 41%. In a previous pilot study of Kridelka we proposed the reduction of the risk in this population by providing a small field central pelvic radiation, consolidating the paravaginal area without affecting the lymph nodes. Here we present the 20 year follow-up disease free survival (DFS) data of this treatment.

**Methods:** We retrospectively analysed patient data of 245 node negative cervical cancer patients of FIGO stage IB from the Royal Hospital for Women in Sydney, which were treated during the past 20 years. All patients with a score of ≥120 as determined by the Gynaecologic Oncology Group (GOG) study received small central pelvic field adjuvant radiation and were followed prospectively. A Kaplan-Meier DFS curve was generated and log rank analysis performed comparing the outcome of the 20 year DFS of these patients to the corresponding high-risk group of the historic GOG study (observation only) as well as to the group GOG score 40-120, which received as well small field radiation. The morbidity of small field pelvic radiation was recorded.

**Results:** Among the 245 patients with FIGO stage IB cervical cancer the median GOG score was 57.0 (0.5-505), namely 179 patients in the <120 group (73.1%) and 66 patients in the ≥120 group (26.9%). The median follow-up in the whole group was 6.53 years (0.02-23.4 years). There were 15 recurrences recorded. In the total time period 50 patients of the high risk ≥120 cohort received small field pelvic radiation (75.8%). The log rank analysis demonstrated no significant difference in DFS between the low risk <120 and the high-risk ≥120 group, which received small field radiation. There was a significant improvement in the ≥20 year DFS for the high-risk group who received adjuvant small field radiation when compared to the historic Delgado GOG study patients who were only observed postoperatively (p<0.001).

**Conclusion:** We verified over a period of >20 years the initial hypothesis that patients with high-risk (GOG ≥120) node negative Stage IB cervical carcinoma profit from small field radiation.
International validation of ERAS® Society guidelines on enhanced recovery for gynecologic surgery

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Introduction: Enhanced Recovery After Surgery (ERAS)® Society publishes guidelines on per-operative care. The aim of this study was to evaluate the influence of compliance to ERAS Gynecologic/Oncology guideline elements on postoperative outcomes in an international cohort.

Methods: The study included 2,101 patients undergoing elective gynecologic/oncology surgery between January 2011 - November 2017 in 10 hospitals across Canada, United States and Europe. Patient demographics, surgical/anesthesia details and ERAS protocol compliance elements (pre-, intra- and post-operative phases) were entered into the ERAS Interactive Audit System (EIAS). Surgical complexity was stratified according to the Aletti scoring system (low vs. medium/high). The following covariates were accounted for in the analysis: age, BMI, smoking status, presence of diabetes, ASA class, FIGO stage, preoperative chemotherapy, radiotherapy, operating time, surgical approach (open vs minimally invasive), intra-operative blood loss, hospital and ERAS implementation status. The primary end-points were primary hospital length of stay (LOS) and complications. Negative binomial regression was used to model length of stay, and logistic regression to model complications, as a function of compliance score and covariates.

Results: Patient demographics: median age 56 years, 35.5% obese (BMI >35), 15% smokers, 26.7% ASA Class III-IV. Final diagnosis was malignant in 49% of patients. Laparotomy was used in 75.9% of cases, and the remainder minimally invasive surgery. The majority of cases (86%) were of low complexity (Aletti score ≤ 3). In patients with ovarian cancer, 69.5% had a medium/high complexity surgery (Aletti score 4-11). Median LOS was 2 days in the low- and 5 days in the medium/high-complexity group. Every unit increase in ERAS guideline score was associated with 8% (IRR: 0.92 (95% CI: 0.90 – 0.95; p<0.001)) decrease in days in hospital among low-complexity, and 12% (IRR: 0.88 (95% CI: 0.82 – 0.93; p<0.001) decrease among patients with medium/high complexity scores. For every unit increase in ERAS guideline score, the odds of total complications were estimated to be 0.88 times lower (p<0.05) among low-complexity patients.

Conclusion: Audit of surgical practices demonstrates that improved compliance with ERAS Gynecologic/Oncology guidelines is associated with an improvement in clinical outcomes, including length of stay, highlighting the importance of ERAS implementation.
Mesenchymal-to-epithelial transition (MET) in ovarian cancer cells is triggered by ganglioside glycosyltransferase SIAT8

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Clinic: 1) Ovarian Cancer Research Program, Department of Biomedicine, 2) Glyco-Oncology, Ovarian Cancer Research, Biomedicine, 3) Hospital for Women, Gynecology and Gynecological Oncology/ 1-3 University Hospital Basel/ 1,3 University of Basel

Introduction: Glycosphingolipids (GSLs) play pivotal roles in various biological functions, including modulation of immune cell responses and host-pathogen interaction, and are associated with malignancies. GSLs are components of eukaryotic cells and aberration in their metabolism causes cancer development. We recently showed that deletion of the globosides (delA4GALT) triggers reversible epithelial-to-mesenchymal transition (EMT/MET) in ovarian cancer (1). We hypothesize that different GSL series (globo, ganglio, and (neo)lacto) are actively involved in EMT-mediated ovarian cancer cell dissemination and that genomic deletion of ganglioside-encoding genes induces MET.

Materials and Methods: Bioinformatic analysis of publicly accessible transcriptomic data sets from ovarian cancer patients was performed. Ovarian cancer cell lines homozygously deleted for the SIAT8 gene (delSIAT8) were generated using CRISPR-Cas9 technology. Changes in cell morphology, motility, spheroid formation, proliferation, and EMT-marker expression in these cells were assessed.

Results: Bioinformatic analysis revealed that the ganglioside glycosyltransferase-encoded gene are generally upregulated in ovarian cancer patients with mesenchymal features. In particular, we identified ST8SIA1 (SIAT8), an enzyme essential in the biosynthesis of gangliosides (GD3), as potential key player in MET. Moreover, a positive correlation between VIM (vimentin) and SIAT8 along the EMT spectrum was identified in ovarian cancer tissue samples (Tothill correlation = 0.285, p=1.41e-06, n=275). delSIAT8 ovarian cancer cells, as compared to their parental counterparts, displayed MET-like changes in morphology (towards epithelial), reduced cell motility (p<0.001, n=3), increased spheroid formation (p<0.05, n=3), and increased cell proliferation. These cells show decreased expression of mesenchymal markers (vimentin, snail, and slug) and reciprocally increased expression of epithelial markers (E-cadherin and Claudin 1).

Conclusion: We provide evidence that ganglioside GSLs maintain mesenchymal features in ovarian cancer cells. In particular, SIAT8 may play an important role in the formation of metastatic sites. SIAT8 products may be a potential targets to reduce the outgrowth of metastatic cells, eventually increasing patient survival and reducing relapse.

Clinical characteristics of patients with BRCA1/2-mutated ovarian cancer

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Introduction: Germline and somatic BRCA1/2-mutations are detected in 10-15% of ovarian cancers (OC). Compared to BRCA1/2 wild type cancers BRCA1/2-mutated OC are associated with higher sensitivity to PARP inhibitors and platinum-based chemotherapy. Our aim was to evaluate the characteristics of OC patients with BRCA 1/2 mutation and compare them with BRCA1/2 wild type cases.

Material and Methods: In this retrospective case-control study we examined the clinical features of OC patients with BRCA1/2 mutation compared to those with a BRCA wild type gene test at the University Hospital Zurich from 2012-2018. All analyzes were performed using the SPSS Statistics Software v25.0.

Results: Out of 184 patients with epithelial OC, 56 patients, among them 41 with high-grade serous carcinoma, received genetic testing. 57% had somatic, 25% had germline testing and 18% had both somatic and germline testing. 15/56 OC patients (27%) had pathogenic mutation in BRCA1/2 (BRCA1 n=14; BRCA2 n=1). Histological type of all patients with BRCA mutation was high-grade serous. Median age at initial diagnosis was 50 years (range 39-83 years, SD 11.9 years) and 9/15 patients (60%) had a positive family history. 5/15 OC patients with BRCA mutation had breast cancer compared to 6/41 OC patients in the BRCA wild type group. There was no association of BRCA mutation status and the family history (p = 0.52), the incidence of breast cancer (p = 0.22) and the age at initial diagnosis (p=0.11). In the analyzed subgroup of serous carcinoma there was no significant difference concerning the frequency of high-grade (G3) carcinoma between the BRCA mutation group (13/15; 87%) and the wild type group (25/26; 96%; p = 0.62). However, patients with high-grade serous carcinoma had a significantly longer overall survival in the group with BRCA mutations (mean survival 106 months) than in the group with BRCA wild type genotype (mean survival 63 months; p = 0.008). We observed no significant difference concerning the progression-free survival in the two groups of serous carcinoma (mean PFS 29 months in BRCA wild type and 32 months in BRCA mutation group; p = 0.59).

Discussion: Overall survival was significantly longer in the group of high-grade serous OC patients with BRCA mutation. Identification of germline and somatic BRCA1/2 mutations is associated with important prognostic and predictive value for the ovarian cancer disease as well as importance for cascade testing within the family.
A Phase 4, double-blind, randomized, placebo-controlled, parallel group, multi-centre study to evaluate the efficacy, safety, and tolerability of mirabegron in older adult patients with overactive bladder syndrome (PILLAR)

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Clinic: 1) University of Alberta, Geriatric Medicine, Edmonton, 2) St Elizabeth’s Medical Center, Division of Urology, Boston, 3) Bayview Research Group, Valley Village, 4) University of Toronto, Sunnybrook Health Sciences Centre, Toronto, 5) Astellas Pharma Global Development, Inc., Northbrook

Introduction: Overactive bladder (OAB) syndrome is increasingly common in older people. Antimuscarinic therapy may be hampered by adverse effects; the beta-3-agonist, mirabegron, offers an alternative treatment option. This study assessed the effect of mirabegron vs placebo in patients aged ≥65 years.

Materials and Methods: A 12-week, prospective, randomized, placebo-controlled trial of mirabegron 25 mg/d (with optional dose escalation to 50 mg/d at 4 or 8 wk depending upon tolerability) in patients in the United States and Canada aged ≥65 years with OAB symptoms for ≥3 m. Inclusion criteria were ≥1 incontinence episode, ≥3 urgency episodes (grade 3 or 4), average 8 micturition episodes/d. The primary analysis set comprised randomized patients who received ≥1 dose of study drug, had a baseline (BL) micturition measurement, ≥1 BL incontinence episode, and ≥1 post-BL micturition measurement. Co-primary endpoints were change from BL to end-of-treatment (EoT) in mean number of micturitions/24 h and incontinence episodes/24 h. Secondary endpoints included change from BL to EoT in mean volume voided/micturition and symptom bother (OAB-q questionnaire). Cognitive function was assessed by change from BL to EoT in the Montreal Cognitive Assessment (MoCA) score. Safety analyses were performed on the Safety Analysis Set (patients who received ≥1 dose of study drug).

Results: In total, 888 patients were randomized (placebo n=443, mirabegron n=445). In the mirabegron group, 219 elected to titrate to mirabegron 50 mg by the end of the study. See table for demographic details, BL characteristics, primary outcome variables and the most common reported adverse events (AEs; affecting ≥2% of patients). Ethnicity, race, and age categories were similar across the treatment arms. Overall, 14 patients in each of the placebo and mirabegron groups discontinued the study due to an AE. At least one treatment-emergent AE was reported by 39.4% of placebo patients, 44.2% of mirabegron 25 mg patients, and 49.8% of mirabegron 50 mg patients. Urinary retention was reported in 1/219 (0.5%) mirabegron 50 mg patients. There was no statistically significant change in MoCA from baseline to EoT, with adjusted mean (standard error) changes of 0.1 (0.1) points for placebo and 0.0 (0.1) for mirabegron.
Conclusion: Mirabegron treatment is effective and well tolerated for the treatment of older adults with OAB, and was not associated with any adverse cognitive effects.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Placebo</th>
<th>Mirabegron 25 mg</th>
<th>Mirabegron 60 mg</th>
<th>Mirabegron total</th>
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</thead>
<tbody>
<tr>
<td><strong>Demographic characteristics, SAF</strong></td>
<td>N=442</td>
<td>N=226</td>
<td>N=219</td>
<td>N=445</td>
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<tr>
<td>Female sex, n (%)</td>
<td>324 (73.3)</td>
<td>168 (74.3)</td>
<td>149 (68.9)</td>
<td>317 (71.2)</td>
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<tr>
<td>Age, mean (SD)</td>
<td>71.9 (6.0)</td>
<td>71.6 (5.8)</td>
<td>71.7 (5.2)</td>
<td>71.7 (5.5)</td>
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<td>Age group ≥75 years (%)</td>
<td>26.1</td>
<td>25.2</td>
<td>26.9</td>
<td>28.1</td>
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<td>BMI (kg/m²), mean (SD)</td>
<td>30.2 (6.4)</td>
<td>29.2 (6.0)</td>
<td>30.1 (6.6)</td>
<td>29.7 (6.3)</td>
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<td><strong>Baseline OAB characteristics, FAS-I</strong></td>
<td>N=431</td>
<td>N=220</td>
<td>N=217</td>
<td>N=437</td>
</tr>
<tr>
<td>OAB duration (m), mean (SD)</td>
<td>119.9 (112.4)</td>
<td>118.6 (119.2)</td>
<td>123.4 (112.5)</td>
<td>121.1 (115.8)</td>
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<td>No prior OAB drug treatment, n (%)</td>
<td>415 (96.3)</td>
<td>215 (97.7)</td>
<td>211 (97.2)</td>
<td>426 (97.5)</td>
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<td>Micturitions/24 h, n (%)</td>
<td>10.5 ± 3.1</td>
<td>10.7 ± 2.3</td>
<td>10.5 ± 2.5</td>
<td>10.6 ± 2.4</td>
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<td>&lt;10</td>
<td>20 (4.6)</td>
<td>1 (0.5)</td>
<td>11 (5.1)</td>
<td>12 (2.7)</td>
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<tr>
<td>≥8 - &lt;10</td>
<td>165 (38.3)</td>
<td>66 (30.0)</td>
<td>81 (37.3)</td>
<td>147 (33.6)</td>
</tr>
<tr>
<td>≥10 - &lt;15</td>
<td>221 (51.3)</td>
<td>143 (65.0)</td>
<td>117 (53.9)</td>
<td>260 (59.5)</td>
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<tr>
<td>≥15</td>
<td>24 (5.6)</td>
<td>10 (4.5)</td>
<td>8 (3.7)</td>
<td>18 (4.1)</td>
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<td>Incontinence episodes/24 h, n (%)</td>
<td>3.4 ± 3.2</td>
<td>3.2 ± 3.1</td>
<td>3.7 ± 3.1</td>
<td>3.5 ± 3.1</td>
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<td>&lt;0 - &lt;2</td>
<td>183 (42.5)</td>
<td>114 (51.8)</td>
<td>81 (37.3)</td>
<td>195 (44.6)</td>
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<td>≥2 - &lt;4</td>
<td>96 (22.7)</td>
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<td>59 (27.2)</td>
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<td>≥4</td>
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<td><strong>Efficacy, FAS-I</strong></td>
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<td>N=220</td>
<td>N=217</td>
<td>N=437</td>
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<tr>
<td>Adjusted change in mean number of incontinence episodes/24 h from Baseline to EoT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SE)</td>
<td>-1.5 (0.1)</td>
<td>-2.0 (0.2)</td>
<td>-2.0 (0.2)</td>
<td>-2.0 (0.1)</td>
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<tr>
<td>95% CI</td>
<td>(-1.7, -1.2)</td>
<td>(-2.3, -1.6)</td>
<td>(-2.3, -1.7)</td>
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<td>p-value</td>
<td>0.002</td>
<td>0.001</td>
<td>&lt;0.001</td>
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<tr>
<td>Adjusted change in mean number of micturitions/24 h from Baseline to EoT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SE)</td>
<td>-1.7 (0.2)</td>
<td>-3.0 (0.2)</td>
<td>-1.8 (0.2)</td>
<td>-2.3 (0.2)</td>
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<tr>
<td>95% CI</td>
<td>(-2.0, -1.3)</td>
<td>(-3.4, -2.5)</td>
<td>(-2.2, -1.4)</td>
<td>(-2.6, -2.0)</td>
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<tr>
<td>p-value</td>
<td>&lt;0.001</td>
<td>0.705</td>
<td>&lt;0.001</td>
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<tr>
<td>Adjusted change in mean volume voided per micturition (mL) from Baseline to EoT</td>
<td></td>
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<tr>
<td>Mean (SE)</td>
<td>17.5 (4.2)</td>
<td>34.0 (5.4)</td>
<td>27.8 (4.9)</td>
<td>30.5 (4.0)</td>
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<tr>
<td>95% CI</td>
<td>(9.3, 25.6)</td>
<td>(23.4, 44.6)</td>
<td>(19.3, 37.4)</td>
<td>(22.8, 38.9)</td>
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<tr>
<td>p-value</td>
<td>&lt;0.001</td>
<td>0.1</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
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<tr>
<td>Adjusted change in OAB-q symptom bother from Baseline to EoT</td>
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<td></td>
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<tr>
<td>Mean (SE)</td>
<td>-18.7 (1.3)</td>
<td>-26.6 (1.7)</td>
<td>-21.0 (1.5)</td>
<td>-23.4 (1.3)</td>
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<tr>
<td>95% CI</td>
<td>(-21.3, -16.1)</td>
<td>(-30.0, -23.3)</td>
<td>(-24.0, -17.9)</td>
<td>(-25.9, -20.9)</td>
</tr>
<tr>
<td>p-value</td>
<td>&lt;0.001</td>
<td>0.182</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Responder rates at EoT, FAS-I</strong></td>
<td>N=428</td>
<td>N=220</td>
<td>N=215</td>
<td>N=435</td>
</tr>
<tr>
<td>Zero incontinence episodes/24 h, n (%)</td>
<td>130 (30.4)</td>
<td>87 (39.8)</td>
<td>80 (37.2)</td>
<td>167 (38.4)</td>
</tr>
<tr>
<td><strong>Adverse event (MedDRA V 20.1), SAF, n (%)</strong></td>
<td>N=442</td>
<td>N=226</td>
<td>N=219</td>
<td>N=445</td>
</tr>
<tr>
<td>Urinary tract infection†</td>
<td>31 (7.0)</td>
<td>16 (7.1)</td>
<td>9 (4.1)</td>
<td>25 (5.6)</td>
</tr>
<tr>
<td>Headache</td>
<td>12 (2.7)</td>
<td>15 (6.6)</td>
<td>8 (3.7)</td>
<td>23 (5.2)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>6 (1.4)</td>
<td>11 (4.9)</td>
<td>2 (0.9)</td>
<td>13 (2.9)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>14 (3.2)</td>
<td>6 (2.7)</td>
<td>4 (1.8)</td>
<td>10 (2.2)</td>
</tr>
<tr>
<td>Upper respiratory tract infection</td>
<td>10 (2.3)</td>
<td>3 (1.3)</td>
<td>7 (3.2)</td>
<td>10 (2.2)</td>
</tr>
<tr>
<td>Nausea</td>
<td>6 (1.4)</td>
<td>7 (3.1)</td>
<td>1 (0.5)</td>
<td>8 (1.8)</td>
</tr>
</tbody>
</table>

* Adjusted change from Baseline and 95% CI are differences in LS means between mirabegron and placebo generated from ANCOVA model with treatment groups, sex, age group (<75 years, ≥75 years) and country as fixed factors and baseline value as covariate.
† Escherichia urinary tract infection, Streptococcal urinary tract infection, urinary tract infection, or urinary tract infection bacterial ANCOVA: analysis of covariance; BMI: body mass index; CI: confidence interval; d: days; EoT: end-of-treatment; FAS-I: Full Analysis Set – Incontinence; h: hours; LS: least squares; m: months; OAB: overactive bladder syndrome; SAF: Safety Analysis Set; SD: standard deviation; SE: standard error.
Accuracy of sono-morphological criteria and the experience-dependent inter-observer variability in axillary lymph node assessment

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Introduction: Ultrasonographic assessment of axillary lymph node status is an important step in the preoperative staging of patients with newly diagnosed breast cancer and also in follow-up for the early detection of axillary recurrence. Multiple morphological criteria as size, shape, cortical thickening, vascularization and long/short axis disproportion have been described as predictive for malignancy. But the lack of standardization of the sonographic assessment of axillary lymph node status leads to a great inter-observer variability. The aim of our work was to analyse the value of morphological criteria in the evaluation of axillary lymph nodes and to correlate the results with the physician’s experience.

Material and Methods: Retrospective analysis of data from patients who had a lymph node biopsy +/- fine needle aspiration of axillary lymph nodes due to abnormal sonographic findings in our certified Breast Cancer Center between 01.2014 and 01.2019. Data regarding patient’s characteristics, medical history, histological results and the physician’s experience were collected. All ultrasound images were reviewed, classified into four categories (0 = Normal, 1 = suspicious, maybe benign, 2 = suspicious, 3 = highly suspicious) and correlated to histological and/or cytological results.

Results: Data of 82 consecutive patients with lymph node biopsy and/or fine needle aspiration could be analysed. According to axillary ultrasound findings 32 (39%) patients were classified into category 3, 39 (47.6%) in 2, 9 (11%) in 1 and 2 (2.4%) patients had normal ultrasound and had biopsy due to findings in other imaging methods. Regarding histological results 6 (66.7%) patients of the category 1 had false positive ultrasound, respective 21 (53.8%) and 15 (46.9%) in category 2 and 3. 29 patients were evaluated by an intern and a senior registrar. In 3 (10.3%) cases with biopsy proven malignancy abnormal sonographic findings were missed by the intern. Biopsy was not representative in 6.8% when performed by a senior registrar compared to 28.6% by an intern.

Conclusion: The analysed morphological criteria showed low accuracy in the detection of malignancy. Our data show the need for a standardization of sonographic axillary lymph node assessment. The evaluation and biopsy demands highly trained physicians.
Correlation of extent of residual microcalcifications and intra-operative findings after stereotactic vacuum-assisted breast biopsy in DCIS

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Introduction: After finding of suspicious microcalcifications on mammogram, a tissue biopsy usually is done via stereotactic vacuum assisted biopsy (VAB). VAB has been shown to be able to remove microcalcifications entirely on mammogram, especially in lesions measuring up to 10mm. Histologically in the intraoperative specimen, however, in up to 70% of patients residual tumor can be found. In 5-15% of patients which were diagnosed with a ductal carcinoma in situ (DCIS) in VAB, an invasive carcinoma is found in open excisions. This upstaging has consequences on the patients in terms of another diagnostic pathway necessary for DCIS in comparison to invasive cancer. A high diagnostic accuracy is therefore needed to spare the patient insecurity and additional procedures. It is not clear how often in case of complete removal of microcalcifications in low grade DCIS there is still residual low grade DCIS in the surgical specimen. The aim of this study was to investigate - in pure DCIS - the association between radiologically no residual microcalcifications after stereotactic VAB and histological result in the definitive surgical specimen. The question also needs to be answered how often, in that situation, upstaging to high grade DCIS or invasive breast cancer can be found.

Methods: Data of 61 consecutive patients that were diagnosed with DCIS by VAB in a single breast center between 2012 and 2017 were analyzed. Patient records from the hospital information system were retrieved, mammogram reports and images as well as histology reports were evaluated. Extent of microcalcifications before and after biopsy as well as occurrence of DCIS in biopsy and definitive surgical specimen were analyzed and correlated.

Results: There was no association between complete radiological removal of microcalcifications and no residues of DCIS in the definitive surgery (p=0.085). Also, there was no association between DCIS grade and presence of DCIS residues in these cases (p= 0.120). Upgrade to invasive cancer was found in 4 cases (13%) but occurred only in the group that showed high grade DCIS at biopsy.

Conclusion: The extent of microcalcifications after stereotactic biopsy does not serve as a predictor for residual DCIS in the definitive surgery specimen. Since upgrade to invasive cancer is seen in a substantial proportion of high grade DCIS, surgical excision of high grade DCIS remains the gold standard.
Laser therapy for female stress urinary incontinence: a new treatment alternative to slings?

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**Clinic:** 1) Gynecology and Obstetrics, Cantonal Hospital Frauenfeld, 2) Gynecology and Obstetrics, Lutheran Hospital Hagen-Haspe

**Introduction:** Suburethral sling insertion represents the current operative gold standard to treat stress urinary incontinence (SUI) with high cure rates of 80-90%. However, a public debate on synthetic material in urogynecological surgery led to the halt or ban of slings in several countries. Intravaginal laser therapy might be an alternative, less invasive treatment option for SUI. This study aimed to determine the short and midterm outcome of laser therapy. We wanted to find out how incontinence severity at baseline and the number of laser interventions affected cure rate.

**Materials and Methods:** In this prospective observational study, 59 women, 32 with mild SUI I, 16 with moderate SUI II and 11 with severe SUI III, were treated with the FotonaSmooth XS® Er:YAG laser (2940 nm, Fotona, Ljubljana, Slovenia) following the IncontiLase® protocol. Five laser sessions, i.e. at baseline, and at 1, 2, 3 and 4 months were performed. Objective (1 hour pad test) and subjective data (ICIQ-UI SF and PISQ-12 questionnaires) were assessed at baseline, after 2 and 4 laser sessions, and 6 months and 2 years after the 5th laser session.

**Results:** Objective cure rates for mild SUI I were 41% after 2 laser sessions, 59% after 4 laser sessions, 66% 6 months and 69% 2 years after the 5th laser session, and improvement rates at the same time points were 28%, 19%, 25% and 9%. Subjective cure rates (ICIQ-UI SF) for SUI I were 53%, 63%, 72% and 66%, and sexual function (PISQ-12) also improved. Laser treatment had limited success for patients with SUI II and failed for patients with SUI III.

**Conclusion:** For patients with mild SUI I, intravaginal laser therapy led to cure rates of >65%. Outcome was better after 4-5 laser sessions than after 2 laser sessions. The 6 month and 2 year follow-ups showed good sustainability. We consider intravaginal laser therapy most suitable for younger women or women between pregnancies desiring a minimally invasive intervention. However, it is not recommended for women with severe SUI.
Uterine Fibroid Therapy without Knives or Hormones. Prospective Data Analysis: Efficiency of Uterine Fibroid ablation with Radiofrequency Energy in reducing Uterine Fibroid volume at 3 and 12 month

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Introduction: Medications can be used to reduce fibroid volume, but this has potential side effects and may be associated with recurrent symptoms after therapy cessation. Nonpharmacological interventions include myomectomy, hysterectomy, uterine artery embolization and MR guided focused ultrasound. Radiofrequency ablation of uterine fibroids is a relatively new method for the treatment of fibroids in women. It is less invasive than other options and maintains the ability for patients to become pregnant in the future. We report data from a regional hospital in Samedan, Switzerland.

