



Placenta Accreta Spectrum in the Intrauterine Fetal Death: An Evidence-Based Case Report

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Abstract

Introduction: Placenta Accreta Spectrum (PAS) is a life-threatening obstetric disorder characterized by abnormal placental invasion into the myometrium. Although intrauterine fetal death (IUFD) and PAS are distinct conditions, their coexistence substantially increases maternal morbidity and presents major management challenges.

Case Presentation: A 33-year-old gravida 3 para 1 woman at 21–22 weeks of gestation with a history of cesarean section and curettage presented with IUFD. Following vaginal misoprostol induction, she developed massive hemorrhage, hemodynamic instability, and hemorrhagic shock, requiring emergency hysterectomy. Histopathological examination confirmed placenta accreta.

Methods: An evidence-based case report was conducted using a structured literature search of PubMed, ScienceDirect, Springer, and the Cochrane Library. Eligible studies included systematic reviews, cohort studies, and original research evaluating the relationship between PAS and IUFD.

Results: Of 578 identified articles, four met the inclusion criteria. Evidence consistently demonstrated that PAS is associated with increased maternal morbidity in IUFD pregnancies, particularly among women with previous cesarean delivery. Severe hemorrhage frequently necessitated hysterectomy.

Conclusion: This case highlights the importance of early antenatal recognition of PAS in women with IUFD and previous uterine surgery. Prompt multidisciplinary management and preparedness for massive obstetric hemorrhage are essential to reduce maternal morbidity and mortality.

Keywords: Placenta accreta spectrum, Intrauterine fetal death, Cesarean scar, Hemorrhage, Hysterectomy.

Spektrum Plasenta Akreta pada Kematian Janin Intrauterin: Sebuah Laporan Kasus Berbasis Bukti

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Abstrak

Pendahuluan: Spektrum Plasenta Akreta (PAS) adalah gangguan obstetri yang mengancam jiwa yang ditandai dengan invasi plasenta abnormal ke dalam miometrium. Meskipun kematian janin intrauterin dan PAS adalah kondisi yang berbeda, keberadaan keduanya secara bersamaan secara substansial meningkatkan morbiditas ibu dan menghadirkan tantangan manajemen yang besar.

Presentasi Kasus: Seorang perempuan berusia 33 tahun, gravida 3 para 1, pada usia kehamilan 21–22 minggu dengan riwayat operasi caesar dan kuretase, datang dengan IUFD. Setelah induksi misoprostol vagina, ia mengalami perdarahan hebat, ketidakstabilan hemodinamik, dan syok hemoragik, yang memerlukan histerektomi segera. Pemeriksaan histopatologi mengkonfirmasi plasenta akreta.

Metode: Laporan kasus berbasis bukti dilakukan menggunakan pencarian literatur terstruktur pada PubMed, ScienceDirect, Springer, dan Cochrane Library. Studi yang memenuhi syarat meliputi tinjauan sistematis, studi kohort, dan penelitian asli yang mengevaluasi hubungan antara PAS dan IUFD.

Hasil: Dari 578 artikel yang diidentifikasi, empat memenuhi kriteria inklusi. Bukti secara konsisten menunjukkan bahwa PAS dikaitkan dengan peningkatan morbiditas pada kehamilan IUFD, terutama dengan riwayat persalinan sesar sebelumnya. Perdarahan hebat seringkali memerlukan histerektomi.

Kesimpulan: Kasus ini menyoroti pentingnya deteksi dini PAS dengan IUFD dan riwayat operasi sebelumnya selama antenatal. Penanganan multidisiplin yang cepat dan kesiapan menghadapi perdarahan obstetri masif sangat penting untuk mengurangi morbiditas dan mortalitas ibu.

Kata kunci: Spektrum plasenta akreta, Kematian janin intrauterin, Bekas luka caesar, Pendarahan, Histerektomi.

