

prospectively assembled cohort of women with previous Caesarean delivery and third trimester placenta previa.

**Methods:** Women with anterior placenta previa (placenta covering internal os or edge within 2.0 cms  $\geq$  36 weeks) were identified from electronic records of fetal medicine unit. The previous obstetric history was reviewed. Women with a low posterior placenta and those referred from other hospitals were excluded from the analysis. The diagnosis of invasive placentation was confirmed at histopathology or from the operating records, and was matched with records of all women with invasive placentation to identify undiagnosed cases. Predictive accuracy of third trimester ultrasound in detecting these disorders was calculated as sensitivity, specificity, positive (PPV) and negative (NPV) predictive values, and positive (LR +ve) and negative (LR -ve) likelihood ratios were generated.

**Results:** In a routinely screened population, 134 women with placenta previa in the third trimester or low anterior placenta  $\geq$  36 weeks were identified. 53 of these had a history of at least one Caesarean section. Nine women were diagnosed with invasive placentation. None of the women where the placental edge did not overlap the internal os had invasive placentation. In the 23 women where the placental edge overlapped the internal os, invasive placentation was found in nine women (39.1%, 95% CI: 22.1 to 59.3%). Predictive accuracy of third trimester ultrasound was as follows: sensitivity: 88.9%, specificity: 80.0%, PPV: 72.7%, NPV: 92.3% , LR +ve: 4.4, LR -ve: 0.14.

**Conclusions:** In women with previous Caesarean delivery, invasive placentation is unlikely to be encountered unless the placental edge completely covers the internal os. In this sub-group of women, the incidence of disorders of invasive placentation 39%, and is higher than previously reported. Prenatal dedicated ultrasound assessment of these pregnancies is warranted in order to accurately identify these conditions.

#### P25.04

##### Effect of transducer frequency on myometrium thickness measurements: a feasibility study to improve accuracy

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**Objectives:** With advancing fetal growth, the lower uterine segment thickness decreases physiologically. Several papers and meta-analyses focused on the subject of sonographic measurement of the lower uterine segment (LUS) thickness (Kok et al. 2013) and the risk of uterine rupture during trial of labour after caesarean section (TOLAC).

The observed values range in a similar scale as NT-measurements, with similar issues of reproducibility and accuracy of measurement results. Clinical utility depends on quality and standardization of measurement technique (Kok et al. 2013). Our objective was to evaluate the effect of the ultrasound frequency of the transducer on myometrium thickness measurements.

**Methods:** Myometrium thickness was measured transabdominally with urinary bladder partially filled and localization of the thinnest area using a conventional abdominal transducer (5-2 MHz) followed by repetition of the measurement with a high-frequency linear transducer (12-5 MHz) in 28 patients with history of previous caesarean section (age 26 - 41, gestational age 30 - 40 wks.). The results were compared using Wilcoxon signed-rank test.

**Results:** Identification and discrimination of the different tissue layers as well as the margins of the myometrium and positioning of callipers was better feasible using the high-frequency transducer. Additionally, the measurement results were significantly thicker (mean 0.3 mm.) than with the conventional transducer.

**Conclusions:** Using a high-frequency transducer, identification and discrimination of the LUS myometrial margins was better feasible. Assuming a suggested cut-off of 2.0 mm, a thickness difference of 0.3 mm would have clinical relevance.

#### P25.05

##### Potential risks associated with an ultrasound examination: a microbial perspective

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**Objectives:** To compare the efficacy of current methods used in cleaning both TA and TV transducers & identify any microorganisms found on the transducers, ultrasound machine or coupling gel.

**Methods:** This study was performed at two sites, a public hospital & a private practice. Sterile swabs were taken of the surface & cord from multiple TA & TV probes & ultrasound machine keyboards. Probes were swabbed pre & post-patient use following both high-level disinfectant (HLD) & / or isopropyl alcohol wipe treatment. Coupling gel was sampled from various conditions such as new & old bulk storage, reusable bottles as well as cold & reheated gel. Analysis was performed using a combination of PCR & MALDI-TOF.

**Results:** 150 swabs from TA & TV probes, cords, keyboards & gel were qualitatively assessed for microbial growth. Using a combination of PCR & MALDI-TOF analysis, a variety of skin microflora (*Micrococcus* sp), environmental organisms (*Bacillus* sp) & opportunistic pathogens (*Enterococcus* sp, *Brevundimonas* sp, *Acinetobacter* sp) were isolated. The TA probes were a higher source of microbial contamination compared with the TV probes following both HLD & wipe treatment. Isopropyl alcohol wipes were shown to be effective at disinfecting both TA & TV probes post patient examination. A confluent growth of *Brevundimonas* sp was identified in the reheated gel compared to the unheated gel.

**Conclusions:** Current Australian regulations stipulate that TV probes must be cleaned with a high level disinfectant however TA probes may be cleaned with an alcohol-based wipe. This study indicated that TA probes were a higher source of microbial contamination compared with the TV probes. The ultrasound machine including keyboard & cords are often neglected & may pose as a source of microbial contamination. High microbial growth within the reheated gel indicates that warm gel is an environment for the growth of potential pathogenic microorganisms. This study illustrates that current guidelines regarding the risk of infection from ultrasound gel should be reviewed.

#### P25.06

##### Ultrasonic evaluation of a scar on uterus in primiparous women 6 weeks, 6 months and 1 year after Caesarean section

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**Objectives:** Quality of a scar after Caesarean section is important particularly with regard to possible complications during the following pregnancy.

**Methods:** In this prospective cohort study 6 weeks, 6 months and 1 year after Caesarean section patients undergo 3D ultrasound examination of the uterus. We evaluate the type of the scar and its location in uterus. We analyse obstetric data related to the Caesarean section.