Materials and Methods: We used a transcervical device with integrated intrauterine sonography (Sonata©) that thermally ablates uterine fibroid tissue with radiofrequency energy. This results in coagulative necrosis leading to a reduction in fibroid volume and associated symptom relief. The use of proprietary targeting system (SMART guide) enables the safe delivery of radiofrequency energy to fibroids. This 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 32 patients at our hospital. All patients were evaluated with transvaginal sonography prior to treatment, and sonography was repeated at 3 month and 12 month after ablation. We calculated the volume reduction in mm3 as done in the FAST-EU study and presented our results as a percentage of fibroid volume decrease.

Results: Our Post-Operational follow up demonstrated that on average the fibroid volume has decreased by 64.9 % at 3 month (28 Patients) and by 77.3 % at 12 month (4 Patients). This was accompanied by improvement in symptoms post therapy. At 12 months, patients reported on a scale from 1-10 a 9-10/10 improvement in their symptoms and satisfaction with the therapy.

Conclusion: Our preliminary data has shown a reduction in fibroid volume at 3 and 12 months post intervention. Long-term follow up of those patients is necessary to assess ongoing fibroid volume reduction after radiofrequency ablation.
Management of pregnancies of unknown location: is it time to adopt new protocols?

Author: Francey I., Mathevet P., Jacot-Guillarmod M., Rieder W.
Clinic: Gynecology, University Hospital Lausanne

Introduction: In the first trimester women presenting with pain or bleeding will be classified as having a pregnancy of unknown location (PUL) in about 10-20% of cases. Management is usually based on clinical suspicion, transvaginal ultrasound and quantitative hCG measurements. To stratify the risk of adverse outcomes, standard protocols rely on hCG-ratio, a comparison of hCG levels 48 hours apart. A new mathematic model named M6, also based on hCG levels, have shown promising results but suffer from a lack of external validation. The purpose of our audit was to test the M6 model on our population and compare its performance to the standard hCG-ratio based risk.

Material and Methods: We collected data from patients attending our emergency department between March and December 2018 and identified as having a PUL. Only patients who had day 2 beta-hCG levels measured and those with a known final diagnosis were included. Final outcomes were classified as low-risk (intrauterine pregnancy (IUP) and failed PUL (dropping beta-hCG levels) or high-risk (ectopic pregnancy (EP) and persistent PUL (PPUL)). For all patients hCG-ratio and the M6 a priori risk were calculated. Patients were classified as low risk of adverse outcome if the hCG ratio was ≤ 0.87 or ≥ 1.66 or risk of EP < 5% with the M6 model. Patients were considered as high risk if HCG ratio was > 0.87 but < 1.66 or risk of EP ≥ 5%.

Results: We identified 179 patients with PUL and 156 were included in the analysis. 54 (35%) patients had a further diagnosis of intrauterine pregnancy and 70 (45%) had a failed PUL, 11 (7%) were diagnosed with a PPUL and 21 (13%) had an ectopic pregnancy. The hCG-ratio accurately identified 28/32 high-risk patients (sensitivity of 0.88, specificity of 0.82, positive predictive value (PPV) 0.56, negative predictive value (NPV) 0.96). M6 model accurately identified 31/32 high-risk patients (sensitivity 0.97, sensibility 0.55, PPV 0.36 and NPV 0.99). One misclassified EP with hCG-ratio was suspected based on medical history and 3 PPUL (including 1 misclassified with M6) had mild vaginal bleeding only. The clinical management would, most likely, not have been different.

Conclusion: The M6 model performs better at identifying high-risk patients but at the cost of high false positive rates. The model represents a reliable alternative to standard protocols, however might be complex to implement in everyday practice due to the mandatory access to a payable smartphone application.
Impact of nerve-sparing laparoscopic sacrocolpopexy on postoperative defecation

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Introduction: Since the laparoscopic sacrocolpopexy technique was established, de novo pelvic organ dysfunction has been reported. Studies show that 10 to 50% of patients experience de novo or worsened constipation immediately after surgery that may afflict patients for months. It was found that de novo pelvic organ dysfunction such as bowel, bladder and sexual dysfunction is related to intraoperative damage of the nerves within the presacral space. Due to their proximity to the promontory, the autonomic nerves of the superior hypogastric plexus are most prone to injury. We hypothesized that nerve-sparing laparoscopic sacrocolpopexy, which preserves the fibres of the superior hypogastric plexus, would result in a lower rate of bowel obstruction symptoms among patients.

Methods: The nerve-sparing technique involves pushing back the tissue containing the nerves and ensuring there is no coagulation before making an incision in the peritoneum, which reduces trauma to the presacral space. Between August 2015 and April 2017, 55 women who underwent surgery using the nerve-sparing laparoscopic sacrocolpopexy technique qualified for this study. During this time, data was collected and evaluated from the German pelvic floor questionnaire, patient histories and operation notes.

Results: Fifty-five women with a mean age of 67 years (range 40 - 86 years) were studied between August 2015 and April 2017. To evaluate the German pelvic floor questionnaire, we defined a defecation problem as one where the difference between the post-operative score and the pre-operative score was higher than 3. In 4 (7.27%) of the 55 patients, the difference in the post-operative score compared to the pre-operative score was greater than 3, which meant that they had de novo or worsened defecation problems in the three-month period after surgery. In 6 (11%) patients with pre-existing constipation problems, symptoms improved remarkably. In summary, patients reported fewer symptoms of severe obstructive bowel symptoms after nerve-sparing laparoscopic sacrocolpopexy compared to our earlier experiences.

Conclusion: Using this nerve-sparing technique in laparoscopic sacrocolpopexy leads to a lower incidence of postoperative defecation problems in patients.
Segmentation and 3D-Reconstruction of the female pelvis using 3D-Slicer and the digital dataset of the Visible Human Project

Author: 1) Singer A., 2) Winklehner T., 1) Fink D., 1) Betschart C.
Clinic: 1) Gynecology, University Hospital Zurich, 2) ARTORG Center for Biomedical Engineering Research

Introduction: Anatomical knowledge is critical for understanding pathogenetic processes, correct diagnosing as well as performing surgical interventions. Traditionally, anatomical knowledge has been gained using 2D images in anatomical textbooks and dissection drawings with sparse 3D images during live dissection. In the “Visible Human Project” a human female body (59y old) was cut in the most detailed data set (slices at 0.33 millimeter intervals) of cross-sectional photographs. Aim of this project was to create a 3D model of the female pelvis using the visible human data set and modern imaging techniques with 3D model sequencing to augment traditional anatomical learning for students and doctors.

Methods: The dataset of the Visible Human Project is provided by the the U.S. National Library of Medicine in Bethesda, MD. The relevant, pelvic images were consolidated into a single DICOM file and then imported into 3D Slicer (Slicer 4.10.1), an open source software platform for medical image informatics, image processing, and three-dimensional visualization. Using the Segmentation tools in 3D Slicer the female pelvis was segmented into bones, organs, muscles, nerves and vessels, and the resulting 3D models exported into a 3D model viewer using Unity. The segmentations were verified using traditional and online anatomical textbooks.

Results: Using the segmentation tools in 3D Slicer we created the important structures of the female pelvis in a 3D model. 98 unique anatomical models divided into the different subsets, i.e. bones (10 models), organs (11 models), muscles (22 models), nerves (28 models) and vessels (27 models) were created. The complete model is demonstrated on the following hyperlink: https://3dpics.study/femalepelvis/. All of the subsets can be studied individually by activating the corresponding tick box.

Conclusion: A successful implementation of the segmentation tools created the different subsets of anatomical structures in the female pelvis, i.e. organs, bones, muscles, nerves and vessels that can be visualized separately. The reproductive organs of the postmenopausal woman are not representative for those of a young woman. As the segmentation was done from DICOM images, no staining is possible that would help to discriminate nerves in organs or muscles on a microscopic level. This 3D model can be viewed online using the Unity WebGL Player. Studying this model might enhance anatomical learning in an easily accessible, time- and place independent and cost-effective way.
«Ecologic and hormone-free» or mestruational cup and dislocation of copper-IUD

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Introduction: In recent years we have observed an increased desire for hormone-free and safe contraception. Therefore the placement of a copper intrauterine device (Cu-IUD) is increasing, even in young women. Equally, we have observed an increasing number of women who are applying a mestruational cup (MC) instead of disposables and tampons, driven by a sense for ecological conciousness and improved comfort. We report two cases of late dislocation of a Cu-IUD, after application of a MC.

Material and Methods: Two cases of late dislocation of Cu-IUD after application of a MC in young patients in a gynaecological primary care setting.

Results: Case 1: 22 year old G1P0, Cu375-IUD since 2015 due to desire of hormone free contraception. In 2017 correct placement of Cu-IUD was observed on transvaginal ultrasound (TVUS). In summer 2018 the patient started using a MC. In January 2019 she presented with an intrauterine pregnancy (5+1 gestational age) and a dislocation of the Cu-IUD on TVUS. The pregnancy was medically terminated. Case 2: 26 year old G0 with Cu375-IUD since 2014 presented in 2019 for routine control. The gynecological examination revealed a dislocation of the Cu-IUD. Upon request the patient revealed that she had recently started using an MC. The patient opted for a replacement of the Cu375-IUD.

Discussion: Dislocation of Cu375-IUD is a rare event with a majority of those occurring during the first year after insertion. Risk factors for dislocation include a small or a long womb (Hysterometer <7cm or >9cm), or a history of previous IUD dislocation. We report a late dislocation of the Cu-IUD observed in two cases following new application of a MC. We hypothesize that the dislocation was either caused by manipulation of the IUD threads or by a vacuum created by changing the MC. Based on this observation, we do believe that application of a MC comes with an increased risk for dislocation of IUDs. Therefore it is important to inform IUD users of this risk. Further we recommend to cut the threads close to the cervical os and to teach MC-users how to check the thread length.
Validation study of CLASSIC - Classification of Intraoperative Complications - application in operative gynecology

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**Introduction:** Security in the operation theatre is increasingly gaining importance. In the CLASSIC multicentre cohort study complications are assessed and defined as any intraoperative surgery - or anaesthesia-related deviation from the ideal course between skin incision and skin closure. The aim of this study is to evaluate the applicability of CLASSIC in operative gynecology using a subgroup of gynecological patients from one university center.

**Material and Methods:** The new CLASSIC classification uses 5 severity grades depending on the need for treatment (no need, grade I; need for minor treatment, grade II; need for moderate treatment, grade III; life-threatening/permanent disability, grade IV; death, grade V) and severity of symptoms (life-threatening/permanent disability, grade IV; death, grade V). In a random sample of patients undergoing inpatient surgery, all intraoperative complications were recorded according to CLASSIC. All postoperative complications were assessed by the same consultant (JN) on a daily basis until hospital discharge and recorded according to the Clavien-Dindo classification.

**Results:** Between November 2017 and January 2018 30 patients operated for a benign gynecological condition were included in this study. The median age was 48.5 years (22 – 83 years). Most patients were ASA class (American Society of Anesthesiologists) II (65%), 13% were ASA I, 20% ASA III and 3% ASA IV. The median duration of surgery was 129 min (37 - 422 min). Of these cases, 77% (n=23) of wounds were classified as clean, 20% (n=6) as clean-contaminated, 3% (n=1) as contaminated. One patient had to be postoperatively transferred to the intermediate care unit. In 16 patients (53%), the operation was without complications. In 14 patients (47%) a total of 19 intraoperative complications were observed (3 degrees I, 13 degrees II and 3 degrees III). In 6 of the patients, altogether 12 postoperative complications were recorded (8 degrees I, 3 degrees II, 1 degree III).

**Conclusion:** The newly developed classification for monitoring intraoperative complications was easily applicable and is suitable for clinical practice as it makes an important contribution to safety and quality of gynecological surgery.
Chlamydia trachomatis: is persistence linked to a lack of knowledge?

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Introduction: Chlamydia trachomatis (CT) is the most frequent notifiable sexually transmitted infection (STI) in Switzerland. CT may injure the fallopian tubes, leading to increased risks of ectopic pregnancy, infertility and pelvic inflammatory disease. 50-75% of the CT carriage are asymptomatic, making it difficult to diagnose. Unlike the United Kingdom, where annual screening is offered to everybody between 16 and 25 years, there is no screening policy in Switzerland. For these reasons, the primary prevention is crucial for the young people to increase their awareness of individual risks and their involvement in active participation in screening. This study aims to evaluate the knowledge of the people between 18 and 25 years about CT and to identify their specific needs regarding prevention.

Material and Methods: 235 people took part into this qualitative study. They had to fill an anonymous online form, that was shared on Facebook. The form was divided into 3 sections: the first one registered socio-demographics data, the second part included 10 questions about CT and the last part collected the opinion of the participants regarding primary prevention of this STI and their requests on improvement. A weighted score was established, in order to rank the participants into 3 knowledge levels. 3 points were assigned to questions essential to an efficient primary prevention, like the transmission routes or the protection tools. 1 point was given to questions with no impact on primary prevention. Univariate and multivariate regression analysis were performed to establish significant correlations.

Results: People consulting health professionals (gynecologist, general practitioner) were more aware of this STI compared to other participants. They heard more frequently about CT in medias than in sexual education. Some facts were known by more than 90% of the participants, such as: condom use protects from the CT in the contrary of the pill or unprotected vaginal sex can lead to infection. However, other facts were not well known by the participants, such as infection risk with oral or anal sex (unknown by 1/3). The participants were unsatisfied by the CT primary prevention available. They wished more prevention at school and from the health professionals.

Conclusion: There is a need to strengthen primary prevention, especially at school. The health care providers should address this issue with every young patient and screening programs should be promoted.
Sentinel lymph node mapping in vulvar cancer – A new approach with indocyanine green and near infrared fluorescence imaging

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Introduction: Sentinel lymph node (SLN) biopsy is the gold standard in the surgical treatment of vulvar cancer. The conventional procedure includes peritumoral injection of technetium-99m radiocolloid (Tc-99m) the day before surgery and intraoperative injection of methylene blue. However, the blue dye in particular has some weaknesses such as staining of the injection site, allergic reactions and limited detection rates. Near infrared (NIR) fluorescence imaging with indocyanine green (ICG) has recently gained popularity in SLN mapping in different types of cancer. The aim of this study is to evaluate the clinical value of ICG SLN mapping in patients with vulvar cancer.

Material and Methods: In a retrospective cohort study, we analyzed all patients at our institution with vulvar cancer undergoing SLN mapping using NIR fluorescence imaging with ICG by applying video telescope operating microscope (VITOM) system technology. Data on patient characteristics, perioperative data, and data on intraoperative complications were collected between April 2013 and December 2018.

Results: Data from 26 patients were analyzed. Of these, 23 patients received Tc-99m and 5 patients received methylene blue in addition to ICG for SLN detection. Mean age was 70.7 years and mean BMI was 27.2 kg/m2. Eighteen patients (69.2%) had FIGO Stage IB and 8 patients (30.8%) had FIGO Stage III to IV vulvar cancer. 8 to 10ml of ICG were injected peritumorally. Mean operation time was 160 minutes and mean blood loss 117.3 ml. No complications due to the administration of ICG occurred. In total 96 SLNs were identified and removed, of those 77 (80.2%) were ICG positive. Overall detection rate was 95.7% for Tc-99m, 92.3% for ICG and 80% for methylene blue. Bilateral detection rates were 82.6%, 80.8% and 60% for Tc-99m, ICG and methylene blue respectively. For the combination of ICG plus Tc-99m overall detection rate was 95.7% and bilateral detection rate was 91.3%. Ten SLNs were identified due to ICG alone.

Conclusion: Accurate SLN mapping is a crucial part of vulvar cancer staging and enables avoiding unnecessary inguinofermal lymphadenectomies with high long-term complication rates. SLN mapping with NIR fluorescence imaging and ICG appears to be feasible and safe. In our study, the addition of ICG as a visual guidance to Tc-99m showed the best bilateral detection rates. Furthermore, ICG SLN mapping is easier to perform than SLN mapping with Tc-99m and has less side effects compared to methylene blue.
The natural history of endometriosis recurrence: a long-term longitudinal study

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Introduction: Endometriosis recurrence is the reason for repeated surgeries in many patients with endometriosis, representing a major difficulty in the management of this disease. A possible relationship between type of endometriosis and recurrence has not yet been evaluated. The purpose of our study, therefore, was to examine if the rate and form of endometriosis recurrence depends on the initial type of endometriosis.

Materials and Methods: All patients who underwent at least one surgery for endometriosis in the Department of Gynecology and Obstetrics, University of Bern, were assessed. The inclusion criterion was recurrence of endometriosis defined as repeat surgery due to endometriosis and/or adenomyosis occurring at the earliest three months after the first surgery. Surgeries taking place at external hospitals were also considered. Second-look surgeries were excluded. Three groups of endometriosis were defined: peritoneal, ovarian and DIE (deep infiltrative endometriosis). A patient was classified in a group according to the severer type documented in the operative report.

Results: Out of 236 women with at least one repeat surgery for endometriosis 50, 126 and 60 experienced peritoneal, ovarian and DIE in the first surgery, respectively. The rate of recurrence was not different between groups with a median time of recurrence 28, 29.5 and 33 months, respectively. Peritoneal endometriosis compared to other types of endometriosis recurred significantly more frequent as peritoneal endometriosis again (p=0.001, OR: 3.87, 95% CI: 1.78-8.32). However, 22% and 38% of the initially peritoneal endometriosis recurred as ovarian and DIE, respectively. 46% of the initial ovarian endometriosis recurred as ovarian endometriosis (p<0.001, OR: 3.45, 95% CI: 1.92-6.11). Another 23% recurred as ovarian endometriosis with concomitant DIE, in this case classified as DIE. Overall, 37% recurred as DIE. 56.7% of the initial DIE recurred as DIE again (p=0.01; OR: 2.18, 95% CI: 1.21-3.85). 16.7% recurred as ovarian endometriosis. 19% underwent a hysterectomy at time of recurrence with a mean age of 38.7 ± 5.9 years, being significantly more frequent compared to the other groups (p=0.05, OR: 2.45, 95% CI: 1.1-1.58).

Conclusion: The rate of recurrence is independent from the type of endometriosis at first surgery. Endometriosis tends to recur as the same endometriosis type. However, disease progression occurs in a large proportion of patients.
3D Laparoscopy- does it make us better?

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**Introduction:** Ever since the early 1990s, 3D laparoscopic surgery was considered to be a step forward in the surgical practice. Despite the presumed advantages, its nowadays use is not as widely spread as expected. Therefore, in order to establish its role in the clinical reality, a comparison between the 3D and 2D laparoscopic hysterectomies from our hospital was conducted.

**Materials and Methods:** We retrospectively collected the data from 20 patients who underwent a laparoscopic hysterectomy with or without salpingo-oophorectomy in our clinic between January 2018 – January 2019. 10 had a 2D laparoscopy and the others a 3D laparoscopy. The main parameter examined was the duration of the operation. We also considered other factors like the age of the patients, the BMI as well as the complications perioperative or postoperative (based on the Clavien-Dindo Classification)

**Results:** The duration of the operation was shorter when a 3D laparoscopy was performed (average 98.1 minutes compared to 108.7 minutes for the 2D laparoscopy) but the difference was not significant. The average age and BMI of the patients were also not significantly different between the two methods. The 2D laparoscopy presented four complications compared to two complications of the 3D method.

**Conclusion:** This retrospective study could not show any clear advantages of the 3D laparoscopy in comparison to the conventional 2D laparoscopy. However the results are weakened by the low patients’ collective as well as the involvement of many surgeons with different experience levels. We consider 3D laparoscopy to be a promising method, which will gain some ground in the operative gynecology in the near future.
Video Presentation

V = Video Presentation
PLACENTA ACCRETA SPECTRUM (PAS) disorders account for 0.4% of pregnancies. Their incidence is rising due to increasing of risk factors, such as prior uterine surgery (caesarean section [c/s] or myomectomy). Massive haemorrhage is the principal complications during c/s in case of PAS and elective hysterectomy without touching the placenta is recommended by some guidelines (ACOG). The risk of haemorrhage is higher in cases of anterior placenta praevia needing careful consideration about where to incise the uterus and how to deliver the baby. Avoiding placental bleeding might also allow for conservative management (leaving the placenta in the uterus).

In our video we show the surgical technique for the “leaving the placenta in situ” approach, that we used in one of our cases with PAS.

This approach consists in a midline laparotomy, thus allowing uterotomy above the upper border of the anterior placenta to deliver the foetus. Umbilical cord is cut short and placenta is left in situ, without the administration of uterotonic or uterine massage. The uterine wall is closed using a double suture. The abdominal cavity is then fully explored to evaluate the invasion of the placenta accreta and the abdominal wall is closed as usual.

Within the subsequent weeks/months, with the decrease of blood supply to the uterus, progressive regression of villi invasion in the uterus and pelvic organs will happen, with gradual detach of the placenta. The complete process can take up to 9 months.

According to the patient’s wishes and her prior obstetrical history, either the uterus is eventually left for next pregnancies, or hysterectomy is performed 4-8 weeks after the c/s. Risk of massive haemorrhage and organs damage is reduced in elective delayed hysterectomy compared to hysterectomy during c/s.

Conservative management of PAS is feasible only after accurate patient’s selection and complete counselling about potential benefits (uterus conservation) and risks (haemorrhage, infection, disseminated intravascular coagulation). Management of PAS should always be multidisciplinary involving obstetricians, gynaecology expert surgeon, anaesthetist, radiologist and urologist or general surgeon if needed.
Large parasitic myomas 7 years after laparoscopic myomectomy with morcellation - a surgical case video

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Introduction: Tissue removal after laparoscopic myomectomy or hysterectomy often requires some form of morcellation. In rare cases this can result in parasitic myomas by tissue spreading inside the abdominal cavity. Even tiny fragments are believed to be able to grow to considerable size, given enough time. Figures on incidence are rare though. A profound systematic review by Van der Meulen et al in 2015 was only able to include 69 patients, about half of which from case reports. That study reported an overall incidence for parasitic myoma after laparoscopic morcellation of 0.12-0.95%.

Material and Methods: A 41 year old patient was referred to our department for surgical treatment of large and growing symptomatic fibroids. Ultrasound and an MRI scan showed what was believed to be a large uterus with multiple fibroids up to 7cm in diameter. The patient already underwent laparoscopic myomectomy at our institution 7 years earlier. At that time, power morcellation was used for tissue removal. Short term follow up was uneventful. Since now the patient does not desire any more children, we scheduled her for total laparoscopic hysterectomy.

Results: During surgery we found an almost normal sized uterus and two large tumors that have obviously grown as parasitic myomas at the right pelvic sidewall and the right lateral part of the bladder peritoneum. Both findings had no contact to the uterus and showed quite an impressive amount of neo-vascularisation. After adhesiolysis between the rectum and the uterus, most likely the former myomectomy site, the parasitic fibroids were completely dissected. Then laparoscopic hysterectomy was performed in a routine fashion. All tissue could be removed through the vagina without morcellation. Histopathology later confirmed the tumors to be fibroids.

Conclusion: Parasitic myomas can occur or become symptomatic even years after myomectomy. Power morcellation without containment of the specimen is regarded as a major risk factor. In-bag morcellation or alternative methods of tissue removal should therefore be considered when performing laparoscopic myomectomy.
Safe surgical removal of placental polyps by hysteroscopy

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Introduction: Placental polyps are retained pieces of placental tissue that persists in the uterus after abortion or birth. They are firmly attached to the wall of the uterus and consist of organized villi and decidua. The incidence is low, < 0.25% of all pregnancies, but the consequences for the patient might be disastrous (e.g. Asherman Syndrom) and the fertility of the patient might be compromised if not treated correctly. Operative hysteroscopy allows a targeted, precise resection of these placental polyps and enables to avoid severe bleeding in the 6% of placental polypoid masses that are hypervascular.

Material and Methods: In this video we demonstrate the typical sonographic signs of placental polyps and show the correspondent intraoperative findings. The video explains the macroscopic difference between placental polyps and other polyps. Furthermore we demonstrate how to remove placental polyps safely and completely at the time of operative hysteroscopy.

Results: Didactic video on the common presentation of placental polyps in both ultrasound and hysteroscopy and the surgical technique to remove those polyps safely and completely.

Conclusion: Women with suspicion of residual material more than four weeks after birth or miscarriage should undergo diagnostic hysteroscopy and in case of a placental polyp it should be removed with hysteroscopic resection.
Looks like a body part of the Terminator – The ALLY UPS used in gynecologic laparoscopy

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Introduction: Technical equipment eases our daily life in the operating theatre in many ways. One rather new device is the ALLY Uterine Positioning System (UPS), which exposes the uterus for optimal visualization and provides static control of the anatomy during laparoscopic procedures.

Material and Methods: The ALLY UPS is mounted on the side of the operating table and the uterine manipulator (Rumi II) is attached to the tip of the ALLY. With a foot pedal the ALLY can be released to position it correctly during the operation.

Results: The video shows the use of the ALLY UPS from both operating room and laparoscopic view. The application, positioning and intraoperative use are demonstrated.

Conclusion: The ALLY UPS is a new device which proves to be practical during gynecologic laparoscopy. Two main advantages are worth mentioning: First, its static control during surgery, where the uterus stays in the exact same position for as long as necessary and ensures steady cephalad pressure, and second, the ALLY allows to carry out operations when no second assistant is available.
In-bag Morcellation revisited – Why all the hassle with the tiny umbilical orifice?

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Introduction: Minimally-invasive hysterectomy is beneficial compared to open procedures regarding pain levels, infection and recovery, but laparoscopy frequently necessitates morcellation to extract a fibroid uterus from the abdominal cavity. The inherent risk of morcellation is the spread of tissue parts in the abdominal cavity, which can have devastating consequences in case of malignancy. This risk has to be balanced with a higher morbidity of laparotomy, and therefore safe extraction procedures like in-bag morcellation are recommended. However, transabdominal in-bag morcellation requires a larger (10-12mm) trocar and can be pretty fiddly and time-consuming. In this video we describe a new technique for contained power morcellation through the vagina after laparoscopic hysterectomy.

Material and Methods: After complete dissection of the uterus from the vagina a pneumolinear containment system is placed in the abdomen through the vagina, the uterus is placed inside and in-bag morcellated via the colpotomy. The video shows a step-by-step description of the procedure.

Results: The use of a morcellation containment bag through the vagina is not only feasible but might be easier to accomplish than via a transabdominal route. The placement of a larger trocar is avoided. The endoscopic visual control remains undisturbed during the inflation of the bag. The morcellation can be ceased earlier because larger tissue fragments can be taken out through the vagina.