Introduction

Postpartum hemorrhage (PPH) is the main cause of mortality in obstetrics. One of the causes is placenta accreta spectrum.¹ Placenta accrete spectrum (PAS) is a disorder that refers to trophoblast invasion into the myometrium.² The classification of PAS depends on the severity of placental invasion, which consists of placenta accreta, placenta increta, and placenta percreta.³ However, since 2020, International Federation of Gynecology and Obstetrics (FIGO) has proposed a new terminology in the classification of PAS.⁴ Epidemiologically, the prevalence of PAS has

increased worldwide, triggered by the increasing number of cesarean sections and uterine surgery.^{5,6} This increase is primarily attributed to abnormal placentation secondary to the loss of decidua in the cesarean scar.^{7,8} In the United States, the incidence of placenta accreta in 2016 was 1 in 272 deliveries, with an average incidence of 0.04%, rising to over 0.9%.⁹ The incidence of PAS has also increased in Indonesia over the last decade with its incidence reached 2% and is still increasing until now.¹⁰

Intrauterine fetal death (IUFD) is defined as fetal demise occurring at 20 weeks gestation or more, or a birth weight of 350

grams or more. IUFD is the fifth leading cause of death worldwide.¹¹ Currently, the understanding of the pathophysiology of fetal death is still limited. Stillbirth has many risk factors: intrapartum complications, hypertension, diabetes, infection, congenital and genetic disorders, placental dysfunction, umbilical cord obstruction/entanglement, pregnancy more than forty weeks.^{12,13} In cases of intrauterine fetal death (IUFD), the therapeutic approach entails the induction of labour to facilitate the delivery of the foetus.¹⁴ We report a rare case of IUFD complicated by PAS that experienced severe complications, including massive bleeding and anaemia, and required a hysterectomy.

Case Report

A 33-year-old woman G3P1A1H1 at 21-22 weeks gestation presented to the emergency department with the chief complaint of lower abdominal pain. The patient also reported the absence of fetal movements for the preceding 24 hours. She denied vaginal bleeding, vaginal discharge, passage of tissue, or other associated symptoms. The patient has previously attended two antenatal care (ANC) consultations at the obstetrics and gynaecology specialist clinic. The patient has a medical history that includes one previous abortion by curettage, which occurred in 2019. In addition, she underwent a caesarean section to deliver a baby in 2020.

Vital signs and physical examination were within normal limits. Upon obstetric examination: The uterine fundal height (TFU) was 2 finger widths below the umbilicus, no uterine contractions, no fetal heartbeat, and no cervical dilation. The cervix was smooth, and there was no mass or significant finding on vaginal examination. For complete blood count found hemoglobin levels 12.2 gr/dl, leukocytes $11.19 \times 10^3/L$, Hematocrit 36.6% and platelets $203 \times 10^3/L$. Activated partial thromboplastin time (aPTT) was 26.1 seconds, partial thromboplastin time (PTT) was 9.1 seconds and blood glucose 96 mg/dL. Triple elimination of pregnancy were negative.

Based on anamnesis, physical examination, and lab findings show normal results hence management of IUFD by vaginal delivery were planned. The patient was given paracetamol 1 gram, cefadroxil 2x500 mg, misoprostol 100 mcg/vagina every 4 hours and increased to 200 mcg. After 4 hours there was massive spontaneous bleeding (400 cc) accompanied by nausea and vomiting. On examination of vital signs, blood pressure was

98/62 mmhg, pulse 129 times/minute, temperature 36°C, RR 20 times/minute, oxygen saturation 99%, CRT <2 seconds accompanied by cold extremities. Laboratory examination demonstrated hemoglobin levels 7.7 gr/dl, leukocytes $11.8 \times 10^3/L$, Hematocrit 36.6%, platelets $68 \times 10^3/L$, albumin, sodium, potassium, and chloride level were normal. Due to massive bleeding accompanied by moderate anemia and signs of hemorrhagic shock, stabilization (double line crystalloid) was immediately carried out until hysterectomy. Histopathological examination demonstrated chorionic villi directly attached to the myometrium with absence of decidua basalis, consistent with placenta accreta spectrum. After the hysterectomy, the patient was treated in the ICU for 3 days until stabilization and preparation for transfusion of 4 capsules of Packed Red Cells (PRC), 10 bags of thrombocyte concentrate, and 8 bags of Fresh Frozen Plasma were carried out. At follow-up, the patient recovered well without complications.

Research Query

As outlined in the preceding description, a query has been posited how placenta accrete spectrum manifests in patients with scar pregnancy and IUFD?

Method

The research design utilised was evidence based case report (EBCR). The article search process was conducted on June 9, 2025. Sources were gathered from national and international research articles through databases such as PubMed, Science Direct, Springer, and Cochrane Library. The article search technique utilized the PICO method (Population/patients, Indicators, Comparison, Outcome) along with their respective synonyms (Table 1). Synonyms for keywords were identified using Medical Subject Headings (MeSH). The search process is assisted by the Boolean Operator method, obtained keywords (fetal death OR stillbirth*) AND (Placenta accreta OR Placenta accreta spectrum OR morbidly adherent placentas*).

