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Narrative review: severe complications due to placental accreta in a scarless uterus

Narrative review: serious complications due to placental accretism in a uterus without a scar

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Summary

The spectrum of placenta accreta (PA) in non-healed uteri is a rare obstetric complication whose severity lies in its ability to mimic common emergencies, resulting in late diagnoses and high maternal-fetal morbidity and mortality. This narrative review analyzes case studies to elucidate the clinical challenges and propose a paradigm shift in the diagnostic approach. Clinical manifestations are dangerously variable, presenting as acute surgical abdomen, with misdiagnoses of appendicitis or liver rupture, or as refractory massive postpartum hemorrhage, often after attempts to remove a retained placenta. The diagnosis, most often incidental, contrasts with the possibility of prenatal suspicion by ultrasound, even in patients considered low-risk. Emergency hysterectomy or cesarean section remains the main surgical strategy for damage control, resulting in loss of fertility. Maternal outcomes are marked by the need for massive transfusion, while fetal outcomes are associated with prematurity. It is concluded that high diagnostic insight and individualized management in tertiary centers are imperative to optimize outcomes in this often hidden obstetric emergency.

Keywords: placenta accreta, placental accreta, absence of uterine scar

Abstract

Despite its rarity, placenta accreta spectrum in unscarred uteri remains a significant diagnostic blind spot in obstetric care, often revealed only after catastrophic clinical deterioration. This narrative review analyzes case studies to elucidate clinical challenges and propose a paradigm shift in the diagnostic approach. Clinical manifestations are dangerously variable, presenting as an acute surgical abdomen—often misdiagnosed as appendicitis or hepatic rupture—or as massive, refractory postpartum hemorrhage, frequently following attempts at removal of a retained placenta. Diagnosis is most often incidental, in contrast to the potential for prenatal suspicion through ultrasonography, even in patients considered to be at low risk. Emergency cesarean hysterectomy remains the main surgical damage-control strategy, resulting in loss of fertility. Maternal outcomes are marked by the need for massive transfusion, while fetal outcomes are associated with prematurity. It is concluded that a high level of diagnostic surveillance and individualized management in tertiary care centers are imperative to optimize outcomes in this frequently concealed obstetric emergency.

Keywords: placenta accreta, placental accretism, absence of uterine scarring

1. Introduction

The Placenta Accreta Spectrum (PAS), known worldwide as the Placenta Accreta Spectrum (PAS), represents one of the most serious and complex complications of modern obstetrics, being associated with high unpredictability, the need for complex surgical interventions, and impact in-depth on maternal morbidity and mortality. From a pathophysiological point of view, EPA can be understood as abnormalities in placental implantation, in which anomalous adhesion or Excessive invasion of the chorionic villi into the uterine myometrium, compromising the

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Physiological detachment of the placenta after delivery. Management of placental abruption remains challenging, often requiring complex surgical interventions, massive transfusions and, in many cases, peripartum hysterectomy, with a significant impact on future fertility and quality of life of women. patients (SILVER et al., 2006; FIGO, 2018).

Thus, over the years, EPA has been considered a rare condition. However, in recent decades, there has been a significant and consistent increase in its incidence globally. estimating that the frequency has increased from approximately 0.8 cases per 1,000 births in the 1980s, the rate dropped to approximately 3 cases per 1,000 births in contemporary obstetric practice. Various The authors point out that the progressive increase in cesarean section rates plays a central role in this. This phenomenon, although healthcare, demographic, and organizational factors also contribute to it. spectrum expansion (SILVER et al., 2006; JAUNIAUX; BERMAN; BURTON, 2022).