Conclusions: Contained morcellation through the vagina is an effective and feasible method to remove an enlarged uterus, providing continuous visualization, easier handling with possibly shorter morcellation time and better cosmetic results.
Robotically assisted laparoscopic (RAL) adhesiolysis in case of severe adherent status: a case report and video

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Introduction: Severe adhesion status is a challenging situation to treat by laparoscopy. Robotic assistance with 3 dimensions enhanced vision may be of benefit in this difficult situation. We present in a video a case of hysterectomy with major post-cesarean section adhesions as well as due to adenomyosis and endometriosis context.

Methods: A 51-year-old G1/P2 perimenopausal woman with a history of one cesarean section and hysteroscopic myomectomy was referred to our unit complaining of chronic pelvic pain, dysmenorrhea, deep dyspareunia, and pollakiuria. The uterus was very painful at palpation and ultrasound findings showed small uterine fibroids and adenomyosis. A total RAL hysterectomy was planned.

Results: We used the Da Vinci Xi robot with an 8 mm umbilical port for a 0° optique and two 8 mm lateral ports for the instruments. The Hohl manipulator was used to expose the uterus. At peritoneal entry, we were immediately confronted with a major adhesion status between omentum, abdominal wall, uterus, and bladder. Adhesiolysis was performed step by step with robotic assistance and bladder filling with blue dye to help identify the bladder. No additional trocar was used. Histology confirmed adenomyomas, leiomyomas and multiple spots of endometriosis explaining this difficult adhesion status after only one cesarean section.

Conclusion: We believe the advantages of robotic surgery are illustrated in the video. Robotic 3D vision offers a better anatomical view and with 7-degree freedom instruments are very helpful for difficult dissections, making possible to perform highly complex laparoscopic procedures that might otherwise potentially require laparotomy.
Laparoscopic high uterosacral ligament suspension of the vaginal vault after previous hysteropexy with lateral suspension with mesh

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Introduction and aim of the video: Pelvic organ prolapse (POP) is a common problem with a lifetime risk of undergoing surgery close to 10%. In case of apical prolapse, abdominal sacral hysteropexy (ASP) is considered the gold-standard but dissection of the promontory may cause life-threatening complication. Lateral suspension with mesh was developed in 1967. The risk of POP reoperation for recurrence is estimated between 6-10% and associated with preexisting weakness of the pelvic floor. Surgery in case of recurrence is often challenging. This video illustrates an option in case of apical recurrence after hysteropexy by lateral suspension with a mesh.

Methods: A fifty-year-old female gravida 3, para 1, with history of POP reconstructive surgery by robotic-assisted lateral suspension with mesh three years before presented with recurrence of uterine prolapse. At clinical examination, a uterine prolapse overpassed the hymen of 3 cm due to pericervical fascial defect with an enlarged and elongated cervix. We performed a robotically-assisted laparoscopic hysterectomy and bilateral salpingectomy with high utero-sacral ligament suspension.

Results: We used the Da Vinci XI system (Intuitive Surgical®) with an 8 mm port for a 0° optique and two 8 mm lateral ports with one additional 10 mm paraumbilical trocar. The intra-abdominal status showed a desinsertion between the uterine isthmus and the mesh. We performed a hysterectomy with bilateral salpingectomy preserving the attachment of the mesh to the vesico-vaginal fascia, to limit the risk of recurrence in the anterior compartment. After closing the vaginal vault we proceeded to the vaginal vault suspension to the middle portion of the utero-sacral ligaments by two points of Vicryl 0. To reduce the risk of mesh exposure at vaginal vault, we lowered the epiplom and fixated it on the vaginal dome.

Conclusion: Our video illustrates the feasibility of laparoscopic high uterosacral ligament suspension of the vaginal vault after previous hysteropexy by lateral suspension with mesh. A multitude of different surgical techniques exist to treat POP, with vaginal, abdominal or laparoscopic approach, preserving or removing the uterus, using native tissue or a mesh. Therefore, every surgeon should master different techniques. In case of uterine pathology with enlarge or elongated cervix, laparoscopic high uterosacral vaginal vault suspension may be an interesting alternative treatment to the traditional vaginal route, limiting the risk of ureteral injury.
Pearls in magnetic resonance imaging in gynecology and intraoperative correlate

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Background: Diagnostics in gynecology is primarily done by clinical examination and vaginal ultrasound. However, modern developed techniques in MRI can help identify and differentiate pathologies, where limits of ultrasound is reached such as abdominal disseminated pathologies, rare locations or depth of infiltration of the neighboring structures. Gynecologists should be familiar with modern MRI techniques such as diffusion weighted MRI (DW/MRI), which enables a functional tissue diagnostics without contrast media.

Methods: Interesting cases with MRI and intraoperative findings were selected and reviewed for case presentation. Modern techniques like body diffusion-weighted magnetic resonance imaging (DWI/MRI) for ovarian cancer and vaginal and rectal opacification in endometriosis were used for imaging.

Results: Five cases with interesting MRI findings were selected and are presented in a video with dynamic explanation of the MRI findings and compared to the intraoperative images. The pathologies range from deep infiltrating endometriosis over ovarian cancer to rare findings such as a Fossa Douglas teratoma and PEComa.

Conclusion: MRI can be integrated in diagnostics for gynecological pathologies and increase diagnostic security and operation planning in selected indications.
Poster Exhibition

$P = \text{Poster Exhibition}$
A retroperitoneal lymph node metastasis feigning an adnexal tumour

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Introduction: In spite of improved techniques, the accurate diagnosis of retroperitoneal tumours is still a challenging task, and misdiagnosis often occurs. Adnexal tumours are extremely difficult to distinguish from a retropertitoneal mass owing to their position and shape. In the present case we illustrate this problem with the metastasis of a urothelial carcinoma.

Case description: Patient’s history: The female patient was 70 years old, lean and fit, in good general condition, taking no medication, and with no secondary diagnosis except for nicotine abuse (40py). She presented with lower abdominal pain. Clinical results: Moderate increase of the inflammatory values in the blood and pain on palpation in the left lower abdominal region. The Vaginal ultrasound and abdominal CT showed a mass within the adnexal space. Moreover, there was a thickening in the bladder wall and a Hydronephrosis to the left kidney. The wash cytology of the bladder showed no evidence of malignant cells. The tumour marker CA-125 was unremarkable. Operation: The following diagnostic laparotomy was performed in assistance of an urologist. Intraoperative it presented on the left side a protrusion of the retroperitoneum. In addition, a tumorous process on the bladder was visible. Otherwise there were no abnormalities. On opening the retroperitoneum, a yellow liquid escaped. The retroperitoneal tumour was excised. Additionally an adexectomy left and a partial bladder resection was carried out. The intraoperative frozen section analysis was not conclusive. Therefore, it was given up on a total staging operation. Histology: Muscle invasive, ulcerated high grade urothelial carcinoma, diffuse infiltration of the periovarian connective and fat tissues, ovary and tube left unremarkable, no malignant cells in the peritoneal flushing liquid. Diagnosis: Urothelial carcinoma stage pT3a. Procedure: Because of increasing symptoms, immunotherapy was arranged and with a good response potentially a secondary operation could be open for discussion.

Discussion: Diagnosis of retroperitoneal tumours can be challenging. Despite the progress of computer tomography and ultrasound these techniques still have limited informative value. Uncommon metastatic spread should be taken into account. If even the intraoperative frozen section analysis cannot provide a conclusive diagnosis, the expertise of the involved surgeon is fundamental for further proceedings. Therefore, interdisciplinary cooperation is crucial for the best outcome.
Management of fetuses with Congenital Pulmonary Airway Malformation (CPAM) – two case reports

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Introduction: Congenital pulmonary airway malformation (CPAM) is a developmental anomaly of the lower respiratory tract and the most common congenital lung lesion. Widespread use of prenatal ultrasonography has led to increased prenatal diagnosis of these disorders. A variety of indicators are used to estimate the further course and outcome, including CVR (congenital pulmonary airway malformation volume ratio) with a value of >1.6 being predictive for adverse fetal outcome and need for early surgery. We describe the management of two cases at our tertiary center.

Case Report I: A 33-year old I-gravid woman was referred for an anomaly scan at 23 weeks of gestation. The scan revealed a CPAM in the left hemithorax with mediastinal shift and dextrocardia (CVR 0.8). The parents refused genetic testing. Steroids were administered. Because of an increasing CVR (up to 1.44), we performed a thoraco-amniotic Somatex® shunt insertion at 23 weeks and 3 days. Further scans showed a shrinking CPAM size with a CVR <1. No dextrocardia was seen after week 28. At 38 weeks, the patient presented with contractions after PROM the previous day. A caesarean section was performed (APGAR 8-9-9, NSa-pH 7.36, 2600g). The pediatric surgeons performed post-natal shunt removal. The newborn showed normal vital signs with no need for supplemental oxygen and was discharged with his mother on day 5.

Case Report II: A 30-year old II-gravid woman with gestational diabetes was referred at 30 weeks and 6 days of gestation because of fetal ascites. Sonography revealed a macrocystic thoracic CPAM in the right hemithorax with cardiac displacement as well as ascites and polyhydramnion (CVR 2.3). The patient was admitted for steroid administration. We successfully inserted a thoraco-amniotic Somatex® shunt. The further course showed a decrease in ascites and amniotic fluid as well as normal fetal growth. At 39 weeks of gestation, we induced labor due to increasing CPAM size. When the baby a developed non-reassuring heart rate, a cesarean section was performed at the pediatric hospital subsequently (APGAR 8-8-10, NSa-pH 7.34, 3120g). The newborn was discharged with her mother on day 6.

Results/Discussion: Thoraco-Amniotic shunting is a safe and feasible treatment for fetuses presenting with CPAM. CVR is used as a predictor to assess the need of prenatal treatment. Early referral to a tertiary center with experience in thoraco-amniotic shunting is crucial for the further development of the unborn.
PEComa (perivascular epithelioid cell tumor)-a case report

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Definition of PEComa: Mesenchymal tumor containing epithelioid cells with clear to granular, eosinophilic cytoplasm and differentiation to melanocytic and smooth muscle cells, originating from the perivascular epithelioid cells.

Case report: In January 2018, a previously healthy 33-year-old patient presents to the emergency room at a peripheral hospital with a recurrent fever for three weeks. A detailed examination includes blood analysis, liquor diagnostics and comprehensive radiological imaging. Then the patient shows symptoms of lower abdominal pain and bloody vaginal discharge. An additional abdominal CT is performed showing an intramural myoma of about 3cms with central necrosis. An antibiotic therapy with Doxycyclin® is started due to the suspected diagnosis of adnexitis. As abdominal pain increases, a diagnostic laparoscopy and hysteroscopy with removal of the patients IUD is performed at the central hospital. The intraoperative situation, cervical and intraabdominal swabs are inconspicuous. The follow-up shows regressive laboratory parameters and a subjectively asymptomatic patient. After six months, the patient presents to the emergency department with recurring fever and lower abdominal pain. Radiologic imaging shows the progressive growth of the known myoma with central necrosis. Because of the diagnostic findings and no more desire to have children, a hysterectomy with an uneventful intraoperative course is performed. The histopathological result shows a malignant PEComa. The patient is introduced at the interdisciplinary tumor conference, where six-monthly checkups with radiologic imaging are recommended.

Summary: To this day, only 80 cases of PEComas have been published in the English literature, 25% originating in the gynecological organs. Symptoms are unspecific with lower abdominal pain and abnormal vaginal bleeding. That’s why the majority of PEComas are diagnosed postoperatively. The primary treatment is surgical, which aims for an in total resection with tumor-free margins. Adjuvant chemo- or radiotherapy should only be given in high-risk cases, including patients with metastases or lymph node involvement.
Primary peritoneal serous Borderline tumors: A case report and systematic review of the literature

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Introduction: Primary peritoneal serous borderline tumors (PPSBT) are rare neoplasms that can present as an incidental finding at laparoscopy and raises concern for a primary ovarian tumor with peritoneal implants. The aim of this systematic review is to present an overview of all reported cases of PPSBT with a focus on clinical presentation, diagnosis, therapeutic options and prognosis.

Material and Methods: A search for articles containing different terminologies for PPSBT was performed via PubMed. We included English and French language publications from 1966 to February 2019. Bibliographies of these manuscripts were searched for further relevant literature. All 15 manuscripts were reviewed completely according to the following criteria: Patient age, medical history, family history, diagnosis and pathology, surgery and resection, adjuvant therapies as well as survival.

Results: To date, 229 cases of PPST have been reported in literature. Most patient present with infertility or abdominal pain. Diagnosis is based on histopathology since appropriate imaging or specific tumor markers are lacking. The main therapy applied in the majority of cases was simple (74 cases, 32.3%) or extended (136 cases, 59.4%) resection. Prognosis seems good independent from extent of surgery with recurrence rates below 25% and follow-up periods from 5 months – 16.2 years. Only three cases of invasive low-grade serous carcinoma of the peritoneum followed after diagnosis of PPST have been identified.

Conclusion: PPST is a very rare condition, often found in women of reproductive age with infertility or abdominal pain in history, having similar histological features with that of ovarian serous epithelial tumors. In most cases, the diagnosis is incidentally established during laparoscopy or laparotomy followed by histopathology. Guidelines concerning standard therapy options for PPST are missing. Considering the good prognosis even in incomplete resection, limited surgery to keep fertility can be a good initial option. Adjuvant therapy do not seem to have further advantages but new therapeutic approaches such as endocrine therapy have not yet been tested. Since the course of the disease can comprise decades, long-term follow-up is crucial.
Influence of oxytocin receptor single nucleotide polymorphisms on in vitro contractility of human myometrium

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Introduction: Oxytocin receptor (OXTR) gene variants have been shown to affect the prevalence of preterm birth, mode of delivery and oxytocin requirements for labor induction and augmentation. We hypothesized that this might be associated with different myometrium responses to oxytocin. Our goal was to investigate the influence of a selection of single nucleotide polymorphisms (SNPs) within the OXTR gene on oxytocin-induced stimulation of human myometrium contractility in vitro.

Material and Methods: Samples (n = 60) in this study came from two original studies. These original studies were designed to investigate the effect of tocolytic agents, alone and in combination, on contractility of human myometrium that was obtained from elective cesarean sections. In each of these studies, women were included if they gave informed consent, had a single pregnancy, would undergo their first cesarean section at term, did not receive a tocolytic treatment, and had neither preeclampsia nor HIV infection. For this study, data and material from the two original studies were included if frozen material existed and data on spontaneous and oxytocin-induced contractility in at least one strip was available. The strength (area under the curve) of contractions were recorded using strips of human myometrium mounted in an organ bath system. For each SNP, oxytocin-stimulation of contractility was compared between samples homozygous for the reference allele (reference group) and samples with at least one variant allele (variant group).

Results: Our data shows that variant alleles of two of the tested OXTR SNPs – rs237888 and rs4686302– were associated with significantly stronger oxytocin-induced stimulation of myometrial contractility in vitro.

Conclusion: Our data confirms that genetic variants of the OXTR gene might have an impact on the birth process and suggests that at least in some cases this might occur via differences in myometrial contractility strength as induced by OXT. Patients with a variant allele of rs237888 and/or rs4686302 may be more sensitive to oxytocin-stimulation, explaining why these SNPs have been associated with premature birth and lower caesarean section prevalence, respectively.
A comparison of ultrasound and magnet resonance imaging findings before and after fetal myelomeningocele repair

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Introduction: Open fetal myelomeningocele (fMMC) repair represents the standard of care for selected fetuses with spina bifida if parents decide to pursue fetal surgery. Ultrasound (US) and magnet resonance imaging (MRI) play an important role in the diagnostic workup and follow up of these patients. The aim of this study was to compare pre- and postoperative US and MRI findings regarding different characteristics of fMMC.

Patients and Methods: Between December 2010 and June 2017, 60 patients underwent MMC repair at Zurich Center for Fetal Diagnosis and Therapy. We retrospectively analyzed and compared the pre- and postoperative findings of US and MRI regarding type and level of lesion, central nervous system, foot anomalies and postoperative complications.

Results: In preoperative examinations, the lesions type (myelomeningocele vs. myeloschisis) detected with US and MRI was the same in 87%, while later intraoperative findings confirmed 85% of US and 80% of MRI diagnoses. No significant difference in the diagnosis of myelomeningocele versus myeloschisis was found for the two image modalities, whereas the level of lesion was found to be significantly higher on US (p=0.001). The lateral ventricles width was measured wider by MRI than by US preoperatively and postoperatively (p=0.001 resp. p=0.03). Reversal of hindbrain herniation was seen in 95% in US and 92% in MRI after fMMC repair. Heterotopia were only diagnosed by MRI. In 88% of cases US and MRI agreed on the (non-)existence of foot anomalies, and in 99% of cases both modalities made equal findings concerning the morphology of other organs. Postoperatively, no significant difference in diagnosis power between US and MRI was noted for seroma, amniotic leakage or oligohydramnios. Postoperative amniotic membrane separation was diagnosed significantly more reliably by US (p=0.016).

Conclusion: US and MRI often reciprocally affirm their findings. However, both modalities have their specific strengths for detection of different characteristics of fMMC before and after repair and for postoperative complications. This study therefore indirectly underlines the crucial role of both US and MRI for diagnosis and patient counselling before and after fMMC repair.
Interstitial pregnancy: Diagnosis and treatment in the University Hospital of Zurich - A case report

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Introduction: Interstitial pregnancy occurs in approximately 2-4% of all ectopic pregnancies and in 1 of 2500-5000 of all live births with rising incidence as assisted reproductive technologies increase. Due to its location within the highly vascularized myometrium, patients can present with massive hemorrhage and shock symptoms. We present a case of unruptured interstitial pregnancy that was successfully managed laparoscopically.

Material and Methods: A 26-year old multiparous female was referred to our outpatient department with a uterine mass and suspicion of AVM in MRI. She presented with slight lower abdominal pain and vaginal discharge.

Results: Transvaginal ultrasound showed a normal-sized uterus and an irregular and inhomogeneous mass measuring 47x39mm with increased colour Doppler perfusion in the right cornu of the uterus. Serum beta-human chorionic gonadotropine (hCG) measured 178 kU/l. Neither intrauterine nor typical ectopic pregnancy could be identified in ultrasound examination. In consideration of all facts, including MRI findings, patient’s symptoms and hCG-values the preliminary diagnosis of an interstitial pregnancy was made. Laparoscopically the right uterus cornu was enlarged with livid discoloration and the adjoining right tube was drawn into the mass. We performed a laparoscopic cornu resection with salpingectomy. Histopathologically trophoblastic tissue was confirmed.

Conclusion: As Goethe mentioned before: “You only see what you know”. Main diagnostic criteria of interstitial pregnancy are an empty uterine cavity, a separate gestational sac localized lateral of the edge of the uterine cavity, a thin (5mm) myometrial layer surrounding the gestational sac and the “interstitial” sign. Systemic methotrexate is feasible for patients who are asymptomatic. Laparoscopic methods such as cornuostomy, salpingostomy or cornual resection have become the cornerstones of treatment in women with advanced interstitial pregnancies, failed medical treatment, strong symptoms or suspected rupture. Long-term risks include persistent interstitial pregnancy and recurrent interstitial pregnancy. A cesarean delivery for next pregnancy should be planned at term and careful antenatal surveillance seems to be a safe approach.
Uterine dehiscence early in pregnancy after laparoscopic resection of pelvic endometriosis - Risks of electrocoagulation

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Case Report: We present the case of a 37-year old gravida 1 who presented with slight lower abdominal pain at 17 4/7 weeks of gestation. The transvaginal ultrasound showed a cervix of 28mm and a “niche” in the anterior isthmic-cervical uterine wall over a length of approximately 17mm. The thickness of the myometrium there measured only 1.3 – 2.6mm. The patient had a history of severe endometriosis with two laparoscopic surgeries. The first surgery had been performed 4 years prior to pregnancy by diagnostic hysteroscopy and curettage as well as laparoscopic resection of multiple endometriosis nodules amongst others from the left cervical wall. This resection had been carried out with ultracision and unipolar electrocoagulation. A second laparoscopic surgery took place 4 months prior to conception with left salpingectomy, adhesiolysis and end-to-end resection of the sigma due to infiltrating endometriosis.

After diagnosis of the niche follow-up examinations every 2-3 weeks showed a stable cervical length and no sign of further progression of the dehiscence. From 30 weeks on the patient complained of progressive pain in the right lower abdomen and back. Sonographically there were neither signs of uterine rupture nor changes in the thinning of the uterine wall. Pregnancy could be continued and elective cesarean section was performed at 39 weeks of gestation. During C-section we found a remarkable dehiscence of about 10 x 5 cm of the lower left anterior uterine wall, consisting of only peritoneum and the amniotic membranes.

Discussion: The probable cause for the uterine dehiscence in our patient seems to be the resection of endometriosis at the left cervical wall 4 years ago. In literature there are only few case reports described of uterine dehiscence occurring after extensive adhesiolysis, salpingectomy or perforation of the uterus during an abortion. The common factor in these cases is the use of electrocoagulation. The use of diathermy is increasing with the growing number of laparoscopic surgeries. It is essential to know about the risks of electrocoagulation in uterine surgery especially if pregnancy is planned in the future. In our case the dehiscence was easy to detect and cesarean section was planned. One needs to be aware of the possible risk of uterine rupture especially if a pregnant woman with a history of laparoscopic uterine surgery presents with abdominal pain.
**oGTT in pregnancy: Could it be avoided?**

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**Clinic:** Obstetrics and perinatal Medicine, Cantonal Hospital Aarau

**Introduction:** Gestational diabetes mellitus (GDM), is a form of glucose intolerance with onset or first detection during the pregnancy. The diagnostic gold-standard is the 75-g oral glucose tolerance test (oGTT), generally performed between the 24th and the 28th week in every pregnant women. The measurement of the glucose concentration should be in the maternal venous plasma. The cut-off values for diagnosis of GDM are: FPG (fasting plasma glucose) 5.1 mmol/l, 1-h plasma glucose 10.0 mmol/l and 2-h plasma glucose 8.5 mmol/l. The diagnosis is made if at least one value equals or exceeds these cut-offs. Here we investigated if the FPG may serve as screening test to reduce the use of the oGTT.

**Methods:** We conducted a retrospective single-center study at the Cantonal Hospital Aarau in pregnant women at GDM risk, who underwent oGTT-screening between 2014 and 2017. As risk factors we considered obesity (BMI >30 kg/m2), ethnicity (not Caucasian), family history (first-degree) of diabetes, GDM or macrosomia in a former pregnancy, PCOs and habitual abortions. We assessed the proportion of pregnant women with pathological oGTT, and the accuracy of diagnosis based on FPG cut-offs of <4.8 mmol/l and <4.4 mmol/l.

**Results:** 905 pregnant women were evaluated. The mean age was 31.5 years. Due to missing data 30 women were excluded. The prevalence of GDM was 21.1% (185 women). 14/875 risk patient (1.6%) had pathological oGTT by FPG < 4.8 mmol/l. 3 of them had insulin-dependent GDM. 2 of them had FGP < 4.4 mmol/l.

Cut-off of 4.4 mmol/l (18.9% of women): sensitivity 97.8%, specificity 23.3%, PPV 25.5%, NPV 97.6%

Cut-off of 4.8 mmol/l (59.3% of women): sensitivity 92.4%, specificity 73.2%, PPV 48.0%, NPV 97.3%

**Conclusion:** The FPG seems to be a promising screening method in the population at GDM risk. NPV was 97% for both evaluated cut-offs. The value of an FPG-based screening test for high-GDM-risk but also for low-risk pregnant women, and the respective cut-offs should be investigated prospectively.
A Bufadienolide-Enriched Fraction of Bryophyllum pinnatum Inhibits Human Myometrial Contractility in Vitro

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Preterm birth is one of the most common causes of infant morbidity and mortality, and often results from preterm labour. Bryophyllum pinnatum is a succulent perennial plant traditionally used since the 1970’s in the treatment of premature labour, first in anthroposophic hospitals and, recently, in conventional settings often as an add-on medication. However, it is not known which type of compounds in B. pinnatum leaves contribute to the tocolytic effect. We here investigated the effects on human myometrial contractility in vitro of B. pinnatum juice (BPJ), and of fractions obtained from the plant, namely a bufadienolide-enriched fraction (BEF), a flavonoid-enriched fraction (FEF), and the corresponding flavonoid aglycon mixture (A-Mix).

Myometrial biopsies were collected during elective Caesarean section. Strips of tissue were mounted in an organ bath system (myograph), and spontaneous contractions were recorded. Aliquots of a stock solution of FEF, A-Mix, BEF, B. pinnatum juice (BPJ) or a vehicle control (Krebs solution or DMSO), were repeatedly added (4 times) in 20 min intervals. The strength (i.e. AUC and amplitude) of contractions were recorded for each 20 min period. After a washout period, vitality of strips was observed for additional 30 min. Cell viability assays were performed with the human myometrium hTERT-C3 and PHM1-41 cell lines.

Repeated addition of FEF, A-Mix, BEF or BPJ led to a progressive decrease of contraction strength (AUC and amplitude) in a concentration-dependent manner (in all cases, p<0.05), without jeopardising the vitality of myometrium strips. BEF was the most active test substance, since 1 µg/mL BEF lowered AUC to 40.1 ± 11.8% of initial, whereas 150 µg/mL FEF, 6.2 µg/mL A-Mix, and 10 µg/mL BPJ (i.e. 1%) were required to achieve comparable inhibition. None of the test substances decreased myometrial cell viability, even at concentrations of 500 µg/ml FEF, 40 µg/ml A-Mix, 3.8 µg/ml BEF and 75 µg/ml BPJ, i.e. higher than those used in the myometrium experiments.

In conclusion, the data confirm previous observations showing that in vitro myometrial contractility can be inhibited by B. pinnatum leaf press juice without affecting viability. Given the concentrations of flavonoids in FEF and BPJ, and of bufadienolides in BEF and BPJ, it appears that bufadienolides are responsible for the relaxant effect.
PreImplantation Factor promotes Oligodendrocyte differentiation by modulating NCOR2 and long non-coding RNA H19 of the Oligodendrocyte Progenitor Cells

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Introduction: Premature infants face multiple challenges including periventricular leukomalacia (PVL) and successful therapies are lacking. Oligodendrocyte Progenitor Cells (OPCs) give rise to myelin producing cells during brain development. Activation of dormant OPCs at the epigenetic level represents an attractive strategy. Long non-coding RNA H19 is a potential candidate to regulate epigenetic cell differentiation since it inhibits S-adenosylmethionine-dependent methyltransferases that methylate DNA at regulatory sites. Since synthetic PreImplantation factor (sPIF) protects against multiple neuronal disorders, we posit that sPIF activates OPCs by tuning gene methylation dynamics through H19.

Methods: Cell lines (OPCs MO13.13) were treated with sPIF (200nM; 48h), and downstream differentiation markers were evaluated by quantitative RT-PCR. H19 loss and gain of function studies and genome-wide methylation profiling were performed. Two-tailed Student’s t-test and Mann-Whitney tests were used in analysis with level of significance set at $p < 0.05$.

