Case Report

Placental Abruption with Couvelaire Uterus in a Primigravida: A Case Report

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Abstract
Introduction: Placental abruption typically presents with the classic triad of vaginal bleeding, abdominal pain, and uterine tenderness. However, atypical presentations lacking these features may delay diagnosis. The occurrence of an extensive couvelaire uterus requiring a hysterectomy in a young primigravida without classical risk factors is rare. This case adds to the limited literature on severe, atypical presentations of placental abruption.
Case Illustration: A 20-year-old primigravida at 32 – 33 weeks of gestation presented with decreased fetal movements, lacking vaginal bleeding or significant abdominal pain. Notably, she reported a recent history of traditional abdominal massage. She was diagnosed with intrauterine fetal death (IUFD), and ultrasonography demonstrated a retroplacental hemorrhage suggestive of placental abruption. Despite the absence of classic symptoms, clinical suspicion remained high. Due to concerns of ongoing concealed hemorrhage and impending maternal deterioration, an emergency cesarean section was performed. Intraoperatively, a couvelaire uterus involving approximately 60% of the anterior uterine wall was identified. Following delivery, the patient developed refractory uterine atony unresponsive to uterotonics (oxytocin, methylergometrine, and misoprostol), necessitating a supravaginal hysterectomy to control life-threatening hemorrhage. The patient recovered well postoperatively.
Conclusion: This case highlights an atypical presentation of placental abruption that progressed to severe maternal complications, including a couvelaire uterus and refractory atony requiring surgical intervention. Early recognition based on clinical suspicion and imaging is essential to prevent maternal morbidity when classical symptoms are absent. While the patient had a history of traditional abdominal massage, a definitive causal relationship cannot be established; further research is needed to explore its potential role as a trigger.

Keywords: Abdominal massage; couvelaire uterus; intrauterine fetal death; placental abruption; primigravida

Solusio Plasenta dengan *Uterus Couvelaire* pada Primigravida: Sebuah Laporan Kasus

Abstrak
Pendahuluan: Solusio plasenta umumnya bermanifestasi dengan triad klasik berupa perdarahan pervaginam, nyeri abdomen, dan nyeri tekan uterus. Namun, presentasi atipikal tanpa gejala tersebut dapat menyebabkan keterlambatan diagnosis. Kejadian uterus couvelaire luas yang memerlukan histerektomi pada primigravida muda tanpa faktor risiko klasik merupakan kondisi yang jarang dan menambah keterbatasan literatur mengenai presentasi berat solusio plasenta yang atipikal.
Ilustrasi Kasus: Seorang wanita berusia 20 tahun, primigravida dengan usia kehamilan 32 – 33 minggu, datang dengan keluhan penurunan gerak janin tanpa disertai perdarahan pervaginam maupun nyeri abdomen bermakna. Pasien didiagnosis dengan *intrauterine fetal death* (IUFD). Pemeriksaan ultrasonografi menunjukkan adanya perdarahan retroplasenta yang mengarah pada solusio plasenta. Meskipun tanpa gejala klasik, kecurigaan klinis tetap tinggi berdasarkan temuan kematian janin dan hasil pencitraan, dengan pertimbangan adanya perdarahan tersembunyi yang sedang berlangsung serta risiko perburukan kondisi maternal. Selanjutnya, dilakukan seksio sesarea emergensi terhadap pasien. Secara intraoperatif ditemukan uterus couvelaire yang melibatkan sekitar 60% dinding anterior uterus. Setelah persalinan, pasien mengalami atonia uteri refrakter yang tidak responsif terhadap terapi uterotonik (oksitosin, metilergometrin, dan misoprostol) sehingga dilakukan histerektomi supravaginal untuk mengendalikan perdarahan yang mengancam jiwa. Pasien menunjukkan perbaikan klinis yang baik pascaoperasi.
Kesimpulan: Kasus ini menyoroti presentasi atipikal solusio plasenta tanpa triad klasik yang dapat berkembang menjadi komplikasi maternal berat, termasuk uterus couvelaire dan atonia uteri refrakter yang memerlukan histerektomi. Pengenalan dini berdasarkan kecurigaan klinis dan temuan pencitraan sangat penting untuk mencegah morbiditas maternal. Meskipun pasien memiliki riwayat pijat abdomen tradisional, hubungan kausal tidak dapat dipastikan; diperlukan penelitian lebih lanjut untuk mengeksplorasi kemungkinan perannya.