From a pathophysiological perspective, EPA is not limited to an isolated implantation failure, but This reflects a complex process of inadequate endometrial regeneration. The partial absence of the decidua The basal layer and the disorganization of the Nitabuch layer cease to act as a functional barrier, allowing an anomalous interaction between chorionic villi and myometrium. These chorionic villi pass either anchoring directly to the myometrial tissue or invading it in a progressive and uncontrolled manner. The depth of this invasion defines the different clinical forms of the spectrum: placenta accreta, when the villi adhere superficially to the myometrium; placenta increta, when it occurs Invasion of the uterine muscle; and placenta percreta, when the invasion extends beyond the entire thickness. myometrial, and may reach the uterine serosa and adjacent structures such as the bladder, ureters, and intestines. (JAUNIAUX et al., 2018; COLLINS et al., 2019).

The risk factors frequently associated with EPA are well established in literature and include previous uterine surgeries, especially cesarean sections, myomectomies (1-5%) and Uterine curettage (2-3%), placenta previa (1-3%), particularly when implanted over a scar. uterine —, advanced maternal age (2-3x), multiparity, and use of reproductive techniques assisted (3-4x). The concomitant presence of placenta previa and previous cesarean section represents the scenario of the highest known risk, with an exponentially increasing probability of developing The spectrum increases as the number of previous cesarean sections increases (ACOG, 2018; FIGO, 2018).

However, despite the strong association with scarred uteruses, the occurrence of EPA in Uteri without a previous scar constitute a distinct, rare, and still poorly understood clinical entity. but of extreme clinical relevance. In these cases, the absence of classic risk factors contributes due to low diagnostic suspicion during prenatal care, frequently resulting in clinical presentations Unexpected and evolving abruptly. This form of presentation has been described as unexpected. PAS, characterizing situations in which the diagnosis is established only during labor or in the postpartum period, often in the face of serious complications such as massive postpartum hemorrhage, fluid retention.

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refractory placenta, spontaneous uterine rupture, or hemorrhagic shock (JAUNIAUX et al., 2019).

Several case reports and small series described in the literature highlight the character insidious and potentially lethal EPA in unhealed uteruses. Zhang et al. reported a case. placenta percreta in an intact uterus that progressed to spontaneous uterine rupture, simulating a Acute abdominal condition. Garg et al. described massive postpartum hemorrhage after an attempt to... Manual removal of the placenta during vaginal delivery, culminating in an emergency hysterectomy. Additionally, Okaniwa et al. documented a unique case of late uterine rupture in postpartum period, showing that complications of postpartum esophagitis can manifest even after the period. immediate after birth, broadening the time frame of risk and increasing the complexity of clinical follow-up. of these patients (GARG et al., 2016; ZHANG et al., 2018; OKANIWA et al., 2020).

Analysis of these cases suggests that, in the absence of a uterine scar, other mechanisms may be involved. Pathophysiological factors may be involved in the development of EPA, including alterations subclinical endometrial inflammation, defects in decidualization, local vascular disorders, advanced multiparity and possible genetic or molecular factors are not yet fully understood. These findings reinforce the need to broaden our understanding of risk factors. atypical and alternative mechanisms of placental invasion, as well as critically reviewing the Current risk stratification criteria used in clinical practice.

Given this context, it becomes imperative to expand knowledge about the EPA in unhealed uteruses, with a focus on early identification and recognition of presentations. unusual clinical cases and in defining more effective and safe management strategies. Thus, the present This review aims to critically analyze the available literature on placenta accreta in uteri. without previous uterine scar, exploring atypical risk factors, the different forms of The clinical presentation and therapeutic approaches described aim to contribute to the Improving diagnostic readiness and clinical decision-making in the face of this rare condition, but potentially fatal.

2. Materials and Methods

This study constitutes a narrative literature review, grounded in qualitative analysis. and a comparative analysis of six case report articles selected from the PubMed database. The selection of The articles were guided by the use of descriptors such as "placenta accreta", "placenta accreta" and "Absence of uterine scarring." The primary inclusion criterion was a focus on cases of uterine esophagitis. Unhealed lesions that resulted in serious complications, notably uterine rupture or hemorrhage. massive.

