**Prediction of intrapartum hysterectomy in patients with placenta praevia after previous caesarean section**

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**Objective**
To predict risk of intrapartum hysterectomy by ultrasound in patients with placenta praevia and history of a caesarian section. To define a group of patients with high risk of intrapartum hysterectomy. To evaluate benefits of MRI compared to ultrasound.

**Methods**
Retrospective cohort study running at a perinatal center with over 5000 deliveries per year. Data comes from pregnancies with placenta praevia after previous caesarean section, who delivered by elective caesarean section between January 2006 and December 2014. Expert transabdominal, tranvaginal ultrasound and MRI examinations were performed in all cases. All patients had an elective caesarean section between 35 and 37 weeks of gestation. Midline laparotomy, extraplacental hysterotomy, extraction of the fetus and bilateral ligation of hypogastric arteries were performed. Attempt to separate placenta followed. In cases where placenta did not separate, in cases of uterine atony or severe bleeding hysterectomy followed. Intraoperative findings were documented. Histological findings are available from all cases requiring caesarean hysterectomy.

**Results**
We diagnosed 27 cases of placenta praevia after previous caesarean. In 10 cases normal myometrial layer was visible on ultrasound (Group A). In 17 cases absence of myometrium was detected (Group B). In Group A – uterus preserving surgery was possible in 5 of 10 cases (50 %). In Group B – hysterectomy was performed in 16 of 17 cases (94 %). Uterus was preserved in 6 of 27 cases total (22 %). Placental sites with loss of myometrium were evaluated histologically. MRI did correlate with ultrasound findings, but did not bring further insight.

**Conclusion**
Loss of myometrial layer has a good positive predictive value and can be used as a predictor for patients in high risk of caesarean hysterectomy. However the negative predictive value is rather low, we were not able to exclude hysterectomy due to other possible caesarean complications. Routine use of MRI does not add additional information. Expert ultrasound examination alone brings satisfactory information about patients with placenta praevia after previous caesarean.