Kata kunci: Kematian janin dalam rahim; pijat abdomen; primigravida; solusio plasenta; uterus couvelaire

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Introduction

Placental abruption is a major obstetric emergency associated with significant maternal and perinatal morbidity and mortality, with an estimated incidence of 0.3–1% of pregnancies. It is defined as the premature separation of a normally implanted placenta prior to delivery and can result in severe maternal hemorrhage, disseminated intravascular coagulation (DIC), fetal distress, or intrauterine fetal death (IUFD).[1,2] The condition classically presents with a triad of vaginal bleeding, abdominal pain, and uterine hypertonus or tenderness; however, atypical or concealed presentations that lack these classic features may occur, contributing to delayed diagnosis and poorer maternal-fetal outcomes.[3,4]

Couvelaire uterus, also known as uteroplacental apoplexy, is a rare but severe complication of placental abruption resulting from the extravasation of blood into the myometrium and beneath the uterine serosa.[5] Although the condition is often identified intraoperatively and can frequently be managed conservatively, extensive myometrial involvement may impair uterine contractility. This can lead to refractory uterine atony and massive postpartum hemorrhage.[6] In severe cases, a hysterectomy may be required as a life-saving intervention when conservative pharmacological and surgical measures fail to control the bleeding.[7]

Several conventional risk factors for placental abruption have been identified, including hypertensive disorders, smoking, trauma, multiparity, and substance abuse.[8,9] However, abruption can also occur in patients without these identifiable markers, making diagnosis particularly challenging in low-risk pregnancies. Furthermore, while blunt trauma is a known risk factor, traditional abdominal massage during pregnancy has also been occasionally associated with adverse obstetric outcomes. Although evidence of a direct causal relationship between abdominal massage and placental abruption remains limited, it may represent a potential mechanical trigger worthy of clinical consideration.[8,9]

Despite its clinical significance, reports describing concealed placental abruption with atypical presentation in a low-risk primigravida progressing to couvelaire uterus requiring emergency hysterectomy remain limited. This case highlights an important diagnostic and management challenge and emphasizes the importance of maintaining high clinical suspicion and timely intervention to prevent severe maternal complications and maternal mortality.

Despite its clinical significance, the literature describing a concealed placental abruption with an atypical presentation in a low-risk primigravida that progresses to a couvelaire uterus and requires an emergency hysterectomy remains sparse. This case highlights a critical diagnostic and management challenge, emphasizing the need to maintain a high index of clinical suspicion and to initiate timely intervention to prevent severe maternal morbidity and mortality.

Case Report

A 20-year-old primigravida (G1P0A0) at 32–33 weeks of gestation was referred to the emergency department, reporting decreased fetal movements for approximately 16 hours. She also noted mild lower abdominal discomfort for the past 14 hours but denied any vaginal bleeding, leakage of fluid, or severe abdominal pain.

On initial assessment, the patient was alert and fully conscious, with a Glasgow Coma Scale score of 15 (E4V5M6). She appeared mildly pale but was not in acute distress. Her hemodynamic parameters were stable: blood pressure 110/70 mmHg, heart rate 92 beats per minute, respiratory rate 20 breaths per minute, and body temperature

36.8°C. Peripheral perfusion was adequate, with warm extremities, capillary refill < 2 seconds, and no clinical signs of hypovolemic shock.

Abdominal examination revealed a symmetrically enlarged uterus consistent with her gestational age, with a fundal height of approximately 30 cm. The uterus was soft, with mild lower abdominal tenderness; no guarding or rebound tenderness was noted. Uterine contractions were infrequent, occurring once every 10 minutes and lasting about 25 seconds. Fetal parts were palpable, but no fetal heart tones were detected on Doppler examination.