The analytical approach focused on the systematic extraction and synthesis of data from each case. covering risk factors, clinical presentation, diagnostic methods, surgical interventions and

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maternal-fetal outcomes. The aim of this synthesis was to identify patterns, contrasts, and insights.

Clinically relevant findings that can inform obstetric practice and improve the management of future cases.

occurrences of this rare condition. Central inclusion criterion for all: documented absence of

Uterine scar. Systematic exclusion: Previous Cesarean section, Myomectomy, Deep uterine curettage.

Author / Year	Article title	Type of study	Population	Inclusion criteria	Exclusion criteria	of
Vuong et al., 2022	Placenta accreta spectrum on an unscarred uterus in the third-trimester pregnancy	Case report (2 cases)	Pregnant women their in 3rd trimester.	Confirmed diagnosis of PAS; uterus without previous scarring; follow-up at a tertiary hospital.	Previous cesarean section or uterine surgery; lack of diagnostic confirmation.	
Garg et al., 2025	Unexpected placenta accreta spectrum in an unscarred uterus causing catastrophic post-partum hemorrhage	Report of case + narrative review	Unexpected postpartum PAS; uterine scarring; without severe postpartum hemorrhage		PAS associated with uterine scarring; reports lacking complete clinical data.	
Okaniwa et al., 2021	Postpartum unscarred uterine rupture caused by placenta accreta	Report of case + narrative review	Postpartum woman with uterine rupture; confirmed PAS (postpartum abdominal rupture); absence of uterine scar.		Traumatic rupture; previous or cesarean uterine section surgery	
Hakimi et al., 2024	Placenta Accreta Spectrum in Normal Situated Placenta and Unscarred Uterus	Report of case	Pregnant woman with normal placental insertion; uterus without scar.		Placenta previa; previous uterine surgery; presumed diagnosis	
Zhang et al., 2024	Spontaneous rupture of an unscarred uterus due to placenta percreta	Report of case	Pregnant in her 3rd trimester.	Placenta percreta; spontaneous uterine non-healing uterus	Rupture associated with trauma or labor; previous uterine surgery	
Sherer et al., 2023	Extensive fundal placenta accreta spectrum in the nulliparous patient with unscarred uterus and SLE	Report of case	Nulliparous pregnant woman	Extensive fundal PAS; absence of uterine scar; clinical-imaging correlation	PAS associated with scarring; lack of confirmation by imaging or surgery.	
Fnon et al., 2024	Placenta percreta in primigravida with unscarred uterus	Report of case	Primigesta	Placenta percreta; uterus scar; without surgical/ histological confirmation	Previous uterine cases incomplete or unconfirmed	

3. Results and Discussion

Risk Factors in Non-Healed Uteri: A Multifactorial Analysis

Identifying risk factors for placenta accreta spectrum (PAS) beyond scarring.

The use of cesarean sections is essential to enhance clinical surveillance in pregnant women considered to be at low risk.

Analysis of the cases available in the literature demonstrates that seemingly distinct conditions

They share a common pathophysiological pathway, characterized by disruption of the endometrial interface.

myometrial, compromising the regeneration of the basal decidua and favoring villous implantation.

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anomalous (GARG et al., 2025; HAKIMI et al., 2024).

Procedures that violate the integrity of the endometrial-myometrial interface, even those traditionally classified as having low impact are significant risk factors. Zhang et al. (2024) reported a case associated with a history of uterine dilation and curettage (D&C). while Okaniwa et al. (2021) highlighted manual removal of the placenta in previous pregnancies as a potential predisposing trauma. These findings suggest that any aggression to the junction The endometrial-myometrial junction can create a favorable niche for invasive placentation, challenging the factor. Classic treatment is restricted to major uterine surgeries.