Results: Both sPIF and the overexpression of H19 enhanced oligodendrocyte differentiation. In MO13.13s, sPIF increased mRNA expression of immature (OLIG2) and mature (MBP) oligodendrocyte markers in H19-dependent manner. Genome-wide methylation profiling reveals that H19 overexpression significantly de-methylated intron regions of the gene locus of NCOR2, a key regulatory cellular factor, leading to an increased expression. NCOR2 enhanced oligodendrocyte differentiation and OPCs knockdown for NCOR2, subjected to sPIF, were not able to differentiate.

Conclusion: sPIF activates OPCs and boosters myelin production by modulating H19 and the de-methylation of NCOR2 of the OPCs. Our results uncover an unanticipated regulatory circuit of sPIF involving broad epigenetic alterations by a single IncRNA that may underlie gene methylation dynamics of development and diseases. 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.
Severe post partum Sepsis after Caesarean Section in Woman with Chorioamnionitis

Author: Becker C., Winder F., Fischer T., Markus A., Hornung R.
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Introduction: Chorioamnionitis is a severe clinical syndrome that occurs in 1-4% of all term deliveries. Genital Mycoplasmas are the most common isolates although their pathogenicity remains questionable. In this case of chorioamnionitis in a pregnancy at term after a secondary caesarean delivery, late onset sepsis developed and lead to two further surgical interventions.

Case Report: A 23 year-old Nullipara at 41 weeks of gestation was admitted with frequent contractions and discharge of green amniotic fluid. The patient was a smoker with a history of Cannabis abuse. Cervicitis with an infection of Mycoplasma hominis at 34 weeks gestational age had not been treated properly since the patient had not taken her medication. The patient was admitted to Caesarean delivery due to a pathological CTG, subfebrile temperatures and leucocytosis. Streptococcus oralis was identified from a placental swab. We immediately started IV antibiosis with Co Amoxicillin. 9 days after delivery, leucocytosis suddenly increased even though the patient was still receiving antibiotics. An abdominal CT showed dehiscence and an abscess in front of the uterotomy. We performed re-laparotomy with extraction of necrotic and inflamed myometrium and endometrium surrounding the caesarean scar. We changed antibiosis to Clindamycin and Tazobactam IV. Mycoplasma hominis and Ureaplasma parvum were isolated from intrauterine swabs and antibiosis was switched to Co Amoxicillin and Clarithromycin. The patient continued to have febrile temperatures and leucocytosis which did not significantly decrease. Another CT, performed on day 15 after delivery, showed a pleural effusion of the right lung. Pleural drainage gave no evidence of any pathogen. We suspected drug fever, and medication was reduced to a minimum. The patient then developed tachycardia and high fever, and a third CT uncovered a pleural empyema and atelectasis of the right lung. Thoracoscopy was performed by the thoracic surgeons with decortication of the right lung. We discharged the patient 32 days after delivery.

Conclusion: This is a case of chorioamnionitis with severe complications although no highly pathogenic bacteria was detected. This case emphasizes not only the need for strict treatment of prenatal vaginal infections but also the importance of prompt delivery in women with rising temperature and leucocytosis. It is also a good reminder that we should have a very close eye on women with chorioamnionitis after delivery.
Improving mother-child bonding during a caesarean: 
Watching a child being born – 
Der Fensterkaiserschnitt (FKS)

Author: Christoph P., Vuilleumier P., Sutter L., Messer A., Surbek D.
Clinic: Obstetrics and Gynecology, and Department of Anesthesiology, Inselspital, 
Bern University Hospital, Inselspital, University of Bern

Introduction: The experience of giving birth has long-term implications for a woman’s 
health and wellbeing. Increasing evidence shows that women undergoing caesareans (CS) 
have a less satisfactory childbirth experience than those delivering vaginally. With this, the 
incidence of postnatal depression, bonding difficulties, and unsuccessful breastfeeding is 
increased. This seems to be mainly of concern in unwanted CS. Watching the birth of a child 
during a CS could fill the “visual gap” during a standard CS, thereby providing a more satisfying birth experience. The aim of the “Fensterkaiserschnitt (FKS) was to promote bonding 
during medically indicated CS and to improve the birth experience of women having an un-
wanted CS.

Material and Methods: With the use of a surgical drape fitted with a transparent window in 
front of the parturient’s head during a medically indicated CS, it is possible for women and 
their spouse to watch the birth of their child. The transparent window remains closed at the 
beginning of the procedure and is opened only while the baby is delivered. Through the window they can see their child being born, take the first breath, the umbilical cord being 
clamped and the child being handed over to the midwife. During the whole procedure, pa-
tient safety and sterile surgical conditions are ensured. Parturients are eligible when a CS is 
indicated under regional anesthesia without the expectation of difficulties regarding fetal 
extraction, extensions of the uterotomy and bleeding. It must be ensured that the woman 
and spouse understand this procedure, and knows it can be reverted to a “standard” CS at 
any time by request of the mother, spouse, or due to surgical reasons by the obstetrician.

Results: We started offering the FKS in December 2017. Since then more than 50 couples benefitted of that experience. Women consistently reported the feeling of a “birth”: watch-
ing the baby come out of the abdominal incision and seeing their newborn immediately. 
No negative experience was reported during an FKS.

Conclusion: By offering a closer birthing experience during CS, we seek to ensure the bir-
ting experience during a CS is not perceived as a failure, and to promote an improved mo-
ther-child bonding. Unanticipated stress for the mother and spouse by “watching the CS” 
must be avoided. The primary challenge is to avoid the potential for FKS to encourage CS. 
However, this preliminary prospective experience may encourage widespread use of the 
FKS.
UNIVERSITY WOMEN’S HOSPITAL BERN & NURU FOUNDATION TANZANIA: A CONTRIBUTION TO HIGH-QUALITY AND RESPECTFUL MEDICAL CARE TO TANZANIAN WOMEN

Author: 1) Christoph P., 2) Schaller M., 2) Cheleo I., 1) Surbek D.
Clinic: 1) Obstetrics and Gynecology, Inselspital, Bern University Hospital, University of Bern, 2) NURU foundation Switzerland, registered NGO

Objectives: Tanzania is the largest of all east African countries. In the Human Development Indices and Indicators 2018, Tanzania is given a rank of 154 out of 178 countries. Maternal mortality ratio is high as there are 466 deaths per 100’000 live births in 2015. Nearly five in every 100 newborn die before their first birthday. Moreover, 70% of women report the experience of physical and/or mental violence from health care workers during the process of delivery. The cooperation between University Women’s Hospital in Bern and NURU Tanzania started in the year 2018 and its goal is to contribute to high-quality and respectful medical care to Tanzanian women.

Materials: NURU is a Swiss/Tanzanian registered NGO that managed to open a dispensary in the poorest of five districts in Dar es Salaam. NURU provides antenatal clinic to 1200 clients per year but only conducts 25 deliveries due to lack of operating theater. It is planned to expand the dispensary in the near future so that all mothers can deliver at NURU. Due to the shockingly high negative birth experience of Tanzanian mothers, NURU has the vision to establish a show case project where the focus lies on high-quality, respectful and dignified maternity care to all women attending NURU.

Methods: NURU foundation Switzerland initiated the cooperation between University Women’s Hospital Bern and NURU. Its activities are part of the project “Respectful Maternity Care NURU” which is sponsored by the SDC. Key element of the cooperation is the exchange of knowledge whereby staffs from NURU go to University Women’s Hospital Bern for clinical workshop and Swiss staff comes to NURU to provide education to staffs working at NURU.

Results: Two Tanzanian doctors working at NURU had clinical insights in the following wards of University Women’s Hospital Bern: Antenatal outpatient ward, screening department, delivery and postpartum ward and operating theater. Through case presentations and written reports, they present their gained knowledge to remaining staffs at NURU. More workshops are planned whereby Swiss staffs travel to Tanzania to teach NURU staffs according to their needs to ensure high-quality and respectful maternity care.

Conclusions: The cooperation shows that with a relatively limited financial and personal effort, medium-term improvements of patient care be achieved. Deep-rooted improvements can be achieved through frequent exchange of knowledge between Swiss and Tanzanian staffs.
Evaluation of a validated calculator to estimate the risk of cesarean delivery after an induction of labor

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Clinic: Obstetrics and Gynecology, University Hospital Basel

Introduction: Induction of labor is a routinely performed procedure in obstetrics with an increasing incidence of approximately 25%. Regardless of how common inductions are, the ability to predict induction success is limited. In a recently published study by Levine et al a validated calculator based on five variables (nulliparity, gestational age ≥ 40 weeks, BMI, modified Bishop score and height) to estimate the risk of cesarean after an induction of labor was established. We favor an easy-to-use Web-based calculator in the prediction of successful induction of labor, however, we attempted to evaluate its performance in our population induced with oral misoprostol or Misodel®.

Material and Methods: Data was retrieved retrospectively from an already existing database to examine the efficacy and safety of Misodel® vs. oral misoprostol for induction of labor. Inclusion criteria were pregnancy at full-term (≤37+0 weeks), a singleton gestation with intact membranes and an unfavorable cervix (modified Bishop score ≤6 and cervical dilation of ≤2cm). Women with a prior cesarean and/or contraindication for misoprostol or a vaginal delivery were excluded. Data was assessed with the web-based calculator and compared with the actual mode of delivery.

Results: In our study cohort 158 women were included of which 76 had been induced with Misodel® and 82 with oral misoprostol. Demographic data is described in Table1. The overall cesarean rate was 36.7%. Compared to Levine’s population our patients were older, had a lower BMI and were mostly caucasians. In Table2 all risk categories with the actual cesarean rates can be seen. The web-based calculator was only precise in predicting the likelihood of cesarean in the low risk (<10%) and the high risk (>70%) category independently of the induction method. For all other risk categories, the calculator’s performance was modest.

Conclusion: We could not match the results of the calculator to predict the risk of cesarean after an induction of labor in our cohort. One reason might be the demographic differences between Levine’s and our population as well as there might be different criteria for performing a cesarean. However an easy to use web-based calculator might be a helpful tool in supporting the decision-making when inducing labor. We assume additional risk factors for cesarean should be included like maternal age, ethnicity, estimated fetal birth weight and the method of induction. These risk factors should be evaluated in a larger cohort in a prospective study.

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<th>Risk category (%)</th>
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<tr>
<td>&lt;10</td>
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<tr>
<td>10-&lt;20</td>
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<td>≥70</td>
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<tr>
<td>BMI (mean, kg/m²)</td>
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<tr>
<td>Height (mean, cm)</td>
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<tr>
<td>Gestational age (mean, weeks)</td>
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| Nulliparous | 125 | 79.1 |

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<td>Indian</td>
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<td>South American</td>
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<th>Method of induction</th>
<th>Cesarean rate n (%)</th>
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<td>Misoprostol vaginal insert</td>
<td>76 (48.1)</td>
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<tr>
<td>Oral Misoprostol</td>
<td>82 (51.9)</td>
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Massive spontaneous hemoperitoneum with metabolic decompensation in a non-pregnant endometriosis patient: a case report

Author: Schelm M., Radan A.-P., Müller M., Mueller M.D.
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Introduction: Severe hemorrhage with spontaneous hemoperitoneum as a rare adverse event of endometriosis can occur in pregnant patients, as previously described. We present the case of a 50-year-old premenopausal virgo who got admitted at our emergency department one month after stopping her oral contraceptives.

Materials and Methods: Clinical findings included lower abdominal pain and vaginal bleeding without provoking event. Laboratory results showed a low hemoglobin level of 67g/l. In the ultrasound and computer tomography of the pelvis a massive hemoperitoneum was suspected. By presence of maple syrup urine disease in the patient’s history, she was not only at risk for hemorrhagic shock, but also for metabolic coma due to degradation products of the intraabdominal blood and to stress. As a gynaecological source of bleeding was expected, emergency diagnostic laparoscopy was performed. Diffuse endometriosis lesions in the pouch of Douglas and peritoneum of the left pelvic wall were identified. Hemostasis was obtained and biopsies were taken. Histopathologic and immunohistochemical examination confirmed the surgical diagnosis. Furthermore, a postoperative MRI of the lung raised the suspicion of pulmonal endometriosis. A dienogest therapy was established and the patient was discharged from the neurological unit of our hospital on postoperative day 8 in a stable condition. Since the initiation of the continuous medical therapy the patient had no new episodes.

Conclusion: Only few cases of spontaneous hemoperitoneum and endometriosis were described in non-gravid women. When intraabdominal hemorrhage is found in reproductive age without positive findings for other bleeding sources, presence of endometriosis should be considered.
Recurrent abdominal pain caused by uterine malformation in an adolescent female – a case report

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Introduction: Abdominal pain is a frequent cause for medical consultation, also in a pediatric practice. We present an unusual cause for abdominal pain in a healthy adolescent female.

Case report: A 14-year-old female was referred to our clinic with recurrent lower abdominal pain and dysmenorrhea. She had a long medical history of inguinal pain on both sides as well as in the middle of her lower abdomen. Several times, the patient presented at the emergency department. The symptoms began 1 ½ years ago, at the start of her menarche. The clinical examination was unremarkable, in particular regarding her lower abdomen, external genitals, hymen and vagina. The abdominal and hip pains worsened, paracetamol and metamizole resulted in only minimal pain relieve. Due to the increasingly stressful situation, which lead to a significant decrease in her school performance, a psychiatric consultation was necessary. To complete the examination, a MRI was performed. A uterine malformation most likely of type ESHRE U4 with a non-communicating uterine horn on the left side and an intracavalae mass measuring 2cm on the left side, most likely a hematometra, was diagnosed. The abdominal sonography showed orthotope kidneys without congestion and normal ovaries. A laparoscopic partial hysterectomy was planned. The diagnosis could be confirmed and classified as an uterine malformation type ESHRE U4A, V0, C0. The situs showed a hypoplastic left tube which was removed. With the monopolar needle the left uterine horn was opend and its endometrium was colored using methylene blue. Afterwards the uterine horn was completely removed and the blue endometrium left on the wall of the uterus was carefully resected. The uterus was closed using 2 layers of stitches. The uterine horn was extracted using morcellation. Surgery was well tolerated and there were no complications in the postoperative period. The patient went on to make a full recovery.

Discussion: Uterine malformation can be a rare cause for abdominal pain in young women. This case report shows that a physician should take this into consideration in order to avoid a long medical history. Uterine malformation is a genital malformation resulting from an abnormal development of the Müllerian ducts during embryogenesis. Symptoms can range from pain, as shown in our case report, to amenorrhea, infertility or recurrent miscarriages depending on the nature of the defect.
A new model of abortion-counselling in collaboration with the family planning services

Author: Somogyi K., Bolla N., Hornung R.
Clinic: Gynecology and Obstetrics, Cantonal Hospital St. Gallen

Introduction: According to the Swiss Federal Statistical Office in 2017 10015 Abortion was performed in Switzerland, 477 in Canton Sankt Gallen. Providing detailed consultancy is indispensable for good-quality abortion services, but it is time-consuming.

In 03/2018 our department started a collaboration with the family planning services in St. Gallen. If a woman is considering to terminate the pregnancy, we offer two consultations. The first will have place at the family planning services, where during the interview the woman discuss with a trained consultant about the reasons leading to the motivation for abortion. When the woman decide to carry out their pregnancy and keep their child or alternatively give it up for adoption the consultants also provide information about the legal background and for possible financial and/or social support. In addition they also provide guidance for the use of contraceptives and financial support. The Guideline of unwanted pregnancy which is given to all women in the end of the first consultation contains necessary information about abortion counseling centers and organizations. This first consultation at the family planning services can be declined in case the woman had already the interview with her own gynecologist. In case of young woman < 16 years the law enforces the support of the family counseling centers. If the woman decides in the end to choose an abort, she obtains an appointment in our clinic to reevaluate again her decision. Following the guidelines we suggest the abortion-method (medical or surgical). The family planning services offers the woman after the abortion procedure a final interview. In case the woman decides to carry out her pregnancy, the family planning services provide support until the birth.

Conclusions: With this counseling model we have been able to significantly reduce the time needed for consultation in the hospital management. After the first consultation with experts taking the necessary time to listen and explain, the woman seems to have a clearer view about all possible options. The contraceptive method for instance, after this first consultation it is easier for us to define the best fitting contraceptive method. On the other hand woman appreciates very much to exchange themselves with trained experts available to invest time to deepen their delicate situation.
Prenatal bilateral enlarged, hyperechogenic kidneys – course of pregnancy and outcome

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Clinic: 1) University Women’s Hospital, 2) University Children’s Hospital/ 1,2 Inselspital, Bern University Hospital

Introduction: Prenatal differential diagnosis of bilateral enlarged, hyperechogenic kidneys mainly includes autosomal recessive polycystic kidney disease (ARPKD), rarely a subset of autosomal dominant polycystic kidney disease (ADPKD) and syndromes with a combination of congenital non-renal anomalies due to ciliopathy/medullary cystic dysplasia (e.g. Meckel-Gruber-syndrome, Bardet-Biedl-syndrome, Beckwith-Wiedemann-syndrome).

Method: Using a single-center database (total of 201 renal anomalies from 2000 to 2018), all bilateral enlarged, hyperechogenic kidneys were retrospectively analyzed. Renal enlargement was defined as renal volume >95% percentile. Evaluation included amniotic fluid (AF) volume, its course during pregnancy, development of renal volume, time of manifestation and fetal outcome.

Results: 23 cases with bilateral enlarged and hyperechogenic kidneys fulfilled the inclusion criteria. Median (range) gestational age at diagnosis was 26 (12-34) weeks. 10 cases showed oligo-/anhydramnios, 9 normal AF volume and 4 polyhydramnios. 12 pregnancies were terminated due to poor prognosis, autopsies in 6 cases revealed 2 ARPKD, 1 Meckel-Gruber syndrome, 1 case of complex anomalies, 1 trisomy 13, 1 obstructive cardiomyopathy. Longitudinal information on AF and renal volume was available for 11 pregnancies. Concerning AF volume, 4 cases with oligohydramnios showed a progressive reduction, 6 cases with normal or increased AF volume remained stable, in 1 case AF volume normalized. Regarding renal volume, 6 cases showed progressive enlargement, in 2 cases renal volume decreased, 3 cases showed initial progression and secondary regression. Only 4 fetuses of the 11 continued pregnancies survived and all had normal AF volume: 3 ADPKD and 1 Bardet-Biedl-syndrome. In the other 7 cases postnatal workup confirmed 4 ARPKD (all oligo-/anhydramnios) and 1 Beckwith-Wiedemann-syndrome (normal AF volume).

Conclusion: Prognosis of cases with bilateral enlarged, hyperechogenic kidneys depends on AF volume, presence of other anomalies and family history. Both decreased (mostly ARPKD) and increased (complex anomalies with cardiac anomalies and aneuploidies) AF volume is associated with poor prognosis. Development of AF volume and renal volume may help to differentiate diagnosis. In particular, progressive reduction of AF volume with progressive increase of renal volume is highly suspicious for ARPKD. In case of renal volume decline and stable or increasing AF volume potentially viable disease needs to be considered.
Vitamin D and parathyroid hormone in cord blood - correlation with maternal skin colour

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Clinic: 1) Obstetrics, University Hospital Zurich, 2) Epidemiology, Biostatistics and Prevention Institute (EBPI), University of Zurich

Introduction: There is evidence that vitamin D deficiency in pregnancy is associated with negative health consequences for mother and child. Our intention was to investigate vitamin D and parathyroid hormone (PTH) levels in cord blood depending on skin colour, because of the importance of PTH in the calcium homeostasis.

Material and Methods: Women in the University Hospital Zurich were recruited for blood sampling between September 2014 and June 2016. Maternal blood taken within days of delivery and postpartum umbilical cord blood were tested for 25(OH) vitamin D and PTH concentrations. We considered 25(OH) vitamin D < 20ng/L as vitamin D deficiency. Skin type was self-reported based on the Fitzpatrick Scale (type I to V). We performed descriptive statistics using Spearman correlation and Wilcoxon test to compare maternal and neonatal 25(OH) vitamin D and PTH levels depending on the dichotomized skin type (light: I - III vs. dark: IV-V).

Results: 202 mother and child pairs were analysed, of which 83.2% (n=168) had a lighter skin colour and 16.8% (n=34) a darker skin colour. 54.5% of all mothers and 41.1% of all umbilical cord samples had deficient values for 25(OH) vitamin D. Comparing the 25(OH) vitamin D deficiency rate in light- and dark-skinned mothers, no statistically significant difference (light: 52.4% vs. dark: 64.7%) was detected. The correlation of 25(OH) vitamin D in the maternal with umbilical cord blood was high in both skin-colour groups (light: r=0.85, dark: r=0.87) with consistently higher concentrations of 25(OH) vitamin D in the umbilical cord. We observed no correlation of maternal and umbilical cord PTH concentrations, but significantly lower median PTH concentrations in the umbilical cord than in maternal blood (mother: 25.7 pg/ml vs. child: 5.6 pg/ml).

Conclusion: The low vitamin D levels in dark-skinned mothers are reflected in the umbilical cord, though umbilical cord concentrations tend to be higher than maternal levels. Therefore, the general recommendation of vitamin D supplementation in newborns in their first three years of life should be particularly emphasized to dark-skinned mothers.
Radiation-Associated Angiosarcoma following breast conservative therapy for previous breast cancer: A Case Report and Literature Review

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**Introduction:** Radiation-associated angiosarcoma of the breast or radiation induces angiosarcoma (RAAB or RIAS) is a rare malignancy occurring in approximately 0.9 out 1000 cases of breast cancer. Indeed, breast conservative therapy (BCT), which includes radiotherapy has become the standard of care for early-stage breast cancer in the last 20 years, replacing mastectomy. Thus, the incidence has been increasing.

**Material and Methods:** We report the case of an 80 years old woman with RAAB. She initially presented an invasive-ductal cancer of the left breast Luminal A type (pT1c, pN1a, M0, G2) treated in March 2012 with breast-conserving surgery, adjuvant chemotherapy with a standard scheme of 3 cycles of FEC and 3 cycles of Taxotere, adjuvant 3D-CT planned radiation of the left breast with 66Gy and adjuvant endocrine therapy with an aromatase inhibitor (Letrozol) for 5 years. In August 2017, a small skin lesion was noticed in the same breast. The suspicioned diagnosis of angiosarcoma was proved by a skin punch biopsy. No metastases were found. The patient refused a surgery and instead was treated with 4 cycles of chemotherapy with a taxane. Significant clinical and histological remission was achieved. In October 2018 a local recurrence was observed. Distant metastases could be excluded. As there was no possibility to draw on irradiation reserves, mastectomy with extended skin excision was performed in purpose to obtain a R0 resection.

**Results:** The latency period between radiation exposure and appearance of RAAS in literature is described as in median 7 years. The most commonly used therapy is a complete surgical resection, sometimes combined with chemotherapy or re-irradiation. The efficacy of adjuvant treatmens stays unclear. Overall, the prognosis of women with RAAB is poor and the recurrence-free survival is short.

**Conclusion:** RAAB is a rare but life-threatening complication of irradiation in breast-cancer. In most cases, it occurs first as a skin lesion. Despite R0 surgery, two-third of patients experience recurrence. The early detection of a small lesion can prolong patients’ disease-free survival. As it occurs later than the standard of care with a 5-year-close-follow-up-scheme, awareness of patients and doctors also after this time period is extremely important.
Immune-related vulvitis in a patient with metastatic cervical cancer and complete response under third-line therapy with nivolumab

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Introduction: Cervical cancer is the fourth most common cause of cancer-related deaths in women worldwide. Treatment options for advanced cervical cancer are limited and patients who experience recurrence after first-line chemotherapy and bevacizumab have a poor prognosis. Immunotherapy has shown promising results for several cancer types and might be a new option for these patients. A recent phase II study has demonstrated a disease control rate of 68.4% with the immune checkpoint inhibitor nivolumab in advanced cervical cancer. By blocking the immune checkpoints, immunotherapy puts the immune system to a state of hyper-activation that can cause immune-related adverse events.

Material and Methods: We present the clinical and pathological data of a patient with metastatic cervical cancer and progressive disease after second-line therapy. We report the therapeutic response under third-line immunotherapy with nivolumab, including immune-related adverse events.

Results: We report the case of a 62-year-old woman who was diagnosed with advanced squamous cell carcinoma of the cervix with para-aortal lymph node metastases. After initial combined radio-chemotherapy she developed local recurrence and nodal (supra-clavicular) and pulmonal metastases. The second-line chemotherapy with 6 cycles of carboplatin, paclitaxel and bevacizumab showed a partial response for 6 months. Because of progressive disease, immunotherapy with nivolumab was started, leading to persistent complete remission. The immunotherapy was well tolerated for 8 months until the patient presented with an immune-related isolated vulvitis. The diagnosis was confirmed histologically and a treatment with corticosteroids showed rapid regression of the symptoms and the lesions.

Conclusion: Immunotherapy represents a new perspective for patients with advanced cervical cancer. We report a case of a patient with persistent complete response after third-line treatment for relapsed chemotherapy-resistant cervical cancer showing the promising potential of immunotherapy. To the best of our knowledge, this is the first report of an immune-related vulvitis under nivolumab. This adverse event might be underdiagnosed and mistreated as often the patients are not seen by gynaecologists during this treatment phase. This case is of relevance because correct local treatment improves the quality of life and the sexual wellbeing of the patient and allows to continue the successful treatment with immunomodulators.
Uterine arteriovenous malformation: a diagnostic challenge

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Introduction: Uterine arteriovenous malformations (AVM) are rare, but potential life-threatening conditions due to profuse genital bleeding from abnormal arteriovenous fistulas. They can be either congenital (failure in embryological differentiation of vascular structures) or acquired (following iatrogenic lesions during uterine surgery, trophoblastic pathologies, miscarriages, cancer or infections). More than 100 cases were described in the literature.

Material and Methods: We conducted a retrospective study of all uterine angiographies performed at the Valais Hospital between 2008 and 2018. The circumstances of AVM diagnosis as the main complaints, the duration of the symptoms and the gynecological history were evaluated. The imaging modalities and the performed treatment were recorded.

Results: We identified 4 cases of AVM among a total of 31 cases of uterine angiographies. Our series includes: a 34 y.o. nulliparous patient 2 months after a non-evolutive pregnancy with a previous medical management, a 31 y.o., para 2, a month after D&C for failed medical pregnancy interruption, a A 31 y.o., para 2, a month after D&C for non-evolutive pregnancy and a 39 y.o. para 4 with incidental discovery of AVM described in the pathology report after manual revision, curettage and uterine artery embolization for postpartum hemorrhage (PPH). Three out of 4 patients consulted with persistent bleeding. Lower abdominal pain was present in one patient. All patients underwent endovaginal Doppler ultrasounds showing a hyperechoic myometrial area with increased vascularity and multidirectional flow, highly suspicious for AVM. The diagnosis was confirmed by MRI and uterine angiography. Uterine artery embolization with gelatine sponge or coils without complication was performed at the end of arteriography.