Obstetric examination showed no vaginal bleeding. On sterile vaginal examination, the vulva and vagina appeared normal. The cervix was thick, soft, and posterior, with a closed external os. There was no evidence of active labor or membrane rupture. Overall, the initial clinical findings suggested intrauterine fetal demise with suspected concealed placental abruption in a hemodynamically stable patient.

This was the patient's first pregnancy. She had no history of miscarriages, gynecological procedures, or chronic medical conditions (including hypertension, diabetes mellitus, asthma, or cardiovascular disease). She denied smoking, alcohol use, illicit drug use, or herbal medication use. Her antenatal care consisted of eight uneventful visits (three with a midwife and five at a primary health center), with no history of hypertensive disorders, gestational diabetes, or antepartum bleeding. Notably, while she denied any history of blunt abdominal trauma, she reported receiving traditional abdominal massage from a traditional birth attendant at five and seven months of gestation. She denied the use of herbal medications or other non-prescribed substances. In addition, no prior surgical history or invasive diagnostic procedures were reported.



Figure 1 Ultrasound Findings. The Red Arrow Indicates Retroplacental Hemorrhage

Diagnostic evaluation was based on clinical findings, laboratory testing, and ultrasonography. The initial absence of fetal heart tones on Doppler was later confirmed by ultrasound as an intrauterine fetal death (IUFD). Imaging also showed a retroplacental hemorrhage, supporting the diagnosis of placental abruption.

Laboratory testing revealed anemia (Hb 7.8 g/dL) and marked thrombocytopenia (67,000/mm³), suggesting ongoing hemorrhage and early consumptive coagulation. Significant leukocytosis (24,020/mm³) was also noted, likely reflecting severe physiological stress or tissue necrosis. These findings raised immediate concern for severe placental abruption with a high risk of progression to disseminated intravascular coagulation (DIC).

Reaching this diagnosis was clinically challenging because the patient lacked the classic triad of placental abruption (vaginal bleeding, severe abdominal pain, and uterine rigidity), suggesting a concealed abruption instead. Furthermore, although ultrasonography is helpful when retroplacental hemorrhage is visible, its limited sensitivity means it cannot reliably

exclude an abruption. Therefore, a high index of clinical suspicion remained paramount.

Several differential diagnoses were considered. Placenta previa was ruled out because there was no vaginal bleeding, and the ultrasound confirmed a normally sited placenta. Uterine rupture was considered less likely given an unscarred uterus, stable hemodynamics, and the absence of an acute surgical abdomen. Preterm labor with fetal demise was also considered, but it did not fully explain the retroplacental hemorrhage and rapid platelet consumption.

The final working diagnosis was IUFD secondary to severe concealed placental abruption, with laboratory evidence indicating an impending risk of severe maternal complications.

Preoperative management focused on rapid stabilization. The patient received intravenous crystalloid resuscitation, and preparation for a blood transfusion was initiated because of her anemia (Hb 7.8 g/dL) and thrombocytopenia (67,000/mm³). Prophylactic intravenous ceftriaxone (1 g) was administered. Antifibrinolytic therapy was not given preoperatively.

Although vaginal delivery is generally preferred in IUFD, an emergency cesarean section was indicated in this case. The strong clinical suspicion of severe concealed abruption, combined with profound thrombocytopenia suggestive of evolving coagulopathy, necessitated immediate uterine evacuation to halt the coagulation cascade and prevent maternal hemodynamic collapse. Labor induction was deemed contraindicated because the unpredictable, and potentially prolonged, time to delivery would have increased the risk of worsening concealed hemorrhage and overt DIC.

Given the diagnosis of intrauterine fetal death (IUFD), vaginal delivery is generally preferred. However, in this case, an emergency cesarean section was indicated due to a strong suspicion of concealed placental abruption, laboratory evidence of thrombocytopenia suggesting evolving coagulopathy, and the risk of rapid maternal deterioration.

Induction of labor was considered but deemed less favorable because of the uncertain duration of delivery, the potential for worsening concealed hemorrhage, and the risk of progression to disseminated intravascular coagulation (DIC). Therefore, immediate surgical intervention was prioritized to expedite uterine evacuation and enable direct intraoperative assessment.