Obstetric and anatomical factors have also been described as important contributors. Multiparity associated with advanced maternal age, as in the case of a 41-year-old patient. (G8P7) described by Hakimi et al. (2024), may be related to areas of fibrosis, scarring Subclinical or deficient uterine vascularization. In addition, congenital uterine anomalies, such as... Bicornuate uterus, as observed by Vuong et al. (2022), alters uterine architecture and may predispose to sites of anomalous placental implantation.

A systemic, non-surgical route for the development of EPA was proposed by Sherer. et al., as discussed by Garg et al. (2025). In a nulliparous patient with a previous abortion treated exclusively through medication, the presence of systemic lupus erythematosus (SLE) and the use Chronic corticosteroid use has been associated with myometrial thinning, suggesting processes Chronic inflammatory conditions and immunosuppressive therapies can compromise the integrity of the myometrium. creating vulnerability to invasive placentation even in the absence of direct uterine trauma.

Clinical Manifestations and the Challenge of Differential Diagnosis

The clinical presentation of EPA in unhealed uteri is particularly misleading. manifesting through distinct phenotypes that frequently result in critical delays in diagnosis and intervention. Comparative case analysis reveals a clinical spectrum that varies from acute surgical abdomen to massive and late postpartum hemorrhage (VUONG et al., 2022; GARG et al., 2025).

Phenotype 1: Presentation as Surgical Acute Abdomen

An acute percutaneous epilepsy (APE) can present as a non-obstetric surgical emergency. In the case described... According to Zhang et al. (2024), the patient presented with acute abdominal pain associated with nausea and vomiting. initially investigated for suspected liver rupture, in a context aggravated by thrombophilia and anticoagulant use. Similarly, Vuong et al. (2022) reported a case initially diagnosed as acute appendicitis, in a scenario made even more complex due to concomitant presence of urinary tract infection. In both reports, the identification of

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Hemoperitoneum on ultrasound was the main warning sign that prompted exploratory laparotomy.

leading to a definitive diagnosis.

These findings reinforce the need to include uterine rupture associated with PAD in differential diagnosis for any pregnant woman with acute abdomen, even in the absence of other signs. classic obstetric conditions or previous uterine scar (ZHANG et al., 2024; VUONG et al., 2022).

Phenotype 2: Massive Hemorrhage Secondary to Retained Placenta

The unexpected diagnosis of pleural effusion (PE) is often revealed by postpartum hemorrhage. massive. In the report by Garg et al. (2025), a patient without adequate prenatal care. It presented with a failure in placental delivery, and a manual removal attempt was made, which resulted in uncontrollable bleeding and rapidly developing hypovolemic shock. Okaniwa et al. (2021) described an even rarer presentation, characterized by late uterine rupture in Second day postpartum, after an initial limited attempt at manual removal of the retained placenta.

These cases illustrate the significant risk associated with placental manipulation in certain contexts. of unrecognized suspected EPA, highlighting the importance of extreme caution regarding placenta. retained in apparently intact uteri (OKANIWA et al., 2021; GARG et al., 2025).

Clinical Contrast: The Value of Prenatal Suspicion

In contrast to emergency diagnoses, the case reported by Sherer et al., discussed by Garg et al. (2025), demonstrates the positive impact of prenatal suspicion. In a nulliparous patient of apparent low risk, ultrasound findings such as placental lacunae, absence of the zone Hypoechoic retroplacental bleeding and myometrial thinning raised the hypothesis of EPA. This insight The diagnosis allowed for multidisciplinary birth planning, which was crucial for the management of the condition. Subsequent severe hemorrhage and a favorable maternal outcome.

Surgical Management Strategies and Outcomes

Immediate surgical intervention is the cornerstone of treatment for acute complications of EPA in non-healed uteruses. The choice of approach depends fundamentally on stability. Maternal hemodynamics, the extent of placental invasion, and the degree of uterine compromise. (GARG et al., 2025; VUONG et al., 2022).