Conclusions: Persistent vaginal bleeding should be investigated by Doppler sonography. Frequently, uterine AVM are present in patients with previous history uterine curettage and pregnancy. The current treatment is arterial embolization. Its complications are rare if performed by an experimented radiologist. Uterine balloon tamponade might be considered in severe bleeding. Hysterectomy is an option for postmenopausal women or in cases of unsuccessful embolization. Care must be taken while diagnosing AVM after miscarriage in order to avoid unnecessary and potentially life-threatening hemorrhage related to curettage.
Epipectoral implant-based reconstruction after skin- or nipple-sparing mastectomy

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Background: Retropectoral placement of tissue-expander or silicone implants is still regarded the standard of care. However, there is a trend for epipectoral immediate implant-based reconstruction in combination with new synthetic meshes or acellular dermal matrices (ADM). The advantages are less invasive surgical intervention and improved cosmetic outcomes and functionality. The aim of this analysis is to investigate general complication rates and cosmetic outcomes of the first patients who underwent epipectoral implant-based reconstruction using TiLoop Bra Pocket mesh at our institution.

Materials und Methods: A single center, retrospective, cohort study was performed from January 2018 to January 2019. Complications and cosmetic outcome in immediate or delayed epipectoral implant-based reconstruction were analyzed. The TiLoop Bra Pocket®, a synthetic mesh made from a non-resorbable, lightweight polypropylene was used in all patients. The cosmetic outcome was evaluated using the four-point Harvard scale proposed by Harris et al. (1 = poor, 2 = fair, 3 = good, 4 = excellent) via standardized photographs.

Results: A total of 23 patients with a mean age of 42 years (range: 26-66 years) who underwent immediate (n = 19, 82.6%) or delayed (n = 4, 17.4%) epipectoral implant-based reconstruction after mastectomy were included. 13 patients underwent bilateral mastectomy and 10 unilateral (total 36). NSM was performed in 19 patients (82.6%), SSM in 1 patient (4.4%) and in 3 patients there was a change from subpectoral to epipectoral due to muscular complaints (13.0%). The indication for surgery was oncological (DCIS or invasive breast cancer) in 16 patients (69.6%), prophylactic (BRCA 1/2 mutation) in 3 cases (13%) or other reasons in 4 cases (17.4%). As early complications the most frequent were seroma warranting a puncture in 8 cases and wound healing diseases in 3 cases. Other complications were skin necrosis in 1 case, nipple necrosis in 1 case and implant loss in 1 case. The short-term cosmetic outcome showed a good to excellent result in 71.5% and a fair result in 19% and a poor result in 9.5% of the cases.

Conclusion: This first case series showed a satisfactory cosmetic result with a complication rate comparable to the literature. Longer follow-up of the cosmetic outcome and complication rate, additional studies and analysis of patient reported outcome is necessary to define consistent selection criteria for epipectoral implant-based reconstruction as new standard surgical procedure.
Mona Lisa is touching you...A new Approach for the Treatment of Lichen sclerosus

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Introduction: Lichen sclerosus (LS) is a vulvar dermatose that makes the skin less elastic (sclerosis), with white plaques (lichenification) and with signs of contractions such as erosions and fissures. The goldstandard Treatment consists on topical application of ultrapotent corticosteroids to reverse the underlying inflammation of LS, reduce symptoms as itching and burning and to lower the risk of developing vulvar cancer. While useful, steroid creams may lead to thinning of the skin, fungal infections and weakening of the immune system. Fractional microablative carbodioxide Laser (MonaLisa Touch) is a minimal invasive treatment. Few reliable data in laser therapy of vulvar skin diseases is published and none specific for LS, but the existent data shows a potential that justifies the use in treating LS. This treatment results in an initial inflammatory response, followed by substantial increase in levels of several matrix metalloproteinases and later induction of type I collagen.

Material and Methods: In this Pilot study 10 women with symptomatic LS were treated with the ML-Touch Laser. All the patients had had previous local corticosteroids and/or Tacrolimus therapy. Each participant received 3 treatments every 3 weeks with follow-up after 3 and 6 months. Initially the patients were examined, photo documentation of the vulvar Skin was taken and the Lichen-Score (Günthert, 2012) was made. Before starting the treatment lidocaine 30% was applied to the external genitals. The laser protocol was according to the manufacturer’s preset recommended dose.

Results: 10 women completed 3 laser treatments and the first follow-up. The initial symptoms were burning, itching and dyspareunia. The average Lichen-Score was 5.4. After the first treatment, 7 women reported less symptoms and the overall satisfaction was moderate. After the second treatment 9 patients reported an improvement of the symptoms, 7 were very satisfied, 3 moderatly. 9 women reported a benefit for their quality of life (QL) due to the ML treatment. The side effects included slight reddening and sunburn-like pain. After three months 100 % of the participants were very satisfied and reported an improved QL.

Conclusion: The MonaLisa Laser treatment could be a new approach in treatment of LS. It’s safe and well-accepted. Effects seem to appear after 2 treatments and last at least a few weeks. We are collecting prospective data in an ongoing study and hope that these excellent results will be confirmed.
PID due to miliary tuberculosis

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Introduction: According to WHO data from 2017 Tuberculosis (TB) is one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent(1). In adult women aged 15 –49 it’s one of the top six causes of death (2) with Guinea being one of the 30 countries with the highest TB burden (1). Peritoneal TB is a rare extra-pulmonary presentation due to hematogenous dissemination. Active TB is diagnosed by evidence of M. tuberculosis complexes in biological samples (3).

Material: A 24-year-old multiparous Guinean women presented to us with recurrent acute abdominal pain, B-symptoms and a non-productive cough of 4 months. She was a breastfeeding mother 10 weeks post C-Section due to PPROM and AIS in the 26.WOP. Clinical examination revealed pain of the abdomen and the both iliac fossae upon pressure. Ultrasound and abdominal CT-scan showed ascites and solid-cystic, 7cm mass on both ovaries. Mild leucopenia and increased C-reactive protein were evident in the blood as was an elevation of two serum biomarkers (CA 125 and 72-4). Subsequently, a diagnostic laparoscopy was performed, showing amber colored ascites, ‘violin-string’ fibrous strands and multiple peritoneal white nodules.

Results: Cultures and PCR of ascites and peritoneal biopsies were negative for M. tuberculosis or other bacterial agents. There were no signs suggestive of TB on chest radiography. Conversely the positive Quantiferon test was interpreted to be latent TB. After Treatment with triple antibiotics the patient was asymptomatic and followed by regular ambulatory check-ups. After 2 months the cough worsened and the CT Thorax/abdomen showed miliary tuberculosis with tuberculous peritonitis. At this point culture and PCR of the sputum were positive for M. tuberculosis.

Conclusion: Based on the heterogeneous presentation peritoneal tuberculosis diagnosis can be challenging. The sensitivity, of direct cultures for M. tuberculosis in ascites or peritoneal biopsies has been reported to be 45-69% (4). Therefore a high degree of clinical awareness is needed to avoid delays in treatment initiation. In our case the perioperative findings and travel history were indicative. Retrospectively, the preterm delivery could have been due to the miliary tuberculosis, although the placenta was negative for tuberculosis. In summary, as tuberculosis is common worldwide, it should be a differential diagnosis of PID and preterm labor.
Is letrozole maintenance after initial and first recurrent treatment a valuable addition in intermediate and high-risk estrogen-receptor positive endometrial cancer?

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Introduction: Most endometrial cancers are estrogen-dependent tumors expressing estrogen receptor (ER+). In ER+ breast cancer aromatase inhibitors are widely used in the maintenance setting. We and others recently reported a potential benefit of this treatment also in ER positive ovarian cancers. In endometrial cancer, letrozole is mostly used as palliative treatment after several lines of chemotherapies. Here we examined the potential benefit of letrozole maintenance in high risk endometrial cancer patients at initial diagnosis and after the first recurrence. Specifically, we examined the relapse free survival (RFS) and the time to first subsequent treatment (TTST).

Material and Methods: All documented EC diagnosed at the University Hospital Basel from 2002 to 2018 were examined. Patients who received letrozole for more than 3 months after initial or relapse treatment were defined as cases; all others were assigned to the control group. Clinicopathological data were analyzed. According to the ESTRO-ESGO-ESMO-Guideline and clinicopathological characteristics including FIGO stage, grading, LVSI and histological subtype, patients were assigned to 4 categories of risk: low, intermediate, high-intermediate, high.

Results: We identified 126 ER+ EC patients of which 33 (26.4%) were low risk, 18 (14.4%) intermediate risk, 10 (8.0%) high intermediate risk and 64 (51.2%) high risk. Low-risk patients were not included in the final analysis, as their risk of relapse is too low to be offered letrozole. Out of the non-low-risk-group 23 (82.1%) patients were treated with letrozole as maintenance therapy, of which 20 (71.4%) belong to high risk. RFS and TTST were measured in comparison to patients of the same risk groups but without letrozole maintenance treatment. No significant difference could be observed between the two groups (p=0.889).

Conclusion: Whilst showing a tendency, the results did not confirm the hypothesis, namely that letrozole maintenance could be of benefit to intermediate or high risk ER positive endometrial cancer patients. However, this might be due to the small amount of data and a bigger cohort should be cumulated and data analyzed.
Implementation of breast cancer risk assessment to improve clinical care of patients with benign breast disease – results from the 12 months perspective

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Introduction: Appropriate mammographic screening in non-selected cohorts can increase early detection and decrease mortality associated with breast cancer. So far there are no systematic attempts adopted in routine care to stratify women according to their individual risk for breast cancer. In order to offer our patients a risk-stratified screening approach and recommendations we decided to use adapted Tyrer-Cuzick Model (IBIS) to calculate their lifetime breast cancer risk. Here we present our one-year results with expended study cohort.

Material and Methods: We calculated lifetime breast cancer risk using the adapted Tyrer-Cuzick Model (taking into account, inter alia, mammographic breast density and family history) in all patients with benign breast conditions referred to a specialized university based breast care centre in order to stratify them into one of the 3 risk-groups with appropriate screening model (as recommended by SGGG). We compared then the IBIS-risk-estimation with the one based just on the family history.

Results: In the period from the 1st December 2017 until the 30th November 2018 two-hundred-twenty-five women received a sonographic breast examination due to benign breast condition. From this group we excluded 41 patients without mammographic examination. For the remaining 184 patients we used the adapted Tyrer-Cuzick Model in order to calculate their lifetime breast cancer risk and consequent re-categorize them to appropriate risk group. Based on family history 120 patients were stratified to low risk, 36 to medium risk and 28 to high risk group. But according to the IBIS-calculation 33% (63/184) of women should have been appointed to a different group. We subsequently re-categorized 23 patients from the low risk group to medium and high risk (21 and 2 patients respectively), and 6 from the original medium risk to high risk group. Thirty-four patients could have been appointed to a lower risk group - from high risk to medium and low risk (14 and 7 respectively), and from medium risk to low risk (13 patients).

Conclusion: We believe that using a more individualised breast cancer risk estimation, based not only on family history, could have a significant impact on screening as well as counselling. Further, a psychosocial relief to those few patients re-categorized as low risk could be an added benefit.
Small Cell Neuroendocrine Carcinoma of the Endometrium: A Very Rare Histologic Finding

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Introduction: Primary small cell neuroendocrine carcinoma (NEC) of the endometrium is a rare disease described for the first time in 1979. Small cell carcinomas usually occur in the lungs and less frequently gastrointestinal. In the female genital tract NEC is normally found in the cervix. For endometrial NEC prognosis is poor and it is often diagnosed at an advanced stage. Vaginal bleeding commonly is the first symptom while in some cases paraneoplastic syndrome is seen. Complete surgical resection combined with systemic therapy is the recommended treatment. The clinical behavior is aggressive with short recurrence free interval.

Case report: A 66-year-old woman with a history of breast cancer still undergoing antihormonal treatment reported with vaginal bleeding. Transvaginal ultrasound detected a large endometrial-based mass. She underwent diagnostic hysteroscopy and biopsy with histologic finding of high-grade NEC of the endometrium. The patient underwent laparoscopic hysterectomy, bilateral salpingo-oophorectomy and pelvic and para-aortic lymphadenectomy. Histology confirmed metastases in the pelvic and para-aortic lymph nodes, deep myometrial infiltration and infiltration of the cervix, the parametrian tissue and the fallopian tubes. Additionally lymphovascular invasion was found. A CT-scan showed no distant metastases. The final tumor stage was pT3b pN2 M0 LV1, FIGO IIIC2.

Conclusion: Primary high-grand small cell neuroendocrine carcinoma of the endometrium is very rare (0.8% of all endometrial cancers), aggressive, highly malignant and rapidly progressive. Due to the rarity of the disease there is no established standard treatment and there is a lack of prospective clinical trials. Aggressive surgical resection and adjuvant chemotherapy combined with or without radiotherapy seems to be the best strategy because of frequent lymph node involvement and distant metastases [1]. Usually endometrial NEC is positive for neuroendocrine markers such as chromogranin A and synaptophysin and CD 56.
What is the success rate of site-specific, laparoscopic sacrocolpopexy in the treatment of apical prolapse – a prospective study with systematic review of the literature

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Introduction: Currently, there is a lack of standardization on surgical technique and outcome measures for laparoscopic sacrocolpopexy. Aim of this study is the analysis of the outcome using standardised, site specific sacrocolpopexy as well as a review of the literature focusing on surgical technique for sacrocolpopexy.

Methods: We evaluated the objective and subjective outcome of all patients who were operated using a standardized, site-specific laparoscopic technique for sacrocolpopexy. Primary endpoint was the visual analogue scale as measurement of bother, secondary endpoints the IUGA POP-Q Score and quality of life questionnaires (german pelvic floor questionnaire).

Results: After a median follow-up time of 50 months, the subjective cure rate was 94% with an objective recurrence rate of 23% in the operated and 5.8% in the not-operated compartment. VAS scores showed a preoperative median of eight and a postoperative median of three (p<0.001). The median difference was five points. The reoperation rate caused by a recurrent prolapse was at 5.8%. In the review, in a total of 33 studies, 2497 patient were operated, 1255 (35.9%) with an open and 2242 (64.1%) with laparoscopic sacrocolpopexy.

Conclusion: Sacrocolpopexy remains the gold standard for the correction of the apical descent in the sexually and physically active woman. Side specific repair is more or less equal to non-specific repairs with some disadvantage of subjective outcome. Morbidity is low. A specific comparison between the various outcome data and the connection between an individual surgical technique and the outcome data is not feasible due to inconsistency of outcome evaluation.
Thrombolytic Therapy in Pregnancy - A Case Report and Review of the Literature

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Introduction: Prosthetic heart valve thrombosis (PVT) is a serious complication with high mortality and morbidity. Relative hypercoagulability during pregnancy causes a higher risk for PVT among women with mechanical prosthetic heart valves (MHV). Beyond pregnancy, there is clear evidence for the use of thrombolytic agents. For pregnancy, some prospective studies exist but there is still a lack of randomized clinical trials stating maternal and fetal outcome due to the small numbers of patients with this highly specific clinical condition and the very high mortality associated with alternative cardiac surgery.

Material and Methods: We describe a case of PVT in pregnancy with successful respond to low-dose ultra-slow infusion of tissue-type plasminogen activator (tPA).

Results: A 34-years old IIG IP high-risk pregnant woman in the 25+0 week of gestation with MHV complained about rising dyspnea. The transesophageal echocardiography showed an obstructive PVT. Despite high-therapeutic anticoagulation with phenprocoumon, the PVT proceeded in size with necessity for escalation to a thrombolytic therapy. Our Patient’s anamnesis was free of vaginal bleeding and pregnancy related risk factors for bleeding, like a low lying placenta were excluded. A first cycle of tPA low-dose ultra-slow infusion was administered (six-hour infusion of 25 mg tPA without a bolus). Because of persisting floating thrombi a second cycle of tPA was necessary and subsequently successfully led to the total regression of the thrombus. The further course of pregnancy was uneventful without major complications until delivery. An elective cesarean section was performed at 37+1 weeks of gestation, resulting in a growth-retarded but otherwise healthy male newborn (2150 g, < 3. P).

Conclusion: Low-dose, ultra-slow infusion of tPA, with repeated doses if needed, is an effective therapy with an excellent thrombolytic success rate for the treatment of PVT in pregnant woman. tPA is highly specific for fibrin with minimal placental passage. This protocol represents a safer alternative to cardiac surgery or other medical strategies thanks to the controllability and less bleeding complications. It could serve as first-line therapy in pregnant patients with PVT.
A new titanium covered transobturator tape for stress urinary incontinence: first results

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Introduction: Transobturator insertion of midurethral slings represents the gold standard treatment for stress urinary incontinence and is also offered for stress predominant mixed incontinence after conservative treatment. High cure rate between 80 and 95 % is reported, as well as 5-20 % of complication rate such as persistent stress incontinence, voiding dysfunction, worsen or new urinary urgency, infection, organ injury, mesh erosion, groin pain and fistula. The transobturator route was developed to decrease tissue damages produced by retropubic route. The objective of our study is to assess the long-term subjective cure rate of the transobturator tape using a new designed titanium mesh and to analyse the side effects of this procedure.

Material and Methods: A retrospective study of 82 women who underwent transobturator sling surgery from november 2011 to november 2017 was conducted. Two techniques were used depending on the surgeon (out-in or in-out). The minimum follow up was 6 months. Patients were evaluated using the incontinence outcome questionnary (IOQ) minimum 6 months after the operation. A total of 54 (66%) patients were eligible.

Results: The median follow-up period was 2.5 years. The urodynamic exam showed stress urinary incontinence in 32 patients (41 %) and stress predominant mixed urinary incontinence in 29 patients (54 %). 48 % of patients had sphincter insufficiency and 92.6% urethral hypermobility. The mean age was 51 ± 9.1 years. The majority were in overweight (BMI 29.6 ± 6.7 kg/m2). The mean parity was 2.5 ± 0.9. Half of our population were postmenopausal, among whom 30% took hormonal replacement therapy. Based on their answers to the questionnary, patients reported improvement in stress incontinence symptoms in 77 % of the cases and 83 % recommended the operation to others. The most common complication was residual voiding dysfunction concerning 31% of the patients. The frequency of this dysfunction was estimated occasional or often, respectively in 70% or 30% of the cases . Less common side effects were persistence of stress incontinence, worsen or new urgency incontinence, dyspareunia and groin pain occurred in 9%, 9%, 7 % and 2 % of the patients, respectively. 2 patients needed the removal of the tape.

Conclusion: The titanium covered transobturator slings are well tolerated by patients with mild complications and a high long-term satisfaction rate. However, longer follow up is needed to draw definitive conclusions.
Extensive Bowenoid Papulosis; Surgery is still indicated!

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Introduction: Bowenoid papulosis (classic VIN) is a vulvar dysplasia commonly known to occur in sexually active women between the ages of 25 and 45. This pathology is induced virally by human papillomavirus (HPV) type 16, more rarely by types 18, 31, 33. Based on the ISSVD (International Society for Study of Vulvovaginal Disease) classification, Bowenoid papulosis is a classic VIN (vulvar intraepithelial neoplasia). The histologic description shows a resemblance with carcinoma in situ, but with localized acanthosis similar to condyloma. Over time, these lesions can regress or persist. Nevertheless, a progression to invasive squamous cell carcinoma exists in some cases (5.7%). Local treatment of this condition is usually preferred with local agents such as 5 fluorouracil, imiquimod, podophylin, cryotherapy or surgical excision, depending on the extent of the lesion.

Case report: A 24-years old woman visited our department due to a recurrence of extensive Bowenoid papulosis. Previous treatment by CO2 laser was performed 1 year earlier. Examination revealed multiple, well-defined, pigmented verrucous papules with velvety surface. These red confluent plaques spread to whole vulva. Biopsies were performed and confirmed the diagnosis of severe dysplasia. A local treatment by Imiquimod was initiated but it was a failure. This could be related to the vast extent of the lesions, or to a lack of compliance of the patient. So, a partial vulvectomy and laser vaporization were performed with satisfactory esthetic results at the control, 8 weeks postoperatively. Thereafter, she was followed up to one year and no recurrence was noted.

Conclusion: Treatments of choice for Bowenoid papulosis are local treatments. Nevertheless, surgery maintains its position in case of failure of local medical treatment, mainly in the event of an extensive lesion or a recurrence.
Characterization of patients with non-response or intolerance to hormonal treatment for endometriosis: a cohort analysis

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Introduction: Current guidelines suggest treatment of endometriosis-related symptoms with COCs or POPs even before a laparoscopic diagnosis of endometriosis. However, about one third of patients do not respond to this therapy and many do not tolerate its side effects. The identification of which patients will respond successfully to which drugs, before starting treatment, is currently impossible. The objective of our study was to characterize these patients in detail, including the co-morbidities, which are very frequent in patients with endometriosis, and to identify possible risk factors for non-response or intolerance to hormonal treatment for endometriosis.

Materials and Methods: Documentation of all symptoms and co-morbidities as well as hormonal treatment effectiveness and side effect profile of all patients presenting in the endometriosis clinic at the Department of Obstet & Gynecol, Inselspital, Bern University Hospital in 2017 in a cohort analysis. Treatments initiated after surgery to prevent endometriosis recurrence were excluded. Concerning effectiveness of the hormonal treatment, two groups were defined: a) excellent or sufficient response, b) insufficient response. Concerning side effects, two groups were defined: a) acceptable side effects, b) unacceptable side effects with treatment discontinuation.

Results: Out of 171 included patients, 258 different hormonal therapies for endometriosis were assessed. These consisted of 161 POPs, 68 COCs, 10 GnRHa and 18 levonorgestrel IUDs. Dienogest was by far the most frequent treatment prescribed for endometriosis (N=130). Insufficient response and unacceptable side effects with treatment discontinuation were observed in 33.3% and 52.5% of the patients treated with dienogest, respectively. Variables significantly associated to insufficient response by logistic regression analysis were bleeding disorders during treatment (p< .05) and lower treatment duration (p< .05). Bleeding disorders during treatment were also associated with treatment discontinuation due to side effects (p< .05).

Conclusion: Response to dienogest treatment correlates with treatment duration and bleeding disorders during treatment. No patient characteristics or surgical variables seem to reliably predict non-response or intolerance to dienogest treatment, before starting it, although this may be due to the insufficient sample size for all outcomes studied. Endometriotic tissue variability may be the key to unpredictable treatment response in patients with endometriosis.
Pregnant after the very first ovulation of her life

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Introduction: According to the WHO guidelines, amenorrhea is classified in six different categories depending on the hormonal status. The hypogonadotropic, normoprolactinemic hypogonadism (WHO class I) is a rare cause of primary amenorrhea (2%). It clinically presents with an absence of puberty and consecutively primary amenorrhea and infertility. The adequate treatment with an estrogen-/gestagen substitution for normal sexual development and prevention of osteoporosis depends on the early diagnosis.

Material and Methods: We describe the case of a 20-year old woman who was referred because of primary amenorrhea and infertility. She presented with a regular phenotype and adequate Tanner-staging. The laboratory testing revealed a hypogonadotropic state: LH 1.8 U/L (standard value 2.4-12.6 U/L), FSH 3.7 U/L (3.5-12.5 U/L) with low oestradiol <20 pmol/L (45.5-854 pmol/L) and prolactin 4.8 µg/L (4.8-23.3 µg/L). LHRH-testing showed an adolescent pituitary function with an only light increase of the gonadotropine values. An MRI of the pituitary was performed to exclude organic defects, but only revealed a flat adenohypophysis. The genetically testing showed a normal karyotype. Ovarian stimulation to induce follicular maturation was started with human Menotropin, but no follicular recruitment was achieved. After approval for treatment coverage, we decided to stimulate with the r-FSH/r-LH Pen (Pergoveris®).

Results: A first stimulation cycle with the daily dose of 75IE was not successful. With an augmentation to 150 IE daily, the development of totally six follicles was monitored. After the reduction of five follicles through transvaginal aspiration, we induced the ovulation with 5000 IE human Choriogonadotrophin, followed by sexual intercourse the following day. Happily, after a positive pregnancy testing, we could confirm a vital intrauterine pregnancy four weeks after the very first ovulation of her life! The development of the pregnancy was regular and is still ongoing. Progesterone vaginal tablets 200mg twice daily supported the luteal phase.

Conclusion: Hypogonadotropic hypogonadism is a rare cause of primary amenorrhea. A thorough diagnostics is mandatory. In case of infertility, there are promising options for follicular stimulation, e.g. GnRH-pump (Lutrelef®) or the r-hFSH/r-hLH Pen (Pergoveris®), available in Switzerland since 2018. A careful follicular monitoring is essential because to control a multifollicular reaction and avoid multiple pregnancies.
Midwife-led deliveries at the University Women’s Hospital Bern – 13 years experience

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Introduction: For healthy women with low risk singleton pregnancies we offer a midwife-led delivery service at our department. Selection criteria include a range of abnormalities in medical history and during the course of pregnancy. In case of complications before, during or after labor and delivery, an obstetrician is involved. Purpose of this study was to evaluate the frequency of secondary doctor consultation and outcome.

Method: Using our prospectively collected database, all midwife-led deliveries were analyzed for a period of 13 years (2006-2018). The evaluation included a comparison between midwife-led deliveries with or without secondary obstetrician involvement (consultation), concerning parity, mode of delivery and neonatal outcome.

Results: There were a total of 500 intended midwife-led deliveries between 2006 and 2018 (2.5% of all deliveries during this time period). 293 (59%) were completed as midwife-led deliveries, all being spontaneous vaginal deliveries. In 207 women (41%), an obstetrician consultation was required. Among those, 63% had spontaneous vaginal deliveries, 25% had vaginal operative deliveries and 12% caesarean sections. Overall, the caesarean section rate was 5% in women with intended midwife-led delivery. Reasons for obstetrician consultation were mainly including the following: necessity of labor induction, abnormal fetal heart rate monitoring, meconium stained amniotic fluid, prolonged first and second stage of labor, epidural analgesia, third- and fourth-degree perineal tear, retention of placenta and postpartum hemorrhage. There was a higher rate of primipara in the group with obstetrician consultation (76% versus 43%). The average value of arterial cord pH and the APGAR scores at 5 and 10 minutes did not differ significantly between the two groups. The transfer rate of newborns to neonatology (1%) was very low in both groups (1/293 versus 4/207).

