Always be vigilant for placenta accreta

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Perhaps there is no greater obstetrical surgical challenge than that of managing a delivery complicated by placenta accreta. Placenta accreta results from a defect of the decidua basalis, which allows invasive placental implantation into varying depths of the myometrium, thus preventing normal separation of the placenta from the uterine wall at the time of delivery.

Even when suspected, placenta accreta in whatever form (accreta, increta, or percreta) challenges the skills of the operating surgeon and assistants as well as those of the anesthesiologists, nurses, blood bank, perfusionists, and interventional radiologists involved in the management of such cases. When such placental pathology is encountered unexpectedly, these challenges and associated maternal complications increase markedly. Placenta accreta risks include a 7% maternal mortality rate as well as maternal morbidity related to the massive transfusion of blood and blood products, infection, venous thromboembolism, injury to bowel, bladder or ureters, and subsequent fistula formation.

The incidence of placenta accreta has increased 10-fold over the past 50 years occurring in 1 of every 2500 deliveries. Because this pathology appears to be primarily driven by the cesarean delivery rate, the frequency of this complication is likely to be increasing further. Awareness of such complications and their further complexity when placenta accreta is unexpectedly encountered has led efforts to accurately identify this placental abnormality in advance of delivery.

Rarely reported in patients without identifiable risks, the majority of pregnancies complicated by placenta accreta have one or more clinical findings or surgical histories. These specifically include a current pregnancy complicated with a placenta previa in a patient with or without a history of uterine surgery (cesarean delivery, myomectomy, hysteroscopic removal of submucous fibroids or adhesions, cornual resection of ectopic pregnancy, and dilatation and curettage) and maternal age greater than 35 years.

It appears that the greater risk factor remains that reported by Clark et al. Namely, in patients with a history of cesarean delivery and whose current pregnancy is complicated with placenta previa, there is a markedly increased risk of the pregnancy being further complicated by placenta accreta. Others have confirmed that in patients with placenta previa but no prior cesarean deliveries, the risks for placenta accreta is 5%. However, this risk for accreta increases to 20% in patients with 1 prior cesarean delivery and placenta previa in the current pregnancy. For patients with placenta previa and 2 or more prior cesarean deliveries, the risk of placenta accreta is 40% or greater.

Beyond the relevance of these specific clinical risk factors, others have suggested that antenatal ultrasound may be of added value in the identification of the presence or absence of placenta accreta. Using gray-scale and color Doppler techniques as well as real-time and 3-dimensional imaging, ultrasound for placenta accreta has been reportedly associated with a sensitivity of 83% and a specificity of 95% with associated strong positive and negative predictive values. Magnetic resonance imaging has more recently been utilized in efforts to accurately identify placenta accreta. Although such reports are hampered by relatively small numbers of cases, the reliability of the predictive values reported are also likely to be biased by the availability of the clinical history of the patient and the indication for the examination as well as the operative decisions made in the management of the patient. In this month’s issue of the Journal, Bowman et al attempt to answer the question of how well ultrasound predicts the presence or absence of placenta accreta when the ultrasound interpretation is performed by individuals blinded to any patient-specific clinical information. Fifty-five women with a documented clinical or histopathological diagnosis of placenta accreta were compared with a control group of 56 women having placenta previa but clinically diagnosed to not have placenta accreta. Patients were included only if they had available ultrasound images of the placenta at a gestational age of at least 16 weeks, resulting in 116 studies for review in the 55 cases of accreta and 113 studies for review in the 56 cases of previa without accreta.

These 229 ultrasound studies were then randomly sequenced and independently reviewed by 6 experienced clinicians, 3 radiologists, and 3 maternal-fetal medicine specialists blinded to the indications for testing or patient history. The reviewers were asked whether a diagnosis of placenta accreta could be made, to rate the image quality, and to score their degree of confidence in the interpretation rendered. In the 87.7% of studies for which a diagnosis was given, the characteristics of ultrasound as used in this report for placenta accreta had a sensitivity of only 62.8% and a specificity of 86.8%, with a positive predictive value of 82.1% and negative predictive value of 70.8%. Furthermore, a multivariate analysis using stepwise regression of ultrasound...
findings positively associated with placenta accreta revealed significant associations of accreta with placental lacunae, loss of retroplacental clear space, an irregular bladder wall, and abnormalities of color Doppler.

Although this report suggests that ultrasound as a predictor for placenta accreta may not be as sensitive or specific as previously reported, such results are not surprising because this clinically blinded evaluation did not include cine clips, 3-dimensional imaging or real-time recordings. Furthermore, as the authors note, the type and duration of the ultrasound performed is affected by the clinical information available, which likely influences the interpretation of the test.

Perhaps the most concerning aspect of this report is the false-negative rate of 18.3%. This suggests that almost 1 in 5 ultrasounds in patients ultimately identified with placenta accreta would have been misdiagnosed antenatally. Although the authors do not report on the degree of concordance among the 6 reviewers or what the original antenatal ultrasound diagnoses were in these patients, assuming this important misdiagnosis is not attributed to an individual outlier highlights the importance of not relying entirely on a negative ultrasound when one clinically suspects placenta accreta.

False-positive interpretations result in a case in which accreta may be a clinical concern but turns out to not be present. False-negative readings may lead to a circumstance with unanticipated complex or tragic consequences. Caution must be exercised in cases in which there are any clinical risks for placenta accreta despite the ultrasound reading.

The conclusion of this report is that antenatally diagnosing placenta accreta accurately using ultrasound alone is a challenge. When placenta accreta is suspected, the imaging information should be considered as an adjunct to the clinical history and the intraoperative findings. Ultimately, the diagnosis of placenta accreta is a surgical diagnosis. Although the management of placenta accreta is both diverse and challenging, the diagnosis generally is not. Indeed, the intraoperative diagnosis can be made in a manner stated by Supreme Court justice Potter Stewart in attempting to define obscenity, “I know it when I see it.”

In summary, every effort should be made to appropriately suspect placenta accreta before delivery. This allows for appropriate triaging of patients to facilities best able to manage these daunting surgical cases. Such centers need an experienced team dedicated to the care, timing of delivery, and coordinated surgical management and recovery required to mitigate the risks of morbidity and mortality associated with pregnancies complicated by placenta accreta. Every clinician charged with the care of a pregnant woman should be mindful of the risks and challenges of this potentially tragic obstetrical complication.

REFERENCES