

Beyond diagnosis: Bridging the gap between ultrasound markers of placenta accreta spectrum and major maternal morbidity. EP16.50

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OBJECTIVES

Placenta accreta spectrum (PAS) is associated with substantial maternal and neonatal morbidity due to planned early delivery and severe obstetric haemorrhage and complex pelvic surgery. Standardised ultrasound descriptors have been previously proposed to improve antenatal diagnosis of PAS; however, their ability to predict adverse maternal outcomes is less well defined. This study aimed to evaluate the associations between recognised PAS ultrasound markers and the risk of major maternal morbidity.

METHODS

We conducted a retrospective cohort study of women with PAS who delivered at our tertiary referral centre between (2024-2025). Antenatal ultrasound examinations were reviewed for the presence of the recognised PAS descriptors at the time of initial diagnosis. The presence of placental loss, extensive loss of myometrial-uterine interface, placental thickness, and cervical invasion and Major placenta praevia was assessed. Major maternal morbidity (MM) was defined as at least one of the following: major obstetric haemorrhage (>2L), admission to the intensive care unit(maternal), or intraoperative visceral injury.

STATISTICS

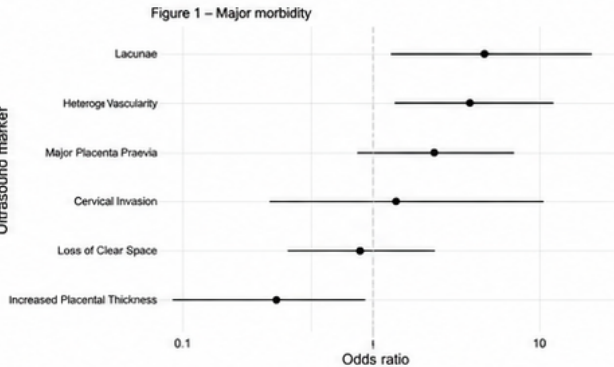
A multivariable logistic regression was fitted with all six sonographic markers entered simultaneously as covariates, so that each marker's association with the outcome was estimated independent of the other five. Model coefficients (log-odds) were exponentiated to produce adjusted odds ratios (aOR), with 95% confidence intervals calculated as $\exp(\text{estimate} \pm 1.96 \times \text{standard error})$. Statistical significance was assessed using Wald test *P*-values from the fitted model, with the threshold set at $p < 0.05$. All statistical analyses were performed using R (R Core Team), with the multivariable logistic regression fitted using the `glm()` function (binomial family, logit link).

RESULTS

Major morbidity (MM) as defined in our methods was experienced by 71(73%) of the cases, more specifically 73% had an outcome of massive obstetric haemorrhage, 12 (12.5%) had an outcome of visceral injury and 15 (15.6%) required maternal ITU admission. All the patients who either had visceral injury or required maternal ITU admission also experienced massive obstetric haemorrhage.

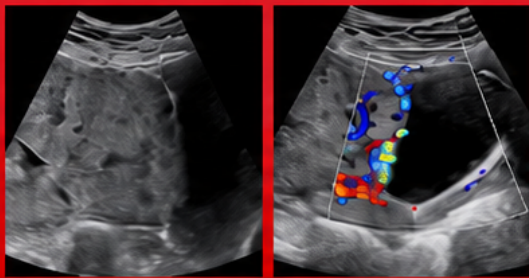
Given the modest sample size ($n=96$) relative to the number of predictors (6 covariates plus intercept), the model used a forest plot to summarise the estimated odds ratios with confidence intervals rather than raw coefficients, to highlight the associations. Findings should be treated as hypotheses, generating given the sample size constraints.

The model is displayed as a forest plot (Figure 1) on a log-scaled x-axis, with points representing the aOR for each marker and horizontal lines representing the 95% CI. The reference line at $OR=1$ indicates no association.



CONCLUSION

Specific ultrasound markers of PAS, particularly those reflecting anticipated surgical complexity, are associated with increased risk of major maternal morbidity. Incorporation of these descriptors into antenatal assessment and most importantly counselling, may improve risk stratification and support multidisciplinary planning for delivery at an individual basis. Results should be validated in an external cohort with larger numbers.



STUDY POPULATION

N = 96

MATERNAL & OBSTETRIC CHARACTERISTICS

Maternal age, years 34.5 ± 5.2	BMI, kg/m² 28.0 (24.0–32.0)
Gravidity 3 (2–5)	Parity 2 (1–2)
GA at diagnosis, weeks 29.0 (27.1–32.5)	GA at delivery, weeks 36.0 (35.0–37.0)

PREVIOUS CAESAREAN SECTIONS

95% women (99.0%) had ≥1 previous CS

Previous CS	n	%
0	1	1.0%
1	49	51.0%
2	30	31.3%
3	12	12.5%
4	3	3.1%
5	1	1.0%

1–2 previous CS: 79/96 (82.3%) ≥3 previous CS: 16/96 (16.7%)

ETHNICITY

Ethnic group	n	%
White	57	59.4%
Asian	15	15.6%
Black	10	10.4%
Mixed	1	1.0%
Other / not stated	13	13.5%

Data are presented as mean ± SD, median (IQR), or n(%), as appropriate.
GA = gestational age, BMI = body mass index, CS = caesarean section.