Conclusion: Our experience in midwife-led deliveries shows a significant proportion of secondary obstetrician consultations before, during or after delivery (41%). Caesarean section rate is low and neonatal outcome is favorable irrespective of secondary obstetrician consultation. A midwife-led delivery seems to be a safe alternative to a primarily obstetrician-led delivery, provided that strict selection criteria (risk assessment) are being followed and prompt obstetrician consultation in case of abnormal course of labor and delivery is available.
Breast sarcomas: different aspects of a rare diagnosis

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Introduction: Sarcomas account for less than 1% of all breast malignancies. They can be primary breast sarcoma, usually affecting younger women, or secondary breast sarcoma, due to radiation therapy after breast conserving surgery. The latter tend to occur 7-15 years after radiation and recurrence rate and mortality are very high.

Material and Method: Throughout four case presentations we aim to illustrate clinical manifestations, radiologic and pathologic features of primary and secondary breast sarcoma.

Results: First case is a 31 years old nulligravida presenting with redness and swelling of the left breast. Ultrasound and MRI showed an irregular hypoechogenic mass of 5x3x5cm towards pectorals muscle. TEPCT showed multiple cardiac and pulmonary metastasis. The lymph node biopsy confirmed a proximal type sarcoma. Patient started chemotherapy and died after 4 months. Second case is a 2-para 58 years old woman diagnosed with high grade angiosarcoma eight years after a left breast cancer treated with conservative surgery and adjuvant radiotherapy. She underwent mastectomy followed by chemotherapy. Third case is a 69 years old woman previously known for a high-grade ovarian carcinoma treated with debulking and chemotherapy. A right breast high grade angiosarcoma of 5 cm was treated with mastectomy and radiation. A subcutaneous distant relapse was diagnosed a year later. The patient died of the disease two years after the initial diagnosis. Forth case is a 29 years old pregnant patient previously known for BRCA-negative breast cancer at age 25 treated with conservative surgery and adjuvant radiotherapy. The biopsy of the painful mass at the lumpectomy site showed a high grade pleomorph sarcoma. Further genetic testing revealed a Li-Fraumeni syndrome. Patient underwent surgical excision of the mass.

Conclusion: Breast sarcoma are rare diseases. The incidence of secondary breast sarcoma is expected to increase with the increasing use of adjuvant radiation therapy for conserving breast cancer therapy. Treatment includes surgery with or without re-irradiation, except in the case of Li-Fraumeni syndrome where radiation might trigger new malignancies.
Fast-growing tumor of the breast in last trimester of pregnancy and puerperium

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Introduction: We present a 40 year old woman with a rapidly enlarging right breast mass during and shortly after pregnancy.

Case: At 39 years old, the patient was referred to our hospital with a small lump in her right breast. On ultrasound and mammography, we found a multicystic lesion of about 4cm which was thought to be adenosis or hamartoma of the breast. Shortly afterwards, the patient fell pregnant with her second child. In the third trimester of an otherwise uncomplicated pregnancy, the patient reported a massive growth of the tumor in her right breast. On ultrasound a 13cm mixed solid and cystic tumor was seen and biopsy showed a fibroadenoma. Few weeks later, the patient spontaneously delivered a healthy girl. She decided to breastfeed, but additionally fed formula milk because of hypogalactia. 2 weeks postpartum the tumor had increased in size even more. The patient stopped breastfeeding with the aid of prolactin inhibitors and was referred to our hospital for surgery. During surgery, the tumor could be easily enucleated due to its capsule, but parts of it ruptured and revealed 200ml of milky liquid. The solid parts weighed nearly 600g. Pathological findings showed a cystic and partly lactating adenoma with small fibroadenomatoid parts. Follow up visits showed a very satisfying cosmetical result.

Conclusion: Although the majority of breast tumors in pregnancy are benign, diagnosis must not be delayed in order not to miss breast cancer. Of all benign breast tumors in pregnancy, lactating adenoma is the most common one. In a tumor as big as the one reported, surgery is the only sensible treatment option, whereas in smaller tumors medical treatment can be tried or spontaneous involution can be seen.
Successful near-term pregnancy following intrauterine death due to villitis of unknown etiology

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Introduction: Villitis of unknown etiology (VUE) is a rare, chronic and recurrent lesion of the placenta due to lymphocytic infiltration (predominantly CD8) of the intervillous chamber, leading to intrauterine growth restriction, hypertensive disorders, spontaneous abortions and even stillbirths. Clinical pregnancy outcome corresponds with histologically defined VUE severity. One hypothesis seems to be a reaction against paternal HLA antigens. Thus, the recurrence rate is extremely high (around 60%), with onset of the events earlier on in the subsequent pregnancies. To date, there is no clear consensus regarding management of these pregnancies, but aspirine and prednisone were used with some success. Concerning timing of delivery, authors have suggested at least two weeks prior to the last intrauterine death event.

Clinical presentation: We describe the case of a 32 years old primigravida with intrauterine death being diagnosed at 38 weeks gestation. The pregnancy was previously uneventful, fetal growth at the 50th percentile and the patient suffered no health problem. Stillbirth's etiology workup led to the diagnosis of chronic villitis of unknown etiology. Three months later, the patient spontaneously started a new pregnancy. Given her obstetrical history and the published data, aspirine and prednisone were introduced since the first trimester and labor was induced 2 weeks before the last intrauterine death event, meaning around 36 weeks of amenorrhea. She gave birth to a healthy 80th percentile boy at 35 5/7 weeks of amenorrhea. Placenta analysis did not reveal signs of villitis, but a severely underweighted placenta with calcifications and malperfusion.

Conclusion: The diagnosis of VUE is based on placental anatomopathological examination. Its consequences such as intrauterine growth restriction, hypertensive disorders and stillbirths tend to recur and even with an earlier onset at subsequent pregnancies. Management includes aspirine in order to avoid obliteration of the intervillous chamber and corticosteroids to lower immune reaction. No data show sufficient level of evidence regarding timing of delivery, but since the recurrence occur earlier in pregnancy, various authors suggest induction 2 weeks prior onset of the adverse effects on the previous pregnancy.
Fetal CHAOS and consecutive maternal Mirror syndrome – a hydrops with unexpected consequences

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Introduction: Fetal congenital high airway obstruction syndrome (CHAOS) is a very rare and usually lethal fetal anomaly. A complete or near-complete obstruction of the larynx or the trachea inhibits the outflow of pulmonary secretions, leading to their accumulation and subsequently overdistension of the fetal lungs. This further leads to an increased intrathoracic pressure with reduction of venous return and cardiac output and finally development of fetal hydrops. Mirror syndrome indicates the simultaneous appearance of maternal edema or preeclampsia and fetal hydrops. Pathogenesis and pathophysiology are not yet determined.

Case report: Following an uncomplicated first trimester, a 31-year-old gravida 1 presented for the screening-ultrasound at 21 + 1 weeks of gestation. There were several atypical findings: enlarged echogenic “white” lungs, fetal ascites and anasarca, displacement of the mediastinum to the left and polyhydramnios. These are the typical sonographic findings of CHAOS. Suspected diagnosis was confirmed by fetal MRI, showing tracheal and bronchial agenesis. Amniocentesis was performed with negative result for numeric or structural chromosomal aberrations. As prognosis was fatal and hydrops increased rapidly the patient underwent termination of pregnancy. A dead male fetus of 1040g was born at 23 + 4 weeks of gestation. After manual removal of placenta postpartum hemorrhage (1000 ml) occurred, with cessation after admission of uterotonic agents and insertion of a Bakri balloon. Analysis of coagulation showed significant decrease of thrombocytes (41 G/l) and fibrinogen (0.2 g/l). Combined with progressive peripheral edema the pattern aroused suspicion of a Mirror syndrome with disseminated intravascular coagulation. The patient received 11 g of fibrinogen amongst other clotting factors with normalisation of laboratory parameters within hours. Despite prophylactic low molecular weight heparin therapy, she developed ovarian thrombosis of the left ovarian vein 4 days after abortion. Under therapeutic anticoagulation she recovered quickly. Anti-thrombotic treatment could be ceased 3 months later. Meanwhile the patient experienced an uneventful second pregnancy and gave birth to a healthy boy.

Conclusion: The sonographic findings in CHAOS are so distinct that they practically allow determination of diagnosis. CHAOS and Mirror-syndrome are each very infrequent conditions. To find the sequence of both is in fact a rarity.
Hepatic arterial embolisation of HELLP syndrome-associated liver rupture: a case report

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**Introduction:** HELLP as a life-threatening complication of pregnancy is usually considered to be a variant or complication of preeclampsia. It is an acronym of its cardinal features: hemolysis, elevated liver enzymes and low platelets. HELLP usually occurs during the last trimester of pregnancy or up to one week postpartum. Severe complications such as hepatic infarction, hemorrhage and rupture, disseminated intravascular coagulation (DIC) and kidney failure lead to increased maternal and fetal morbidity and mortality.

**Case report:** A 32-year-old primigravida at 39+6 weeks of gestation was admitted to our facility with new onset of mild preeclampsia. She was asymptomatic and the initial blood test was unremarkable except for a mild thrombocytopenia (102 G/l). After labour induction with misoprostol she gave birth to a healthy girl at 40+0 weeks of gestation. Shortly after birth she reported an intense headache, acute chest and epigastric pain. Chest and abdomen CT scans were unremarkable and a myocardial infarction was ruled out. Eclampsia prophylaxis with magnesium was given. Due to persistent pain she was transferred to the intensive care unit. Within a few hours she developed fulminant HELLP with increased transaminases (peak 910 IU/L) and low platelets (nadir 13 G/L). During biochemical recovery, the patient developed sudden hemodynamic instability and a second CT abdomen scan showed hepatic rupture with subcapsular hematoma and hematoperitoneum. Percutaneous coiling of the left hepatic artery (segments II and III) and management of hemorrhage and DIC with tranexamic acid, desmopressin, factor XIII, recombinant factor VIIa, fresh frozen plasma, transfusion of blood and platelets successfully stabilised the patient. She was discharged 14 days postpartum. Due to residual trophoplasmatic tissue causing continuous vaginal bleeding a hysteroscopy and curettage was performed 6 weeks postpartum. Regression of the hematoma was monitored with regular ultrasound.

**Conclusion:** HELLP is rarely complicated by spontaneous subcapsular liver haematoma rupture. Despite surgical interventions, it still carries a mortality of up to 40%. Its clinical presentation is nonspecific and laboratory tests are not always conclusive. Interdisciplinary management, comprehensive and repetitive medical imaging as well as early intensive care of unstable preeclamptic women can improve survival. Hepatic artery embolization is one treatment option that can improve morbidity and mortality.
Difficult fetal extraction during a C-section is one of the most stressful events for an obstetrician as it can be associated with major maternal or fetal trauma

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Introduction: Difficult fetal extraction during a C-section is one of the most stressful events for an obstetrician as it can be associated with major maternal or fetal trauma.

Clinical Case: Ms S is a 2G0P 35 year old at 41 weeks pregnant patient is admitted in the labor ward with uterine contractions. As she present an arrest of dilatation at 4cm and a class II FHR, an emergency C-section is done. The fetal extraction is extremely difficult and lasts 8 minutes. The fetal blood pH is normal and the newborn adapts well. A scalp hematoma is observed. A head scanner of the newborn shows a fracture of the left parietal bone with a subarachnoid and subdural hematoma regarding the fracture. At this moment, the fracture is believed to be attributed to the obstetrical manipulation during the difficult and long extraction. The neurological evolution of the newborn is favorable with no motor deficiency observed. The newborn presents a nuchal erythematous squamous rash. A biopsy shows cutaneous infiltration with histiocytes. A Langerhans cell histiocytosis is diagnosed. A chemotherapy treatment is started.

Discussion: Langerhans cell histiocytosis is a rare histiocytic disorder most commonly characterized by single or multiple osteolytic bone lesions demonstrating infiltration with histiocytes on biopsy. The disease can be limited to one organ system in 55% of the cases. When it is a multiple organ systems disease it most commonly affects the bone (77%) and the skin (39%). Other common organ systems affected are the lymph nodes (19%), liver (16%) and spleen (13%). Unique organ system disease can present at any age, whereas multiple organ disease mostly concerns children between 1 to 3 years old and can be present at birth. Multisystem organ disease is treated with chemotherapy.

Conclusion: Difficult extraction at cesarean delivery demands to remain calm and focused in order to avoid maternal or fetal trauma. In this case an obstetrical negligence was suspected following the fetal skull fracture. Further investigation of the neonatal cutaneous rash lead to the diagnosis of Langerhans Cell Histiocytosis. The skull fracture was later classified as a pathological fracture due to the osteolytic lesions observed in the Langerhans Cell Histiocytosis. The suspicion of obstetrical negligence was later disregarded.
Introducing Bonding in primary c-sections: a feasibility and safety analysis

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Introduction: Postpartum early bonding, also known as early skin-to-skin-contact (SSC) is an effective strategy to initiate early breastfeeding, diminish newborn hypothermia, and strengthen an early mother-child-connection. Postpartum early bonding has mainly been introduced for vaginal deliveries but not for c-sections (CS) mainly due to organizational reasons. The aim of the study was to evaluate prospectively the feasibility and safety of early SSC in women receiving an elective CS, also concerning newborn hypothermia (rectal temperature < 36 ° C.)

Material and Methods: We included 68 out of 101 women undergoing elective CS (Robson classifications 2b,4b,5,6,7,9) from September to December 2018. 33 cases were lost due to missing data. For data collection we used our self-developed questionnaire which included amongst others starting and ending time of bonding, as well as the adaptation and temperature of the newborns. Our primary endpoint was the practicability of a standardized bonding and safety for the newborns. To ensure the best possible introduction of SSC in the operating theatre the anaesthesiological team was taught about active warming with warming devices. All mothers received a cotton bonding top before entering the operation room. After delivery, the newborn was presented to the mother and transferred to the adjacent neonatologist. SSC began with the mother still lying on the operation table, if the Apgar at 5 minutes was >7.

Results: Successful bonding was conducted in 61 recorded cases (89.7%), in seven cases bonding could not be initiated. In three cases, the mother did not wish to bond, in two cases the mother wanted to bond but felt unwell (stable blood pressure and heart rate) and therefore abstained from bonding. One newborn was directly admitted to the NICU (neonatal intensive care unit) and one CS was performed in general anaesthesia. In four cases, the mother primarily wished to wean. There was one case of newborn hypothermia. The average duration of bonding was 71min. The main reason for ending of bonding was the regular newborn check.

Conclusion: Early intraoperative SSC for women with CS is a practicable and safe procedure avoiding newborn hypothermia. After simple measures like initial teaching of the obstetrical and anaesthesiological team, bonding tops and warming devices it can easily be performed without causing notable risks to newborns.
Assessment of periurethral vascularity using 3D power Doppler and VOCAL software in women with symptomatic stress urinary incontinence: a pilot study

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Objective: Assessment of the periurethral vascularity (PUV) in incontinent female patients is poorly investigated and there are no current standards. It is believed that PUV contributes to urethral pressure profile to about 30% of its total and therefore may contribute to continence. The purpose of our pilot study was to assess urethral vascular parameters of women suffering from stress urinary incontinence using 3D power Doppler and VOCAL (Virtual Organ Computer-aided AnaLysis) software in an attempt to standardize the method.

Methods: 15 women suffering from stress urinary incontinence were included in our study. Incontinence was previously confirmed by multichannel urodynamics. Power Doppler examinations for quantitative assessment of PUV using a 5-9 Mhz vaginal probe (Voluson E10, BT17 and 18) were recorded and further evaluated using VOCAL software. To allow an uniform and standardized assessment a software preset was created for this purpose. The examination was always performed with an empty bladder. Following parameters were analyzed in each patient: vascularization index (VI), flow index (FI) vascularization flow index (VFI) and mean grey value (MG). In addition to these methods to quantify vascularity, local distribution of perfusion intensity was depicted.

Results: All 15 women were multiparous and had a mean (± SD) age of 48± 9 years. Mean (±SD) body mass index (BMI) was 24±3.54 kg/m2. In multichannel urodynamics, mean (± SD) value of the maximal urethral closure pressure was 59±19.72cmH2O. In all cases, a quantification of the PUV was feasible using a spherical volume. Mean (±SD) VI, FI, and VFI were 11%±9.29, 26±8.96, and 2±2.97, respectively. Mean gray value (±SD) was 29± 6.49.

Conclusions: The sonographic assessment of PUV is a promising tool to understand its contribution to the urethral continence and in particular in cases with incontinence. Our approach may provide reproducible quantitative vascular parameters. This could lead to a better understanding of the pathophysiology and prognosis of incontinence and better assessment of therapy progress.
Acute Abdomen in the 3rd Trimester: Posterior Placenta Percreta in Uterus without previous Transmural Surgery

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Introduction: The incidence of abnormally inserting placenta is rising (ca. 1:530-1’000 births). Without previous operation it is 0.3%, after one prior cesarean (CS) 0.8%. The most dangerous but rarest variant is placenta percreta (5-7%).

Material and Methods: A 38 year old G III P 0 with diffuse recurrent lower and upper abdominal pain for some days was referred to our surgical clinic for suspected cholecystitis/-lithiasis at 31 1/7 weeks’ gestation (wks). This and pancreatitis or appendicitis were excluded by laboratory tests and two whole abdominal ultrasound scans. Obstetric scan showed a short cervix (25 mm); thus, the patient was transferred to our department, lung maturity induced and oral tocolysis and pain killers given. Fetal parameters were normal as was transabdominal/transvaginal sonography (TAUS/TVUS) of uterus and fetus (left posteriolateral placenta, no signs of placental abruption). The patient had had two spontaneous abortions and a hysteroscopy for Mirena® removal. The pain was variable in character and localization, independent of meals or position, with some pressure downwards. Antibiotics were given for laboratory signs of infection (hemoglobin 106 g/l; Lc 16.2x10^9/l; CRP 55 mg/l). At 31 6/7 wks the patient was found lying on the floor, with tender abdomen and fetal bradycardia (88 bpm). Indication for immediate CS was made for suspected placental abruption or uterine rupture.

Results: Intraabdominally, 3000 ml of free blood were found and placenta percreta of the posterior uterine wall. A uterus preserving operation was performed: placenta carefully removed digitally, mattress sutures of the myometrium and a sealing matrix (Tachosil®) applied. 2 units of blood and clotting agents were given; lowest Hb 44 g/l. Recovery was uneventful. The male infant had respiratory distress, Apgar 1/7/8, pH: 6.85, BE -19.01, capillary pH after 1h 7.01, 1890g, was transferred to a neonatal ward and recovered promptly.

Conclusion: Even in retrospect neither placenta percreta could be seen behind the fetus nor the hematoperitoneum on TAUS/TVUS retrocervically. With persistent diffuse abdominal pain of unknown origin further imaging is warranted: both MRI and US show acceptable sensitivity (93 vs. 80%) and specificity (71 vs. 65%) on the posterior uterine wall and could be used as complimentary diagnostic tools. However, it remains open whether in this case the correct diagnosis could have been made prenatally and thus the emergency scenery avoided.
Mature teratoma and positive pregnancy test

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Mature teratoma is the most frequent ovarian tumor in women under 30 years old (70% of the benign ovarian tumor). Their discoveries are often made by abdominal pain, or by chance. Diagnosis is made by pelvic US and confirmation by MRI. The treatment is surgical (laparoscopy or laparotomy). These tumors can contain all kind of tissues departing form epidermidis (skin), mesodermidis (muscle, fat, bone) and endodermidis (respiratory and intestinal tract). Some of them can also produce all kind of hormones, such as testosterone or BHCG but very few cases are reported. The risk of malignant transformation is very low (less than 2%).

We present the case of a 32 year old, consulting our emergency departement, complaining of a uterine bleeding after a positive pregnancy test. The pregnancy was never visualised. Her last period was 5 5/7 weeks before this event. She had no abdominal pain. She had no medical history except 2 caesarian section and an abdominoplasty. Vital signs were normal, the abdominal and pelvic examination were unremarkable. The vaginal bleeding was normal with a change of pad 5 times a day. The laboratory was within range, but it disclosed a pregnancy with BHCG of 51 UI/L. Transvaginal ultrasound revealed an heterogenous mass of 6x6cm hiding the left ovary. There was no sonographic evidence of pregnancy. A subsequent follow up (ultrasound and BHCG) was organized. With the persistence of the mass and the non significative lowering of the BHCG, a treatement of Methotrexate was given a week later. 3days later the patient came to the ER for an abdominal pain and fever up to 38 °C and PCR of 30 mg/L. An antibiotherapy with Co-Amoxi was started. A therapeutic laparoscopy with left ovariectomy was realised a week later after the infectious event.

The pathology revealed a mature teratoma, with a multiple of adult tissues. Such as epidermidis, muscle, respiratory and intestinal muquosa, hair and a tooth. We noticed an hematopoietic marrow which is uncommon. It was probably not secretant, as there was no immature tissue.

No smears came back positive for an infection. The day after the intervention, the pregnancy test came back negative.
Case series of patients with placenta percreta - pre-operative assessment and clinical experience in a tertiary care center

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Introduction: In patients with placenta percreta (PP), the placenta rather grows replacing the adjacent tissues than infiltrating these, often at the site of an iatrogenically pre-created niche. Blood perfusion of the PP is ensured by uterine vessels as well as vessels from neighboring organs, leading to one of the most challenging situations in obstetrics. Hysterectomy is mostly inevitable. The objective was to analyze clinical features of our patients with PP and to report our experience concerning preoperative assessment modalities, since correct preoperative preparation is of utmost importance.

Methods: In this retrospective case-series, data from all patients with PP at the University Hospital Zurich between 2009 and 2018 were reviewed.

Results: Twenty-three women with PP were identified, among these 14 patients with placenta previa. All patients but one had a previous cesarean section and the latter had a previous myomectomy. Hysterectomy was performed in all patients. All patients survived. The median blood loss was 3800ml (IQR 3000-4500ml) with transfusion of median 4 erythrocyte concentrates (IQR 2-5). Ureteral stents were preoperatively placed in 10 patients (43.5 %) and aortic balloon catheters in 3 patients (13 %). Preoperative imaging diagnosed a PP in 16 of the 23 cases. A tendency of improved preoperative imaging assessment was observed in the second half of the study period, where only one case of PP had been “missed”. Likewise, MRI in addition to ultrasound was increasingly performed in 8/11 patients in the last five years as compared to 4/12 patients in the first five years of the study period. In 4 cases the MRI and ultrasound diagnosis differed widely: in 3 cases the ultrasound described the intraoperative situs more accurately and in 1 case the MRI favored the diagnosis of a PP in contrast to the ultrasound which showed a placenta previa only.

Conclusions: We assume that due to our interdisciplinary approach at our tertiary care center which involved detailed pre-operative planning as well as immediate interdisciplinary involvement in cases of unsuspected PP, maternal mortality was zero. Placental location in areas of prior uterine surgery (cesarean, myomectomy, curettage) is a risk factor for PP and demands accurate pre-surgery evaluation. MRI should be performed in case of uninformative ultrasound. Assessment and delivery in a specialized center is recommended if PP is suspected.
Prenatal diagnosis and management of a single-fetus Body Stalk Anomaly in a dichorionic diamniotic twin pregnancy with significantly discordant crown-rump length in the first trimester

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Introduction: In dichorionic diamniotic twin pregnancies a significant inter-fetal difference of crown-rump length measurements (CRL) indicates the possibility of aneuploidy or structural abnormalities. Body Stalk Anomaly or limb-body-wall complex consists of a rare and generally fatal developmental abnormality where severe malformations of the abdominal wall, thorax and often limbs are present. It is thought to be caused mostly by misfolding of the germinal disk by the 6th week of gestation. Prevalence has been reported as low as 1/14,000-31,000 total births, with the vast majority involving spontaneous fetal demise and its occurrence in multiple pregnancies being so rare that its existence is documented in the literature only as case reports.

Material and Methods: Through a clinical case, we describe the etiological and echographic aspects of the diagnosis and evolution of a single fetus Body Stalk Anomaly in a spontaneous dichorionic diamniotic twin pregnancy with a significant discordance of CRL measurements in the first trimester and carried to 35 weeks of gestation.

Case description: A G2P1 31-year-old patient consults for the first time at 8 weeks gestation where an ultrasound shows a dichorionic diamniotic twin pregnancy with a significant difference between the CRL of twin A (17mm) and twin B (11mm) (43%). At the 13th week ultrasound twin A shows a normal nuchal transparency and apparently normal morphology while twin B shows a major polymalformative syndrome. A selective fetal reduction is discussed at this time, but not desired by the patient. At the morphology scan the polymalformative syndrome seems to entail: severe hydrocephaly, unilateral cleft palate, extended celosomia and unilateral lower limb ectromelia with a differential diagnosis of Body Stalk Anomaly. A delivery of a healthy twin A and live-born twin B with neonatal death is carried at 35 weeks gestation due to hydramnios.

Conclusion: The evolution of this pregnancy confirms one of the most probable causes of an early growth discordance: a structural abnormality. Ultrasound follow-up is essential in cases of precocious CRL discordance for assuring proper diagnosis, management and early detection of complications. Body Stalk anomaly is a fatal and rare entity, especially in multiple pregnancies and it must be considered as a differential diagnosis whenever an early CRL discordance and anterior wall defect are present.
Predictive factors for postoperative bladder voiding dysfunction after deep infiltrating endometriosis surgery

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Background: Deep infiltrating endometriosis (DIE) surgery is known to be associated with postoperative urinary voiding dysfunction (UD) in 1.4% to 29.2%. Aim of this study was to evaluate factors that increases the risk of postoperative urinary voiding dysfunction.

Methods: From the hospital internal endometriosis database at the University Hospital of Bern patients were selected that had DIE surgery (bladder surgery excluded). All cases with documented postoperative bladder scan were included. Preoperative symptoms, classification scores, lesion size, operation indications and intraoperative findings were analyzed to predict postoperative pathological bladder scan defined as residual urine in the bladder of >100ml.

Results: 301 patients with DIE were operated between July 2013 and July 2018. Of these, 171 patients had a documented postoperative bladder scan and could be included. Mean postoperative indwelling catheter time was 1.8 days. 74/171 (43.5%) had initially pathological bladder scan, however at hospital discharge 14/171 (8.2%) had UD needing self-catheterization. After 6 weeks follow up, three patients still needed self-catheterization and all but one patient (99.4%) had normal urinary voiding after 10 months. No significant anamnestic factor could predict UD. Operation data such as blood loss, operation time, uretherolysis or complications did not lead to significant more UD. In analyzing DIE locations, significant more post-operative UD were seen, when compartment B from the revENZIAN Classification was affected (p= 0.019). Lateral extension measured by magnetic resonance imaging (MRI) could not predict UD (p=0.103).

Conclusion: Postoperative urinary voiding dysfunction after DIE surgery is common and therefore needs careful monitoring. Fortunately, in almost all cases the need of self-catheterization is temporary. The revENZIAN Classification can be used to predict postoperative urinary voiding dysfunction.