The sample in this study was obtained after the entire population passed the selection stage. The selection starts with the exclusion of the duplicated article by Rayyan.ai. The suitability of the title, abstract, accessibility, and feasibility criteria have been determined. The exclusion criteria encompassed a range of publications, including suggestions, studies, editorials, book chapters, letters to the editor,

reviews, meta-analyses, animal research, and articles in languages other than English. The literature search flow can be seen in Figure 1. Researchers draw conclusions based on results obtained from the synthesis and analysis process (Figure 1).

gestation or more, or a birth weight of 350 grams or more. IUFD is the fifth leading cause of death worldwide.¹¹ The understanding of the pathophysiology of fetal death is still limited. IUFD has many causes: intrapar-

Table 1. Search Strategy

Population	Indicator	Comparison	Outcome
women who have previously undergone caesarean delivery (CD).	The occurrence of an placenta accreta spectrum event.	-	The establishment of diagnosis of accrete spectrum disorder
Clinical Question: how accreta manifests in patients with scar pregnancy and IUFD?			
Type of study/ methodology: Meta-analysis/Systematic review / RCT/ Cross sectional			

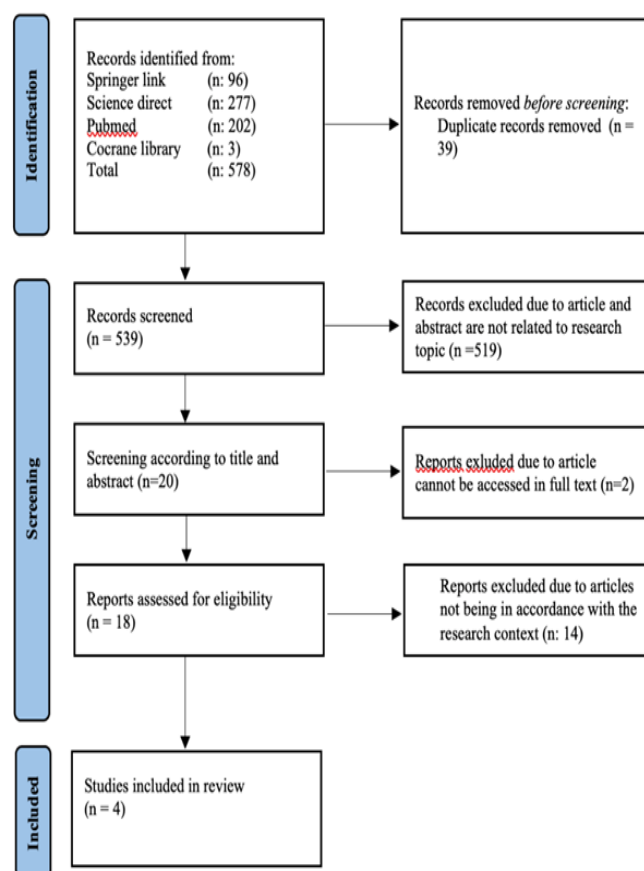


Figure 1. Research Flow

Result

The preliminary search yielded 578 articles from various search engines. The final selection yielded four studies, comprising two systematic review articles, one cohort article, and one literature review article (Table 2).

Discussion

Intrauterine fetal death (IUFD) is defined as fetal demise occurring at 20 weeks

tum complications, hypertension, diabetes, infection, congenital and genetic abnormalities, placental dysfunction, and pregnancy continuing beyond forty weeks.¹⁹ In this case, IUFD is suspected to be due to placental pathology. The broad category of vascular pathology comprises multiple distinct maternal and fetal subgroups. The clinical features of these subgroup categories include a range of early developmental abnormalities and subsequent malperfusion-related lesions, as well as more severe losses of vascular integrity.²⁰

