

Placenta Accreta Spectrum: A Comprehensive Clinical Review

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I. INTRODUCTION

Placenta Accreta Spectrum (PAS) disorders represent a significant obstetric challenge, characterized by abnormal adherence of the placenta to the uterine wall. The spectrum includes placenta accreta, increta, and percreta, differentiated by the depth of placental invasion. The rising incidence of PAS correlates with increasing cesarean delivery rates, making it a growing concern in maternal-fetal medicine.

Early diagnosis and multidisciplinary management are crucial to mitigate the associated risks, which include severe hemorrhage, hysterectomy, and maternal morbidity and mortality. This review aims to provide an updated overview of PAS, encompassing its pathophysiology, risk factors, diagnostic modalities, management strategies, and long-term outcomes.

II. DEFINITION AND PATHOPHYSIOLOGY

PAS disorders are classified based on the depth of placental invasion:

- Placenta Accreta: Superficial attachment of the placenta to the myometrium without invasion.
- Placenta Increta: Deeper invasion into the myometrium.
- Placenta Percreta: Penetration through the uterine serosa, potentially involving adjacent organs like the bladder.

The pathogenesis involves a deficiency in the decidua basalis, often due to scarring from previous uterine surgeries, leading to abnormal trophoblastic invasion. The most favored hypothesis suggests that a defect at the endometrial–myometrial interface allows for this abnormal adherence.

III. RISK FACTORS

Several risk factors increase the likelihood of PAS:

- Previous Cesarean Deliveries: The risk escalates with the number of prior cesarean sections. For instance, the risk of PAS increases from 3% with no prior cesarean deliveries to 11%, 40%, 61%, and 67% for one, two, three, and four or more prior cesarean deliveries, respectively.
- Placenta Previa: When combined with prior cesarean deliveries, the risk of PAS significantly increases.
- Advanced Maternal Age: Women over 35 years are at higher risk.
- Other Uterine Surgeries: Procedures like myomectomy or dilation and curettage can contribute to PAS risk.
- Multiparity: Multiple pregnancies can increase the risk.
- Assisted Reproductive Technologies: In vitro fertilization has been associated with higher PAS incidence.

Understanding these risk factors is essential for early identification and management planning.

IV. CLINICAL PRESENTATION

PAS is often asymptomatic during pregnancy and may only be suspected during routine imaging or at delivery when the placenta fails to separate. However, some clinical indicators include:

- Antepartum Hemorrhage: Unexplained bleeding in the second or third trimester.
- Abnormal Placental Location: Low-lying placenta or previa detected via ultrasound.
- History of Uterine Surgery: Previous cesarean sections or other uterine procedures.

Given the potential for severe complications, maintaining a high index of suspicion in at-risk patients is vital.

V. DIAGNOSTIC APPROACHES

A. Ultrasound Imaging

Transvaginal and transabdominal ultrasounds are first-line diagnostic tools. Key sonographic features suggestive of PAS include:

- Loss of the Hypoechoic Retroplacental Zone
- Presence of Placental Lacunae: Irregular vascular spaces within the placenta.
- Thinning of the Myometrium: Particularly over the placental bed.
- Increased Vascularity: Detected using color Doppler imaging.

Ultrasound has demonstrated high sensitivity and specificity in diagnosing PAS, especially when performed by experienced practitioners .

B. Magnetic Resonance Imaging (MRI)

MRI serves as an adjunct to ultrasound, particularly in cases where ultrasound findings are inconclusive or when posterior placental invasion is suspected. MRI provides detailed information on the depth and topography of placental invasion, aiding in surgical planning .

VI. MANAGEMENT STRATEGIES

Management of PAS requires a multidisciplinary approach, tailored to the individual patient's condition, gestational age, and desire for future fertility.

A. Planned Cesarean Hysterectomy

The standard treatment for PAS, especially in cases of increta and percreta, is a planned cesarean hysterectomy with the placenta left in situ. Attempting to remove the placenta can lead to catastrophic hemorrhage. Delivery is typically scheduled between 34 and 36 weeks of gestation, following administration of corticosteroids to promote fetal lung maturity .

B. Conservative Management

In select cases, particularly where future fertility is desired, conservative approaches may be considered:

- Leaving the Placenta In Situ: The placenta is left undisturbed to allow for natural resorption.
- Uterine Artery Embolization: To control bleeding and promote placental involution.
- Methotrexate Therapy: Although its efficacy is debated, methotrexate has been used to expedite placental resorption.

These approaches carry risks, including infection, delayed hemorrhage, and the potential need for delayed hysterectomy. Therefore, they require close monitoring and are best undertaken in specialized centers .

VII. MATERNAL AND FETAL OUTCOMES

PAS is associated with significant maternal and fetal morbidity and mortality.

A. Maternal Complications

- Massive Hemorrhage: Leading to hypovolemic shock and the need for blood transfusions.
- Injury to Adjacent Organs: Especially in cases of percreta involving the bladder or bowel.
- Infection and Sepsis: Particularly with conservative management approaches.
- Prolonged Hospital Stay and Recovery: Due to surgical complications and the need for intensive care.

B. Fetal Complications

- Preterm Birth: Often necessitated by the timing of planned delivery.
- Low Birth Weight: Associated with preterm delivery.
- Neonatal Intensive Care Admission: Due to prematurity-related complications.

Early diagnosis and planned management in specialized centers have been shown to improve both maternal and fetal outcomes .

VIII. LONG-TERM CONSEQUENCES AND FOLLOW - UP

Women who have experienced PAS require long-term follow-up and counseling:

- Future Pregnancy Risks: Increased likelihood of recurrence in subsequent pregnancies.
- Fertility Considerations: Especially pertinent for those who underwent hysterectomy.
- Psychological Impact: The traumatic nature of PAS and its management can lead to mental health challenges, necessitating psychological support.

Preconception counseling is essential for women with a history of PAS, focusing on risk assessment and planning for future pregnancies.

IX. CONCLUSION

Placenta Accreta Spectrum disorders pose significant challenges in obstetric care, with rising incidence paralleling increased cesarean delivery rates. Early identification through risk factor assessment and imaging, coupled with multidisciplinary management in specialized centers, is paramount to improving outcomes.

While cesarean hysterectomy remains the standard treatment, conservative approaches may be appropriate in select cases but require careful consideration and monitoring. Ongoing research and adherence to updated clinical guidelines are essential to optimize care for women affected by PAS.

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