Keywords: postoperative urinary voiding dysfunction, deep infiltrating endometriosis, surgery, ENZIAN
Successful pregnancy in a patient with exstrophy-epispadias complex (EEC) – a case report

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Introduction: Exstrophy-epispadias complex (EEC) occurs in approximately 1:130,000. With advances in medical technology and treatment, women with EEC have an improved health and quality of life, in which sexuality and reproduction play an important role. Therefore, they are more likely to achieve a successful pregnancy and childbirth. A multidisciplinary surgical team and cesarean section (CS) are recommended to protect the reconstructed anatomy and to minimize complications.

Materials and Methods: We present a case of EEC with CS performed by a left paramedian skin incision.

Results: A 31 year old G3 P1 with congenital EEC presented with a successfully developing spontaneous pregnancy after a history of one miscarriage and one extrauterine pregnancy. The patient underwent pelvic osteotomy and cystectomy with a Penn-pouch urinary diversion, and the appendix serving as Mitrofanoff channel in her childhood. Moreover, she underwent transposition anoplasty for an anterior anal mislocation. During pregnancy she performed self-catheterizations via the umbilical stoma. With evolving pregnancy, recurrent urinary tract infections and progressive bilateral hydronephrosis occurred. In 32 6/7 gestational weeks, a CS was performed due to a vaginal bleeding and contractions. A left paraumbilical, paramedian skin incision was used to access the uterus, which was then entered using a transverse uterine incision. A healthy girl was born with 2000g, Apgar 7/9/9 and an umbilical artery pH of 7.37. She was admitted to the neonatology ward due to prematurity. Maternal recovery was uneventful without any complications.

Conclusion: In pregnant women with EEC a multidisciplinary team approach is recommended performing a CS by a paramedian skin incision.
Predictors for Optimal Timing of Antenatal Corticosteroids in Women with threatened Preterm Birth

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Introduction: Antenatal corticosteroids (ACS) are regularly used in Switzerland in case of threatened preterm birth between 24+0 and 34+0 gestational age (GA) to reduce neonatal morbidity and mortality. A complete course of ACS consists of two doses of intramuscular administered Betamethasone in a 24 hour interval. ACS are most effective when completed more than 24 hours and less than 7 days before preterm birth. Our aim was to analyse the frequency and timing of ACS and evaluate predictive factors for optimal timing.

Material and Methods: A retrospective cohort study was conducted with women receiving ACS between 24+0 and 34+0 GA for threatened preterm birth and women delivering before 34+0 GA without receiving ACS at the University Hospital Basel (USB) from January 2015 to January 2017. Optimal timing was defined as delivery 24 hours after complete ACS and within 7 days and suboptimal timing as delivery more than 7 days after complete ACS. Missed ACS was defined as less than two doses or interval less than 24 hours before delivery. Maternal and obstetric characteristics were compared between the optimal timed, suboptimal timed and the group with missed ACS. Multivariate logistic regression was performed to analyse predictive factors regarding optimal timing.

Results: In the study period, 366 women were eligible for ACS treatment. 39 women were excluded because of external delivery, missing data regarding ACS, maternal age younger than 18 years or infaust fetal prognosis. Of the 327 women included, 85 had optimal timed ACS (26%), 205 (62.7%) had suboptimal timed ACS and 37 (11.3%) had missed ACS. Median time between completed ACS and delivery was 2 days ±1.75 SD in the optimal timed group and 44 days ±27.25 SD in the suboptimal timed group. Predictors for optimal timing of ACS are listed in table 1.

Conclusions: Only one in four pregnant women receives ACS optimal timed. Selection of pregnant women for ACS according to predictors could help to improve the optimal timing of ACS.

Table 1: Optimal versus suboptimal timing of ACS

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractions</td>
<td>1.35</td>
</tr>
<tr>
<td>Tocolysis</td>
<td>0.9608</td>
</tr>
<tr>
<td>Fetal fibronectin not tested</td>
<td>1.553</td>
</tr>
<tr>
<td>Preterm premature rupture of membranes</td>
<td>1.916</td>
</tr>
<tr>
<td>Cervix length ≥20mm</td>
<td>0.625</td>
</tr>
<tr>
<td>Cervix length ≤15mm</td>
<td>1.377</td>
</tr>
<tr>
<td>Antepartal bleeding</td>
<td>0.8106</td>
</tr>
<tr>
<td>Clinical signs of infection</td>
<td>1.259</td>
</tr>
<tr>
<td>Pathological Doppler</td>
<td>1.271</td>
</tr>
<tr>
<td>Pathological CTG</td>
<td>1.682</td>
</tr>
<tr>
<td>Gestational hypertension, preeclampsia and HELLP</td>
<td>2.248</td>
</tr>
<tr>
<td>Intrauterine growth restriction</td>
<td>1.062</td>
</tr>
</tbody>
</table>
Labor induction at term in patient with advanced maternal age

**Author:** 1) Filippi V., 1) Brosius Lutz A., 4) Tschudi R., 3) Schoening A., 2) Raio L., 1) Bolla D.
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**Introduction:** Pregnancies in women > 35, and in particular > 40 years old are associated with a higher rate of adverse pregnancy outcomes such as preterm delivery, low birth weight, and intrauterine fetal demise. As a result, these women are classified as “at risk” and face an increased rate of obstetrical interventions such as labor induction (IL) compared with younger patients. Advances in maternal health and obstetrical practice have resulted in a decline in the rate of fetal death among pregnant women of all ages since the 1960s. The aim of our study was to evaluate maternal/neonatal outcomes after IL versus expectant management (EM) in patients with advanced maternal age.

**Material and Methods:** Data from the Swiss working group (ASF) from 2005-2017 were analysed. Inclusion criteria were women with singleton pregnancies, ≥ 40 years of age, ≥ 37 weeks of gestation, and cephalic presentation of a structurally normal fetus. Cases after IL were compared to those with EM. Adverse fetal outcomes (5 min Apgar <7, arterial pH <7.15, admission to NICU, perinatal mortality) were compared between the two groups. Mode of delivery was also compared. Data analysis were performed using Prism 8 for Mac OS X.

**Results:** A total of 18,211 (3.7%) out of 497,332 patients were included in our study. Of those 5,877 (32.3%) were in the IL- and 12,334 (67.7%) in the EM-group. Median (IQR) of maternal age was 41 (2) with no difference between the groups. Mean (SD) gestational age at delivery was higher in the IL than the EM group (IL: 39.8±1.3 vs. EM: 39.3±1.6; p<0.0001). In the EM-group premature rupture of membranes (p= <0.0001), spontaneous delivery (p= 0.01) as well as operative vaginal delivery (p= 0.04) were significantly higher compared to the IL-group. With the exception of lower 5 min Apgar score in the EM-group (IL: 4.9±2.6 vs. EM: 3.6±3.1; p<0.0001) no significant differences in newborn/fetal outcomes were found between the groups. Of interest, the incidence of elective Caesarean section in the EM-group reached 33.32%.

**Conclusion:** In our population of Swiss patients with advanced maternal age, fetal outcomes do not differ significantly depending on EM or IL. Based on the high incidence of elective CS in the EM group, we propose that increasing the rate of IL in patients with advanced age could reduce the CS rate in this population.
A very rare case of spontaneous intussusception treated by a conservative laparoscopic approach during pregnancy

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Introduction: Spontaneous intussusception, common in children, is rare in adults, even more during pregnancy. Complications can be life-threatening and early diagnosis is necessary.

Case presentation: A 22-year-old woman, at 21 weeks of gestation, underwent exploratory laparoscopy for acute-onset left abdominal colicky pain with nausea and vomiting. Ultrasound showed a mass in the lower left quadrant. Twisted adnexa was initially suspected. Laparoscopy revealed an intussusception and enabled conservative treatment by reducing it. No etiology was found. Recovery was uneventful.

Discussion: To our knowledge, this is the third case of spontaneous intussusception during pregnancy. The classical triad is colicky abdominal pain, vomiting and bloody stool. In children, 90% of cases of intussusception are idiopathic, with 10% resulting from a lead point. In adults, it is the exact opposite and causes 1-5% of bowel obstruction. Spontaneous intussusception in pregnant women without risk factors is a very rare cause of bowel obstruction (<1%) but with a risk of maternal mortality. Aspecific signs often delay the diagnosis prompting severe complications and intestinal necrosis.

Conclusion: Acute abdomen during pregnancy is a unique challenge, and the indication to perform a surgery is a difficult decision. Although rare, intussusception should be part of the differential diagnosis. This is the first case of conservative surgical mini-invasive treatment described in literature. Surgical management performed immediately enables a conservative treatment, due to the absence of ischemic intestine. Diagnosis by minimally invasive laparoscopy is usually possible until the beginning of the third trimester of pregnancy.
Reminder - Peripartum cardiac complications: Three cases

**Author:** Brauer V., Baumgartner A., Maurer F.
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**Introduction:** Peri- and postpartum cardiac diseases are a rare finding, as patients in obstetrics generally are young and healthy. In the last 3 years we had three cases of women presenting with postpartum cardiac symptoms. Two of them were diagnosed with peripartum cardiomyopathy, one of them with myocardial infarction after coronary dissection.

**Case-summaries:** 1) A 38 years old IIGIIP presenting on day 10 postpartum with loss of activity, dyspnea, leg edema and thoracic pressure. The patient has no cardiac history. The patient was hypertonic and bradycardic as well as in a reduced general condition. The echocardiography indicated a dilated left ventricle with diastolic dysfunction and signs of insufficient aortic-, mitral, and tricuspid valve. Differential diagnosis were eradicated. A therapy with ACE-inhibitor and Lisinopril was initiated and the patient showed fast recreation. As the patient already was ablactated, there was no need for Dostinex. The patient was dismissed after 6 days. A follow up MRT showed a normal left ventricle with normal valvular function. 2) A 37 years old IIGIIP presenting on day 13 postpartum with similar symptoms although having a history of hypertension with no need of medication during pregnancy. The following day she developed pulmonary edema, leg edema and tachycardia. Same diagnostics and treatment were evolved including ablactation as this patient was still breastfeeding. Dismission after 9 days in good condition. 3) A 31 years old IVGIVP with no cardiac history presents with thoracic pain 4 weeks postpartum. The echocardiogram showed abnormalities and she had elevated heart enzymes. The emergency coronary angiography showed a dissection of RIVA with a subtotal stenosis. The diagnosis of a peripartum coronary dissection was evolved. A therapeutic anticoagulation as well as beta-blocker, ACE-inhibitors and Ablactation was initiated. The patient was dismissed after 11 days in good condition and with normalised echocardiograph and heart enzymes. A follow up coronary angiography showed a stable aneurysma in the RCA.

**Discussion:** We want to rise the awareness for peripartum cardiac conditions. They can occur at a private office as well as at a peripheral hospital, and need to be thought of if a patient presents with symptoms of cardiac failure in the peripartal period as we often ignore them as normal findings in the late pregnancy or postpartum period. Fast detection and handling of the situation including Dostinex can lead to a good outcome without any permanent damage.
Clinical practice update on IUD removal for low and high genital infections

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Introduction: More and more young patients are using IUDs. These same young people are the population most at risk for Chlamydia infection. The controversy that persists over the interest in removing IUDs during suspected genital infections is essential in order to reduce the risk of unwanted pregnancy after the precipitate withdrawal of reliable contraception, moreover in this population. The objective was to determine if we found in the literature a clear benefice of IUD removal when a genital infection is suspected.

Methods: Consultation of the database PubMed, UptoDate, Cochrane Library, National Guidelines

Results: The results of the studies showed that there is no benefit to the immediate removal of the IUD both biologically and on the outcome of infections defined by improvement of symptoms such as fever and pelvic pain, duration of hospitalization, evolution of biological parameters. Different national guidelines agree on maintaining the IUD during uncomplicated PID (American College of Obstetricians and Gynecologists, Collège National des Gynécologues et Obstétriciens Français). The Royal College of Obstetricians and Gynaecologists is more nuanced asking for a risk-benefit balance between undertreated PID and unintended pregnancies but dates back to 2011. Studies showed that PID hospitalization in IUD carriers was shorter and that there was no change in biologic outcome. Nevertheless, one trial reported more rapid improvement in symptoms in patients whose IUD had been withdrawn from the outset. Another study of 22000 cases shows that the risk of developing a PID after insertion of IUD is 0.5% from 3 to 6 months after insertion.

Conclusion: The withdrawal of a IUD is not recommended in case of genital infection except in case of failure of conservative management after 48 to 72 hours of antibiotic therapy (persistence of fever, pelvic pain, inflammatory parameter on the rise). Patients should be treated according to the usual pattern, regardless of the time of insertion.
A rare case of ovarian parasite infection

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Introduction: This is a rare case of a parasite classified as nematode found accidentally in the histologic analysis of an ovarian cysts. Only extremely rare cases are described in literature. It is known that some nematode eggs are ingested and can mature in the perianal folds, the worms can migrate from the anus to the female genital tract. Some worms like E. vermicularis are reported to be found in female genital tract as well as lungs, kidney, prostate, bladder and liver.

Material and Methods: 76-year old woman with lower abdominal pain is referred to the gynecology department of Biel Hospital with a transvaginal ultrasonography suggestive for a right 5 cm simple ovarian cyst without malignity signs. A MRI confirms the diagnostic of a 6x4.8x4 cm right ovarian cyst without septum and an additionally left ovarian cyst 3.7x1.5 cm with septa. Tumor markers and ROMA score are negative for a tumoral origin. A laparoscopy with bilateral adnexectomy without complications was realized.

Results: Postoperative histologic analysis subsequent bilateral adnexectomy showed the presence of a nematode on histology. PCR analysis is ongoing and will define the nematode subtype.

Conclusion: Extraintestinal nematodes develop in rare cases and can occasionally lead to infection et inflammation. Usually asymptomatic it is also described causing vaginitis, pelvic inflammatory disease or tubo-ovarian abscess. The lack of precise diagnostic tools leads to accidental findings that raises the risk of serious complications like infertility, abscess or peritonitis. Therefore, gynecologist should be aware of the importance of this differential diagnosis.
Placental Uric Acid transport system and its Impact on Fetal Development

Author: Lüscher B., Surbek D., Baumann M.
Clinic: Obstetrics and Gynecology, Inselspital, Bern University Hospital

Introduction: Uric acid is increased in women with pre-eclampsia, a pregnancy-specific disease characterized by hypertension and proteinuria, and is believed to play a significant role in its pathogenesis. Hyperuricemia originates from renal and placental dysregulation of uric acid transport and may lead to long-term maternal cardiovascular risk and alterations in fetal programming. The placental uric acid transport system and its regulation are largely unknown. Studies using the BeWo choriocarcinoma cell line have indicated a paracellular pathway for uric acid transport. The main uric acid transporter in the placenta is glucose transporter (GLUT)-9. In these studies we use the GLUT9-knock out mouse model to investigate the placental uric acid system and its impact on fetal development. We hypothesized that fetal mice with lack of placental GLUT9 will show hyperuricemia, abnormal organ development and altered growth pattern after birth.

Methods: Female GLUT9(+/−) mice were mated with GLUT9(+/−) male mice. At gestational day 18.5 fetuses were sacrificed for blood sampling and measurement of uric acid serum levels, while in other pregnancies following birth the pups were daily weighted until day 70. At day 70 these mice were sacrificed and pancreas, liver and kidney were weighted and processed for histological analysis to assess potential abnormal organ development.

Results: The GLUT9(−/−) fetuses showed a 3-fold increase in serum uric acid levels compared to GLUT9(+/−) and GLUT9(+/+) fetuses and their GLUT9(+/−) mothers. GLUT9(−/−) mice showed neonatal growth restriction compared to GLUT9(+/−) and GLUT9(+/+) mice. GLUT9(−/−) mice had decreased kidney mass by 25±0.15% (mean±SD, n=7, p<.01, Student’s t-test) and 35±0.21% (n=7, p<.01) for the left and the right kidney, respectively, compared to GLUT9(+/−) mice.

Conclusion: These data show for the first time that in vivo uric acid is not transported across the placenta by a para-cellular pathway, but is dependent on a specific uric acid transporter. Moreover our data indicate that GLUT9 is the main uric acid transporter in the placenta. Further there is strong evidence that fetal hyperuricemia is responsible for the observed impaired development of neonatal GLUT9(−/−) mice. Further studies investigating the potential links between hyperuricemia, altered placental function and metabolic fetal programming are eagerly needed.
Sentinel lymph node biopsy using indigocyanine green fluorescence in uterine cancer

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Introduction: In endometrial cancer, societies such as the Society of Gynecological Oncology and National Comprehensive Cancer Network recommend sentinel lymph node biopsy using indigocyanine green (ICG-SLNB) as a reasonable staging strategy. According to a meta-analysis, ICG as a tracer injected into the cervix yields higher detection rates than other tracers or other injection sites. Compared to standard systematic lymphonodectomy (LND), ICG-SLNB has lower morbidity, allows detection of lymph nodes in atypical locations such as the presacral and parametrial area, and allows microstaging of lymph nodes.

Material and Methods: We did a retrospective analysis of 40 patients who had ICG-SLNB for uterine cancer using conventional laparoscopy or robotic surgery from 2012 to 2019. ICG was injected into the cervix, 1ml subepithelial and 1ml into the stroma at both 3 and 9 o’clock. Two different optical systems were used: Karl Storz Opal-1 NIR/ICG (n=10) and Novadaq Pinpoint (n=30). Pathological ultrastaging was done by sampling the SLN at 0.2mm intervals with additional cytokeratin staining. Number of technical failures, detected sentinel nodes and their location was assessed. Technical failures were defined as no lymph node staining or only unilateral pelvic staining. We also compared sites of lymph node metastasis using ICG-SLNB to 16 endometrial cancer patients having metastatic lymph nodes assessed by SLN.

Results: Five technical failures occurred (12.5%). Median number of sentinel lymph nodes found using Pinpoint was 10 (range 2-45) and using Opal-1 was 2 (range 1-5), which is significantly less (p<0.002). More technical failures occurred using Opal-1 (30% vs 7%, p=0.09). A total of 371 lymph nodes was detected, of which 17 were metastatic. The most frequent anatomic site of SLN was the fossa obturatoria (154, 42%), external iliac vessels (107, 29%), iliaca communis (50, 13%), and 12% (44) of SLN were found in the paraaortic region. Nine (2%) SLN were detected in the parametrium and 7 (2%) in the presacral area, hence, 4% of SLN were found in atypical locations. The site of metastatic lymph nodes in patients was similar using ICG-SLNB compared to LND: (table)

Conclusion: The imaging device has an impact on sentinel detection and technical failure rate. Four percent of SLN were found in atypical locations, however none had metastatic disease. The pattern of nodal spread was similar in both ICG-SLNB and systematic LND, which is reassuring.

<table>
<thead>
<tr>
<th>Site of metastasis</th>
<th>Pelvis only</th>
<th>Paraaortal only</th>
<th>Pelvic and Paraaortal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICG-SLNB (n=3)</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Systematic lymphonodectomy (LND) (n=16)</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>
Angiogenic factors as novel tool to diagnose evolving preeclampsia

Author: Baumann M., Tan Z., Raio L., Surbek D.
Clinic: Obstetrics and Gynecology, Inselspital, Bern University Hospital, University of Bern

Introduction: The pro- and anti-angiogenic factors placental growth factors (PLGF) and soluble fms-like tyrosine kinase (sFlt)-1 play a crucial role in the pathogenesis of preeclampsia (PE). Given the fact that changes in their serum levels are closely correlated and to the development of PE, we investigated their potential as novel tool to clinically diagnose evolving PE in patients with PE-related findings. We further hypothesized that the changes in sFlt-1 and PLGF serum level may predict time-to-delivery (TTD) interval in women with established preeclampsia.

Methods: In a prospective observational cohort study, 196 singleton pregnancies between 23.1 and 41.4 gestational weeks were enrolled. We included patients with unclear preeclampsia-associated findings (N=139), and patients with overt preeclampsia, defined by hypertension and proteinuria, at admission (N=57). sFlt-1 and PLGF serum levels were analyzed using the ROCHE Elecsys Test. Correlation between angiogenic marker serum levels and the clinical development of preeclampsia (in unclear PE-related findings) and TTD (in established PE) were analyzed.

Results: In patients with preeclampsia-related findings, sFlt-1/PLGF ratio predicted development of preeclampsia, yielding an area under the curve (AUC) in the receiver-operating-characteristic (ROC) curve analysis of 0.821. Overall, sFlt-1/PLGF ratio were significantly higher in patients who delivered within 48 hours when compared with patients with delivery after 48 hours (<48 versus >48 hours: 222.4±30.49 versus 108.7±16.41, p<.0001), although the ratio showed wide overlap in both groups. In patients with overt early-onset preeclampsia at admission sFlt-1/PLGF ratio correlated inversely with TTD (spearman rank test, r=-0.299, p<.05).

Discussion: Our data show that sFlt-1/PLGF ratio correlates closely with the development of preeclampsia in a heterogeneous group of patients with unclear preeclampsia-associated findings, and with TTD in patients with established early-onset preeclampsia. We therefore suggest that sFlt-1/PLGF ratio is a novel tool to diagnose evolving preeclampsia in women with unclear PE-related findings, and to assess severity of established preeclampsia as mirrored in TTD. In future, novel treatments aiming to cure PE should focus on patients with evolving PE which can now be diagnosed using angiogenetic factors.
Mode of delivery of twin pregnancies in Switzerland: an analysis of 6595 cases

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Introduction: Optimizing newborn and maternal outcomes of twin pregnancy remains a major challenge of perinatal medicine. We sought to examine trends in twin delivery in recent years in Switzerland.

Methods: Data from 6595 dichorionic and monochorionic diamniotic twin births at 24 0/7 weeks gestation or later was collected retrospectively from the Arbeitsgemeinschaft Schweizerischer Frauenkliniken (ASF) database 2005-2016. Linear regression was used to analyze change in the rate of twin births, trends in gestational age at delivery, and mode of delivery (vaginal or by cesarean section for one or more twins). Statistical significance of data trends was defined as a non-zero slope with p value of p<.05.

Results: Just as the overall number of births in Switzerland rose significantly over the time period examined (p<.001), so did the number of twin births (p<.001). Among twin births, both dichorionic (DC) and monochorionic (MC) twins saw a significant increase in raw numbers (p<.001 and p<.05, resp.). As a fraction of total births reported, the rate of DC births rose significantly (p<.05), while the rate of MC births remained stable at approximately 0.3%. Median and interquartile range of gestational age at delivery was 36.7 (3.1) weeks for DC and 35.9 (3.7) weeks for MC twins. Mode of delivery did not change significantly for MC, with a mean vaginal delivery rate of only 25% over the period studied. Among DC twins, the rate of vaginal delivery declined significantly to 27% in 2016. In both groups the rate of primary and secondary CS together reached over 75%.

Conclusion: Irrespective of the chorionicity, only a small fraction of twins will be delivered vaginally. The increasing prevalence of multiple pregnancies associated with the high CS rate will inevitably add to the steadily increasing CS rate in Switzerland.
Ectopic pregnancy in correctly fitted Kyleena® – Case report

Author: Karal F., Markus A., Hornung R.
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Background: Kyleena® is a levonorgestrel-releasing intrauterine system (LNG-IUS) with a total levonorgestrel dose of 19.5 mg. The release rate of levonorgestrel is approximately 17.5 mcg/day after 24 days. The released quantity decreased to 9.8 mcg/day after 1 year, and 7.4 mcg/day after 5 years. Levonorgestrel serves as effective contraception for up to 5 years. If pregnancy should occur when an LNG-IUS is used, the relative risk of an ectopic pregnancy is increased by about 50%. The overall incidence of ectopic pregnancy in women fitted with an LNG-IUS is about 0.2 per 100 woman-years. The total incidence of ectopic pregnancy among women without contraception is about 0.3 to 0.5 per 100 woman-years. An ectopic pregnancy is a rare event in a woman with a correctly fitted Kyleena®. Despite the fact that it is a significant occurrence, published data on the subject is scarce.

Case: A 38-year-old woman with Kyleena® planned no further children and desired safe and effective contraception. The patient had a regular menstruation with Kyleena®. After 6 months her menstruation stopped without symptoms. The gynecologist suspected an ectopic pregnancy or a disrupted early pregnancy. The patient had a high beta-hCG level of 152 U/l and was introduced for a second examination to our clinic. It showed a beta-hCG level of 762 U/l and a correctly fitted Kyleena®. We also suspected an ectopic pregnancy or a disrupted early pregnancy. The laparoscopy showed an ectopic pregnancy in the left follician tube. Therefore a salpingectomy was performed.

Conclusion: The fact that the case was reported to Swissmedic (Swiss regulatory authorities for drugs and medical products) shows the possibility of a causal connection between the insertion of Kyleena® and the occurrence of ectopic pregnancy in accordance with the WHO/CIOMS criteria. Women should be made aware of the symptoms of ectopic pregnancy when using Kyleena®. Kyleena® can change bleeding patterns and women may develop oligo- or amenorrhea. When this happens, a pregnancy should be confirmed or disproved by a pregnancy test. In the present case the attending gynecologist suspected a pregnancy due to the absence of menstruation despite a correctly fitted Kyleena®. The pregnancy was confirmed by a pregnancy test, although this is a rare event. An ectopic pregnancy should be taken into account in women with an IUD who experience unclear lower abdominal pain.
A single-centre study about the safety, practicability and acceptance of “Vibwife One”, a new medical device to support delivering women in their mobilization: an interim analysis

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Introduction: “VibWife One” is a newly designed mattress that fits on delivery beds with the idea to support the mobilization of laboring women. Different movements, adjustable in pace and intensity can be chosen. So far, some data have highlighted the positive impact of active mobilization during labor. “VibWife One” has never been tested in a clinical scenario. Therefore the aim of the study was to analyze its safety, practicability and acceptance in a low risk population.

Material and Methods: 50 women were recruited during the first stage of labor with a minimum of 4 cm dilatation. The first five women used the device for 10 minutes, the following 10 women for 20 minutes and the remaining 35 women for 30 minutes. The women’s vital signs, fetal heart rate (CTG), adverse events (AEs) and adverse device effects (ADEs) were recorded during and 30 minutes after the intervention. The women's pain intensity was recorded using the visual analog scale (VAS). Women’s and medical staff’s experiences and preferences on the device were evaluated using questionnaires with Likert scale. The study was approved by the ethical committee (EKNZ) and informed consent was obtained. An independent review board constituted of an experienced obstetrician, a midwife and a clinical expert midwife examined all AEs for relation to the study device.