Emergency peripartum hysterectomy remains the most frequently used strategy. used for the definitive control of hemorrhage and maternal rescue, being adopted in most cases. of the cases described (GARG et al., 2025; OKANIWA et al., 2021; HAKIMI et al., 2024; VUONG et al., 2022). Although effective for hemostatic control, this approach results in irreversible loss. It affects fertility and is often associated with the need for massive transfusions and intensive care.

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Uterine preservation through localized repair is a viable option only in highly selected situations. Zhang et al. (2024) reported success in a case of uterine rupture. Small and localized (1 x 2 cm), treated with wedge excision and uterine repair, preserving the Fertility and favorable maternal-fetal development. However, this strategy requires a surgical team experienced and immediately available for conversion to hysterectomy, not indicated in cases extensive invasion or uncontrollable bleeding.

Consistently, the authors highlight the need for management in tertiary centers. with a multidisciplinary team composed of experienced obstetricians, anesthesiologists, neonatologists, A well-structured blood bank and intensive care unit are essential requirements to address the... rapid clinical deterioration characteristic of these cases (GARG et al., 2025; VUONG et al., 2022).

Approach	Rationale and Example Cases	Maternal and Fetal Outcomes
Uncontrollable hysterectomy or extensive uterine rupture. section used in most cases (Garg, massive blood transfusion). Okaniwa, Hakimi, Sherer, Vuong	treatment for hemorrhage and permanent loss of fertility. Frequently associated with transfusion. Cesarean Neonatal outcomes: Emergency.	Life-saving for mothers, but at the cost of definitive from the Neonatal ICU care due to prematurity.
Preservation Uterine (Repair Located)	A viable option in highly selected cases: Preservation of fertility, with good maternal and fetal recovery in the reported case, small and localized rupture, controlled bleeding, and hemodynamic stability. It requires an experienced surgical team and was successfully applied in the case of Zhang et al., who presented with a 1x2 cm laceration and was treated with wedge excision and uterine repair if hemostasis fails. It is not an option. extensive damage.	It requires an experienced surgical team and was successfully applied in the case of Zhang et al., who presented with a 1x2 cm laceration and was treated with wedge excision and uterine repair if hemostasis fails. It is not an option. extensive damage.

Final Considerations

Critical analysis of the cases included in this review suggests that EPA in non-uterine conditions Scarred lesions constitute an underestimated clinical entity, the presentation of which frequently challenges the Traditional risk stratification models. Thus, the absence of traditional risk factors This leads to a low index of suspicion, often culminating in diagnoses made in Extreme emergency scenarios, such as uterine rupture and hypovolemic shock.

Analyzing the cases allows us to derive essential clinical principles for practice:

Need for heightened clinical surveillance: It is important to maintain the EPA (Emergency Patient Assessment) in the diagnosis. differential diagnosis of pregnant women with unexplained abdominal pain, hemoperitoneum, or retained placenta. regardless of history of uterine surgery. Factors such as previous curettage, multiparity and Systemic comorbidities (e.g., SLE) should raise the level of alert.

Critical Value of Ultrasound: Detailed ultrasound assessment of the interface The myometrium-placenta relationship is a fundamental tool. As demonstrated in the case of Sherer et al., the

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Identifying markers such as placental gaps and myometrial thinning may be the only way to detect this.

This provides an opportunity for prenatal diagnosis, allowing for proper birth planning.

Centralized Management and Emergency Preparedness: Management should be individualized, but invariably performed in a tertiary center. Readiness for immediate surgical intervention, including hysterectomy, and the availability of massive transfusion protocols are crucial, given the potential for rapid and unpredictable clinical deterioration.

The evidence base regarding EPA in unhealed uteruses remains limited to reports of The continuous publication of cases and the conduct of multicenter studies are essential for this. to build more robust knowledge, refine risk criteria, and improve protocols.

Diagnosis and treatment for this serious and deceptive obstetric emergency.

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