Table 2. Results of the Study Analysis

Study (Year)	Study Population	IUFD Cases	PAS Cases Associated with IUFD	PAS Subtypes	Hysterectomy Required	Key Notes
Calì et al., (2018)	69 expectantly managed cesarean scar pregnancies	Not explicitly specified for IUFD	75.0% of viable CSP (30/40) had PAS	58.6% percreta (17/29)	15.2% overall	IUFD not a primary endpoint; PAS strongly linked to CSP with cardiac activity
Silva et al., (2023)	492 Cesarean delivery cases (194 with outcome data)	16/194 (8.3%)	291/318 confirmed PAS (91.5%)	94 accreta, 62 increta, 120 percreta	102/194 (52.6%)	Fetal death (IUFD) was more frequent in PAS group. 100% of IUFD with PAS had significant maternal morbidity
Powell et al., (2022)	Model of 6000 women with prior cesarean delivery and stillbirth	6000 (model-based)	14 fewer PAS cases with labor induction vs repeat CD	Not detailed	Simulated outcomes	Induction decreased PAS risk in future pregnancy compared to repeat CD
Rau et al., (2023)	8,694,669 term vaginal deliveries analyzed	Subgroup with IUFD not quantified	IUFD significantly associated with PAS (aOR ~2.5–3.0)	Mostly accreta	14.9% with PAS	PAS was unsuspected; IUFD was one of the strongest predictors of PAS in unscarred uteri

One of the pathological conditions that may be present is PAS.

Placenta accreta spectrum is a term used to describe a range of abnormal placental adherence. This range extends from microscopic adherent myometrial fibres within the basal plate, which are considered subclinical findings, to dramatic presentations of placenta percreta, where there is placental invasion through the uterus and the serosa into the peritoneal cavity or bladder.² The placenta undergoes uncontrolled proliferation and subsequent infiltration of local structures, exhibiting a biological behaviour analogous to that of a malignant tumour.²¹

There are several risk factors for placenta accreta spectrum. The most common is a previous cesarean delivery, with the incidence of placenta accreta spectrum increasing with the number of prior cesarean deliveries.^{22,23} Additional risk factors include advanced maternal age, multiparity, prior uterine surgeries or curettage, and Asherman syndrome.²⁴ In this case, a 33-year-old woman, G3P1A1H1 at 21-22 weeks with IUFD, has a history of cesarean section and curettage as risk factor of placenta accreta spectrum.

The clinical manifestations of PAS include massive obstetric hemorrhage during delivery, particularly when attempting to manually remove the placenta.²⁵ A study conducted at Qom Hospital, Iran, from 29 March 2019 – 21 March 2021, involving 142 patients with 85 in the placenta accreta group and 57

in the non-placenta accreta group, found that approximately 77% of patients with placenta accreta required emergency cesarean delivery during their current pregnancy and 14 patients underwent hysterectomy for placenta accreta, with 92.8% of hysterectomies performed during emergency cesarean sections ($p=0.004$).²⁶ In our case, the patient experienced massive hemorrhage with moderate anemia and signs of impending hemorrhagic shock, prompting a cesarean section followed by hysterectomy.

Prenatal diagnosis of the placenta accreta condition is of significant importance, despite the challenges associated with its implementation. This condition may be misdiagnosed due its similarity of symptoms to those of scar dehiscence.²⁷ It is imperative to differentiate between PAS and scar dehiscence due to the distinct treatment modalities employed in each condition. This misinterpretation arises from the visualisation of the placenta in direct proximity to a thinned uterine lower segment (ULS), a consequence of inadequate healing of the previous caesarean delivery (CD) scar.^{27,28} This inadequate uterine healing results in substantial remodelling and architectural disruption of the ULS as the pregnancy progresses. This is characterised by the presence of a placental bulge and myometrial thinning, as well as scar dehiscence and high-grade PAS, both intraoperatively and on prenatal ultrasound.^{27,29} This misinterpretation remains unresolved, even when evaluated by

experts in the field.²⁸ Therefore, hysterectomy continues to be the preferred management strategy employed by the majority of global medical centres, including those with ample resources in high-income nations.³⁰

In this case, the patient underwent standard scar dehiscence therapy, vaginal delivery. This decision was made following a thorough evaluation of the patient's antenatal care (ANC) results, which were reviewed by two different obstetrician experts. The patient's age was also a consideration, as she was still in the productive age and had only one child. However, during the labor process, massive bleeding occurred, necessitating a hysterectomy cito. The effective management of placenta accreta is of paramount importance in order to prevent complications and mortality. The journal under discussion can provide knowledge regarding the appropriate management of placenta accreta. Moreover, the journal offers a valuable opportunity for clinical learning in the field of healthcare.

Conclusion

This case highlights the severe complications associated with placenta accreta, including massive hemorrhage, anemia, ICU care, and hysterectomy. Prenatal diagnosis is of paramount importance in ensuring comprehensive, timely and appropriate management. It is critical to ensure that risks of morbidity and mortality of placenta accreta are reduced.

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