Results: We report the interim analysis of the first 30 women. 13 of the 30 women experienced one or more AEs, which resulted in a total of 20 AEs. The AEs were distributed as follow: 11 blood pressure modification (hypo- or hypertonia), four CTG abnormalities, three cases of nausea, one woman with tachycardia, one spontaneous rupture of membrane. For 18 of the 20 AEs, the relation to the study device was rated as unlikely or unrelated and no action had to be taken. One case of nausea and one case of suspicious CTG were rated as potentially related to the study device. 19 of 20 AE’s were rated as mild. There was one ADE. The pain levels on the VAS did not reveal any clear tendency. The women and the medical staff indicated an excellent satisfaction with the product.

Conclusion: In this interim analysis, the use of the medical device “Vibwife One” was estimated as safe for laboring women and their fetus. AE’s were mostly related to the labor progress itself. The benefit of its use should be further evaluated.
Manchester-Fothergill Procedure: Revival of a Reliable Method for Uterine Preservation

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Introduction: The Manchester repair was first described by Donald 1908 and later modified by Fothergill. Especially women with pelvic floor disorder wanting to retain their uterus and avoiding a change of their physical integrity native tissue repair with uterus-sparing surgery is crucial. Furthermore the operation time is shorter compared with other methods to repair uterus prolapse.

Case report: A 65-year-old women suffered from pelvic floor defect with uterine prolapse, cystocele and rectocele, POP-Q stage III with decreasing quality of life. Because of the co-morbidity of Alzheimer’s disease the operation time must be as short as possible with minimal neurotoxicity of general anesthetics. She received Manchester-Fothergill procedure combined with anterior and posterior colporrhaphy. First the uterosacral cardinal ligament complexes are identified, clamped and cut. After performing uterine abrasion the cervix was amputated. The amputed cervix is recovered posterior by Sturmdorf suture leaving the cervical canal open. After having elevated the bladder by Breisky retractor the uterosacral cardinal ligament complexes are attached overlapping to the anterior cervix followed by anterior Sturmdorf suture to cover the cervix by vaginal mucosa. The result is an anteversion and elevation of the uterus. Afterwards the anterior and posterior colporrhaphy was performed. The postoperative time was uneventful and the quality of life increased.

Conclusion: The vaginal uterus-sparing approach by native tissue repair without implantation of mesh is becoming increasingly popular again. The advantage is not only uterine preservation but also a short operation time and a low complication rate, especially when the patient is multimorbid.
Eccrine spiradenoma of the breast: a rare entity

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Introduction: Eccrine spiradenomas are rare, benign, well-differentiated, adnexal neoplasia which commonly arise from sweat glands of head, neck and trunk. Most spiradenomas occur between the ages of 15 to 35. We present the case of eccrine spiradenoma in a 68-year-old woman with a history of a singular palpable breast nodule. Eccrine spiradenoma of the breast is considered an extremely rare diagnosis with only a few published cases.

Case: We present the case of a 68-year-old patient nulligravida with a history of a small lesion protruding into the skin of the upper inner quadrant of the right breast. This lesion has been present for the past 20 years. Recently, the lesion enlarged with increasing symptomatology, particularly pain. Mammography and ultrasonographic imaging reveal a 26 mm wide well circumscribed, superficial, oval mass in the right breast at 1 o'clock (BI RADS IVa). The patient has no other past medical history involving the breast and reports no family history of breast cancer. A needle core biopsy was performed and shows a papillary lesion of unknown malignancy potential (B3 classification). An excisional biopsy of the right breast lesion revealed a beige well circumscribed lobulated mass without invasion into the surrounding tissue that arises from the subcutaneous and cutaneous layers. Microscopically, the lesion displays a fibrotic outer layer with gnarled growing lobulated tumors; intratumorally there are a moderate number of lymphocytes, few mitoses, and no infiltrating growth pattern. The typical receptors for breast cancer have not been tested. Due to the rarity of this pathology, especially in the breast, a second evaluation through another pathological institute was performed, thereby confirming the diagnosis of benign eccrine spiradenoma.

Discussion: Spiradenomas usually arise on the head, neck, and trunk. Eccrine spiradenomas are benign tumors; malignant transformation potential has been reported on only one occasion. even more for tumors arising in the breast. In our literature review we found only a few case reports of benign eccrine spiradenomas in the breast. Although spiradenoma is considered a benign adnexal neoplasm with low recurrence rate, malignant transformation can occur in long-standing lesions, particularly in patients over the age of 50. Complete surgical excision of spiradenomas is therefore recommended.
Rare conditions associated with Polyhydramnios - Treacher Collins syndrome: a case report

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Introduction: Polyhydramnios is a controversial condition - very well-known, but observed in only 1% of pregnancies. It can have many different causes but in most cases none is identified. Besides the popular - maternal diabetes, oesophageal atresia, Bochdalek’s hernia and renal disorders - there are other rare genetic disorders causing polyhydramnios like Treacher Collins or Pierre Robin syndrome, which could easily be missed if not known. These disorders are characterised by deformities of the ears, eyes, cheekbones and chin leading to breathing, hearing and seeing problems.

Materials and Methods: We report a case of a woman with polyhydramnios detected during the last weeks of pregnancy due to a rare genetic disorder of her unborn child.

Results: A 36-year-old primigravida with an unremarkable personal and family history and healthy pregnancy was referred to our department at 40+0 weeks of gestation due to increase in amniotic fluid over the preceding 4 weeks, with accentuation over the days leading up to referral. At admission, ultrasound showed an AFI of 25 and facial abnormalities including micrognathia. Pierre Robin syndrome was suspected. Because of the risks of vaginal delivery and the uncertainty around fetal diagnosis, a Caesarean section was recommended and a special team was arranged for the birth. A complication-free C-section was performed and a baby boy, 3450g, 50cm, was born with an APGAR 4/7/8, pHa 7.34, pHv 7.37 and O₂-saturation 80%. The infant indeed presented with micrognathia and showed signs of respiratory distress syndrome at birth along with choanal atresia, atresia of the external auditory canal, and hypospadia. The child was intubated and transferred to a University Hospital with a Neonatological Intensive Care Unit.

Conclusion: Although in most cases of polyhydramnios the exact cause of increased amniotic fluid cannot be identified, it is extremely important to be aware of this condition and the possible causes, as advanced preparation and immediate treatment are essential to optimizing patient outcome.

Outcome: After two months of therapy and reconstructive surgery the baby boy was discharged from the hospital in a good general condition and with the suspected diagnosis of Treacher Collins syndrome. Genetic testing is still outstanding.
Lymphangioma of Fossa Obturatoria Mimicking Ovarian Cyst

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Introduction: Cystic lymphangioma is a rare, slowly growing and benign vascular tumor of the lymphatic system, normally seen in children. The incidence of abdominal lymphangiomas is unknown. Retroperitoneal lymphangiomas are very rare (1% of all abdominal lymphangiomas). It mainly occurs in the head and neck region and less frequently in the mesentery, the gastrointestinal tract, the spleen, the liver or the pancreas. Sometimes they are asymptomatic, but they often become symptomatic due to their size. In radiological examinations they are often mistaken for other cystic tumors. The differential diagnosis is wide and includes malignant tumors. Total surgical excision with histologic examination is the recommended treatment to confirm the diagnosis and to ameliorate the symptoms. After complete surgical excision the prognosis is excellent. Congenital anomaly is the most accepted theory of the origin of cystic lymphangioma.

Case report: A 65-year-old women reported with the incidental finding of a 4cm thin walled cystic formation containing hypoechogenic fluid in the adnexal region by transvaginal ultrasound. The patient suffered from multiple sclerosis and had a history of abdominal hysterectomy. With the suspicion of ovarian cyst bilateral laparoscopic adnexectomy was recommended. Intraoperatively both ovaries appeared inconspicuous. In the left fossa obturatoria near the obturator nerve a thin walled cystic formation was found retroperitoneally. Complete laparoscopic excision of the unilocular cystic formation containing clear fluid was performed. The histological finding diagnosed a benign cystic lymphangioma.

Conclusion: The retroperitoneal cystic lymphangioma is a rare tumor of the lymphatic system without malignant potential. In our case the tumor was an incidental finding and preoperatively mistaken for an ovarian cyst. Often the tumor is only diagnosed when it becomes symptomatic because of it’s size. For diagnosis ultrasound is useful, however CT or MRI could be performed. Complete surgical excision is recommended to reduce the risk of recurrence. To confirm the diagnosis histologic examination is mandatory.
Benign epithelial inclusions in pelvic lymph nodes mimicking malignancy: a case report

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Introduction: Benign lymph node inclusions are commonly encountered during surgery for gynecologic neoplasm and are potential mimics of metastatic tumors. We report the case of a patient with a personal history of an adenocarcinoma of the lung and a suspicious adnexal mass. After surgery, the mass initially diagnosed as a metastatic tumor resulted to be an obturator lymph node with endocervicosis and inflammatory-reactive atypia.

Material and Methods: We report the case of a 66-year-old woman with a hypermetabolic lesion of the left adnexa and hypermetabolic lymph nodes close to that lesion in FDG-PET/CT performed as routine follow up. She had a personal history of liposarcoma of the thoracic wall 7 years ago, and a history of non-small-cell carcinoma of the lung (UICC-Stadium IIB) 4 years ago. The patient was asymptomatic and there were no signs of local recurrence or lung metastasis. A transvaginal ultrasound confirmed a 3.3x2.8cm unilocular solid mass of the left adnexa with central colliquation. The IOTA ADNEX risk model indicated a higher absolute risk for a borderline tumor of the ovary (9.7%). Differential diagnosis included distant metastasis, borderline ovarian tumor, ovarian cancer or an inflammatory reaction.

Results: Surgical excision was performed with laparotomy, salpingo-oophorectomy on the right side, hysterectomy, adhesiolysis and removal of bulky lymph nodes of the left external iliac artery and the left fossa obturatoria. She underwent left salpingo-oophorectomy for a benign lesion in the past. Frozen section was not conclusive, but suggested the presence of malignant glandular cells in 4 of 9 left pelvic lymph nodes with a maximum diameter of 4mm. Immunohistochemical analysis excluded lung cancer metastasis. The final histology concluded on an endocervicosis of the pelvic lymph nodes with proliferation and inflammatory-reactive atypia and no further therapy was needed. Ten months post-operative, the patient is doing well with no evidence of disease recurrence.

Conclusions: Benign müllerian inclusions can commonly be found in all pelvic and para-ortic lymph node regions. A close histological and immunohistochemical examination is essential to distinguish them from metastatic adenocarcinoma.
Don’t hurry up: the intrauterine device will move upward!

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Introduction: Ultrasound evaluation of intrauterine device is the most used method of evaluation necessary after its insertion in order to ensure the normal positioning. In our hospital, this ultrasound is performed 6 weeks after the insertion. The ultrasonographic measurements used as reference are: if the distance T-Shaped IUD and fundus is under 5 mm or IUD-myometrium between 5 and under 20 mm. According to the literature, over 2/3 of misplaced IUDs at time of insertion have readjusted their position after 3 months. Our study aims to investigate the right moment of ultrasound evaluation after the insertion of IUDs and to evaluate if the routine use of ultrasound control is mandatory.

Material and Methods: A case report and revue of literature

Case presentation: A 29-years-old –female 3G1P benefited a T-shaped IUD 6 months after delivery. According to our protocol, after 6 weeks after its insertion, an ultrasound evaluation was performed. The distance IUD-fundus was 10 mm and she was asymptomatic. An ultrasonographic control was proposed 3 months later after its insertion. This last ultrasound revealed the presence of IUD correctly located (distance IUD –fundus à 4 mm).

Results: Faundes et al observed that 2/3 of the “misplaced IUDs” at DIU insertion, will move upward after three months and will be in place. Also, they don’t recommend the systematic use of ultrasound to check IUD position in asymptomatic patients. Morales J. observed in his study that the 97 % of malpositioned IUDs are move upward after the insertion. The myometrial contractions is possibly explain this change, that’s why in his study 100% of IUDS moved upward in women with 0-1 children (mean upward movement was 7.4 mm) in comparison with 93.7 % of the IUDS in women with 2-3 children. The finding of two studies support that 97 % of T-Shape IUD are automatically move upward after the insertion, that’s why in case of a malpositioned IUD in an asymptomatic patient, we don’t have to remove the IUD but to propose an ultrasound in 3 months.

Conclusion: The management of a malpositioned t-shape IUD is a common problem in our everyday practice. Before taking the decision to remove the IUD, considering the discomfort and the psychological impact of this decision in our patients in combination with the high risk the risk of unwarranted pregnancy if contraception is discontinued. This is the reason why we propose to perform a pr
Changes in axillary lymph node management in the post-Z0011 era - A single center analysis -

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Introduction: The publication of the results of the ACOSOG Z0011 Trial lead to the most important changes in breast surgery in the last decade. In clinical node negative patients with T1-2 tumors and breast conserving surgery followed by adjuvant radiotherapy and 1-2 macrometastasis in sentinel lymph nodes (SLN) axillary dissection can be avoided. Adoption of these guidelines should result in a decrease of axillary dissection. But some breast surgeons may feel uncomfortable with a macrometastasis if only one sentinel node is removed. The aim of our work was to analyse the changes in axillary lymph node (LN) management from 2011 to 2018.

Material and Methods: Retrospective analysis of data from patients with primary BC treated at the university hospital of Berne during two periods: 2011-2013 and 2016-2018. Patient’s and tumor characteristics, results of the preoperative work-up of the axillar LN status, type of axillary surgery, number of removed LN and definitive pathological results were determined.

Results: Complete Data set of 694 consecutive patients could be analysed. 42.5% fulfilled the inclusion criteria of the Z0011 Trial. 8.5% had ≤2 macrometastasis in the LN and could have been treated according to the new guidelines. There was a clear decrease of axillary dissections in our cohort from 36.7% in 2011 to 6% in 2018. We found a trend to remove more LN since Z0011 criteria were applied; In 2011 a median of 1.6 axillary LN was removed compared to 2.1 in 2018 but the difference was not statistically significant.

Conclusion: The application of the results from the ACOSOG Z0011 trial leads to a decrease in axillary dissection. This will be important in the training of young breast surgeons. Some surgeons may feel more comfortable with positive SLN if more than 2 nodes are removed. In our cohort there was an increase in the number of SLN.
Different sexual-romantic orientations have the same reasons for desire to have children but different prevalence for the desire itself

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The main question of this study was to assess if statements about the desire for children were rated the same by different sexual-romantic orientations. Previous studies showed that homosexual rated statements generally lower. However, there is no study investigating the sexual-romantic orientation or any other orientation than homosexuals versus heterosexuals.

The study was a monocenter cross-sectional non-interventional cohort survey. During two months people anonymously rated in an online questionnaire statements that might influence their desire for child. The online questionnaire comprised general questions about the participant’s background, a validated questionnaire about the desire to have children (“Leipziger Kinderwunschfragebogen”), and additional non-validated questions addressing the impact of sexual-romantic orientation and the desire for children. Only adults without children were included. The general questions distinguished the five monogamous orientations: hetero-, homo-, bi-, pan- and asexual with the corresponding romantic orientations.

Of 837 participants, 642 were included into the study. There were four groups of sexual-romantic orientations that consisted of more than 35 people: bisexual-biromantic (n=38), heterosexual-heteroromantic (n=230), homosexual-homoromantic (n=159) and pansexual-panromantic (n=55). The prevalence of desire for children varied between 53.46% (homosexual-homoromantic) and 84.55% (heterosexual-heteroromantic). Non-heterosexual-heteroromantic participants rated statements that supported a desire for having children lower and those with possible problems higher than heteronormatives. The corresponding subgroups with participants with a desire to have children showed a very similar pattern: The emotional motives seemed more important than social recognition or financial or personal constraints. There were only significant difference between individual statements and not between whole motives. Most people wished a biological child. Only homosexuals-homoromantics and pansexuals-panromantics voted adoption with around 30% as first choice.

In conclusion, all sexual-romantic orientations might have a desire for children and for the same reasons. This should be a topic approached in everyday practice and should enforce the politics to take the desire seriously and adjust laws where necessary. Further research about the realisation of the desire is recommended.
Quality study of a multidisciplinary intervention during pregnancy: Contrepoids® Maternity

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In the maternity department of the Geneva University Hospitals, 10% of pregnant women suffer from obesity. Since July 2016, our department have set up a multidisciplinary program with a doctor specialized in therapeutic education, a dietitian, a psychologist, a physiotherapist, an obstetrician and a midwife, which come together to consult patients. The common goal is to educate couples to a healthier lifestyle, help women to manage weight gain during pregnancy, help them to lose weight after giving birth. After 2 years of activity, this study seeks to measure the impact of the communication around the program, the quality of the exchanges during the appointments and to know the reasons to stop postpartum management.

A satisfaction questionnaire was sent by letter or email to patients followed by the program. A reminder was sent by email 3 weeks later. If there were no response, patients were contacted by phone and the questionnaire was filled during the interview.

Between July 2016 and May 2018, the team met with 214 women. Following the sending of the questionnaire then telephone interviews, the participation rate was 35%. 90% of patients interviewed were advertised the program by the midwives in consultations, 4% by the media and 3% send by their gynaecologists. There are few spontaneous contact even though more than 70% of patients knew that obesity is a risk factor during pregnancy. More than 50% did not know that a lifestyle intervention was possible during pregnancy. Concerning the care received, 97% of patients were satisfied. 80% felt involved in their care, with realistic goals for 67%. 21% continued postpartum follow-up, 25% stopped it for lack of time with a new born, 14% for financial reasons.

Contrepoids Maternity program offers multidisciplinary and longitudinal monitoring of the mother-child relationship in order to educate on dietary rules and prevent family obesity. A systematic reminder in 1 month postpartum is necessary to re-motivate them to follow the program for postpartum weight loss assistance. The financial constraint is a frequent reason for stopping postpartum follow-up, so it would be a progress for patient if the care could be taken care of by the insurance like the care during pregnancy during 1 year post partum.

Contrepoids Maternity program was considered very satisfying by the women who followed it. The development of a local network with a better collaboration of the local practitioners could strengthen participation in postpartum care of the mother and child.
Search for an endometriosis-specific signature in the circulating miRNome and piRNome: towards a non-invasive disease test. A pilot experiment

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Introduction: Endometriosis is a chronic inflammatory disease characterized by the presence of endometrium outside the uterine cavity (ectopic endometrial lesions). The disease is associated with severe pelvic pain (dysmenorrhea, dyspareunia) and/or infertility, both conditions with a strong impact on the quality of life. Gold standard for diagnosis and staging of endometriosis is the direct visualization of lesions at laparoscopic surgery combined with histologic confirmation in biopsies. The development of a reliable non-invasive test remains a top research priority.

Objective: Goal of the project is to search for an endometriosis-specific signature in the circulating sncRNAs (miRNAs and piRNAs) of patients affected by the disease. In this pilot experiment, we assessed the technical feasibility. Specifically, the extraction of sufficient sncRNAs from blood samples (serum and whole blood) for NGS was assessed.

Methods: RNA was purified from freshly sampled whole blood (2 male, 1 female; N=3) according (i) the miRNeasy Serum/Plasma protocol (Qiagen) and (ii) the PAXgene blood miRNA kit protocol (Preanalytix). miRNA/piRNA library construction was performed according the QIAseq miRNA Library Handbook (Qiagen). Library sequencing was performed on a Illumina NextSeq 500 using the workflow as recommended by the manufacturer.

Results: miRNA and piRNA reads in serum samples were ranging from 5'668'074 to 13'440'884 and from 12'897 to 41'099 respectively. In PAXgene whole blood samples sncRNA reads were ranging from 10'116'363 to 35'810'770 and from 227'643 to 1'365'857 for miRNA and piRNA respectively.

Conclusion/Implications: We succeeded in isolating and sequencing small non-coding RNAs (miRNA and piRNA) from both whole blood PAXgene and serum samples. NGS allows discovering novel sncRNAs sequences and therefore overcomes the limitations of current endometriosis-specific biomarker studies with microarray technology, which interrogates only known sequences. Therefore, further investigations combining NGS based approaches and liquid biopsies to identify endometriosis-specific biomarkers should be envisaged.
sFlt-1/PlGF ratio in obstetrical antiphospholipid syndrome

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Introduction: Obstetrical anti-phospholipid syndrome (oAPS) is defined as adverse pregnancy outcome combined with positive anti-phospholipid antibodies (aPL). Preeclampsia (PE), in particular if its manifestation is <34 weeks of gestation, is part of the clinical definition of oAPS and is associated with an impaired angiogenic state characterized by elevated sFlt-1/PIGF-ratio. The aim of this study is to investigate the relationship between oAPS and angiogenic maternal state in PE.

Material and Methods: Women with a history of PE with/without HELLP syndrome who delivered between January 2016 and September 2018 were eligible for this study. Inclusion criteria were: singleton pregnancy, available follow-up after delivery with assessment of oAPS (lupus anticoagulans and/or anti-cardiolipin antibodies and/or anti-ß2 glycoprotein-1 antibodies positivity, 2 assessments 12 weeks apart), and available sFlt1/PIGF ratio at the time of hospitalisation. PE was defined as chronic or de novo hypertension (≥140/90mmHg) with significant proteinuria (≥300mg/24h), or maternal organ dysfunction, or utero-placental dysfunction. HELLP syndrome was assumed when liver enzymes AST/ALT were elevated (≥ 70U/l), the platelets low (≤100G/l), and LDH increased (≥ 600U/L).

Results: During the study period, 76 women met the inclusion criteria (54 cases with PE, 22 PE and HELLP). 21/76 (26.7%) women had positive aPL antibodies. Of those, 14/50 (28%) with classical oAPS and 6/26 (23.1%) with non-criteria oAPS (defined as delivery >34 weeks with pos aPL). The prevalence of oAPS was higher in cases with than without HELLP syndrome (PE/HELLP: 6/13 [46.2%] vs. PE: 8/37 [21.6%]; p=0.15). Median [range] sFlt1/PIGF ratio in cases with oAPS was similar as in cases without oAPS (283.5 [47-1758] vs. 391.5 [35-1536]; p=0.6). However, there was a difference comparing oAPS with (n=6) and without HELLP syndrome (n=8) (568.5 [250-1187] vs. 198.5 [68-832];p=0.08) that turned significant comparing aPL pos cases with and without HELLP syndrome (aPL pos/HELLP: 390 [157-1187] vs. aPL pos/PE: 198.5 [68-832]; p=0.05).

Conclusions: Obstetrical APS is a frequent finding in women with PE before 34 weeks and in particular if associated with HELLP syndrome. Although our low number of cases included into this analysis does not allow a final conclusion, it seems that aPL antibodies worsen the already manifest anti-angiogenic state in women with PE. The association with HELLP syndrome may underline similarities to other thrombotic microangiopathies.
Influenza pneumonia in pregnancy - an underestimated risk?

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Introduction: Pregnancy is considered to be an important risk factor for severe complications following an influenza virus infection. Therefore, we would like to present this case to show how important the fast and safe diagnosis to established the right therapy and to avoid serious complications.

Case Report: The 40-year old african patient in 21 weeks of gestation presented with diffuse flu symptoms for several days to her family doctor. After unsuccessful therapy the patient was sent to a peripheral hospital with diagnosis of influenza A infection. The condition of the patient decreased rapidly, so that due to respiratory insufficiency intubation was necessary in 23+1 weeks of gestation. Upon admission to our intensive care unit the respiratorically and circulatory unstable patient was in need of catecholamines. Antibiotic therapy was changed and extended by Oseltamivir. Despite intensive therapy, the patient’s condition dramatically deteriorated. With increasing oxygen demand and due to extensive lung findings, the insertion of an ECMO was necessary. For further diagnostics, a wedge resection with atypical resection of the upper and middle lobes was performed. Histology showed promising results so that therapy was continued. After 12 days ECMO could be finally weaned. After extubating the patient showed severe signs of encephalopathy. On the 35th day in hospital she could be transferred to maternity ward. After 46 days the patient was able to be discharged home without any symptoms in 30+1 weeks of gestation. Despite severe maternal instability and extended therapy in pregnancy there were no abnormalities in the fetal growth or development detectable. The further course of the pregnancy was uneventful. With 41+1 gestational weeks a re-caesarean section was performed. The baby girl was healthy with a birth weight of 2880g with normal APGAR and pH-values. In a follow-up 5 months after discharge the patient was symptom-free in every-day life with normal pulmonary function. This is an impressive “restitutio ad integrum”.

Discussion: Behind allegedly common cold symptoms, an influenza infection can be concealed. For this reason, generously a microbiological smear should be taken during pregnancy so that anti-viral therapy can be initiated early to avoid serious complications. It is important that all caring health professionals are vaccinated against influenza and strongly recommend this to their patients.
Lifestyle factors in pregnancy

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Introduction: Gestational diabetes, maternal obesity (BodyMassIndex $\geq$30 kg/m²) and nicotine abuse during pregnancy lead to adverse neonatal and maternal outcome. These lifestyle factors are associated with fetal macrosomia, shoulder dystocia, preeclampsia, stillbirth and neonatal metabolic disturbances [1], [2]. Especially maternal obesity leads to infertility, early pregnancy loss in first trimester of pregnancy and congenital anomalies. Postpartum it is associated with wound complications and thromboembolism. Neonates are at risk to develop childhood obesity and endocrinologic diseases [3]. Smoking causes complications such as low birth weight, preterm delivery, perinatal death and sudden infant death syndrome [4].

Methods: We collected data of 15,664 births at the department of Obstetrics and Gynecology at the Cantonal Hospital St. Gallen, between January 2009 and December 2018. A medical chart review was performed to collect data about gestational diabetes, nicotine abuse and maternal obesity.

Results: Of the 15,664 childbirth, 4,847 cases showing either gestational diabetes, maternal obesity or nicotine abuse. In total, there are 1,497 (9.6 %) cases of gestational diabetes, 1,865 (11.9%) of nicotine abuse and 1,485 (9.5%) of obesity. Comparing all data sets between 2009-2013 and 2013-2018, data show an increasing rate of gestational diabetes (5.5% vs. 12.8%), almost steady rate of maternal obesity (9.6% vs. 9.4%) and a slightly decreasing rate of smoking tobacco (13.5% vs. 10.6%). Between 2009 and 2013 women with gestational diabetes were in 36 % obese (BMI $>$30kg/m²) whereas between 2013 and 2018 only 24% were obese.

Conclusion: Over the last ten years, the diagnosed rate of gestational diabetes increased after the changed screening with oral glucose tolerance testing (oGTT) which was introduced after the HAPO study 2008. Our data show that the screening with oGTT helped to diagnose patients with a lower risk profile (BMI $<$30kg/m²). Nevertheless, it was and is still important to raise the patient’s awareness for the importance of lifestyle factors in pregnancy and the knowledge and recommendations of estimated weight gain during pregnancy. All this factors do not only influence the short period of pregnancy, but also the future of the unborn child within the meaning of fetal programming.