An emergency cesarean section was performed under appropriate anesthesia. Upon entering the peritoneal cavity, approximately 60% of the anterior uterine wall showed bluish-purple discoloration consistent with a couvelaire uterus. A stillborn male infant was delivered. The placenta was delivered with gentle traction, revealing approximately 500 mL of retroplacental blood and clots, with an estimated 60% placental separation.

After delivery, uterine atony occurred, and pharmacological management was initiated. Oxytocin 10 IU was administered intramuscularly, followed by intramyometrial methylergometrine (one ampule) and rectal misoprostol (800 mcg). Despite these measures, adequate uterine contractions were not achieved.

Estimated intraoperative blood loss, including retroplacental hemorrhage, was approximately [insert total estimated blood loss, e.g., 1000–1500 mL if available]. Due to persistent bleeding and poor uterine tone, additional conservative measures, such as uterine massage and bimanual compression, were attempted but failed to control the hemorrhage.

Given refractory uterine atony in the setting of a couvelaire uterus and ongoing bleeding with risk of hemodynamic instability, a supravaginal hysterectomy was performed as a life-saving procedure. Perioperative management included fluid resuscitation and blood transfusions consisting of 2 units



Figure 2 Intraoperative Finding: Couvelaire Uterus

of packed red cells (PRC) and 2 units of thrombocyte concentrate (TC). The patient was subsequently admitted to the intensive care unit for close monitoring and further supportive management.

The fetus was delivered as a stillborn male infant. On gross examination, the fetus showed features consistent with intrauterine fetal death, including skin discoloration and early degenerative changes. Based on the clinical history and physical findings, the degree of maceration was consistent with grade I–II (mild to moderate), suggesting that fetal demise had occurred approximately 12–48 hours before delivery.

No major adverse maternal events, such as secondary hemorrhage, sepsis, thromboembolism, or surgical site infection, were identified during hospitalization or at one-week follow-up after discharge. The patient remained clinically stable, and the surgical wound healed appropriately. She was counseled on the implications of hysterectomy, including loss of fertility and the need for psychological support if required.

On postoperative day 1 (April 1st, 2024), laboratory evaluation showed hemoglobin 8.3 g/dL, hematocrit 26%, leukocyte count 15,130/mm³, and platelet count 155,000/mm³, indicating improvement compared with preoperative values. Renal function was within acceptable limits (urea 56 mg/dL, creatinine 0.91 mg/dL). Liver enzymes showed a mild elevation in AST (41 U/L) with normal ALT (16 U/L). Electrolyte levels were within the normal range (sodium 135 mmol/L, potassium 4.2 mmol/L, chloride 98 mmol/L), while calcium was low at 4.4 mg/dL. Procalcitonin was elevated at 15.98 ng/mL, suggesting a possible systemic inflammatory response or early infection. Coagulation parameters, including prothrombin time (PT), activated partial thromboplastin time (aPTT), and D-dimer, were not assessed postoperatively, representing a limitation in the evaluation of potential coagulopathy.

On postoperative day 1, pharmacological management included intravenous ceftriaxone 1 g twice daily and a ketoprofen suppository 200 mg twice daily for analgesia. On postoperative day 2, antibiotic therapy was de-escalated to oral cefadroxil 500 mg twice daily, with additional analgesics consisting of mefenamic acid 500 mg three times daily and oral iron supplementation (ferrous sulfate) once daily. The patient showed progressive clinical improvement, with stable vital signs, adequate urine output, and no signs of ongoing bleeding or overt infection. No further modification of therapeutic interventions was required during hospitalization.

At the 1-week follow-up evaluation (post-discharge), the patient remained clinically stable with no signs of infection or delayed complications. The surgical wound had healed well, and no abnormal vaginal bleeding was reported. The patient also received counseling regarding her condition, including the implications of a hysterectomy and the need for long-term follow-up if necessary. No major adverse events were reported during the postoperative and follow-up period.

Discussion

This case illustrates an atypical presentation of placental abruption, with the absence of classical clinical features. The patient did not present with the typical triad of vaginal bleeding, abdominal pain, and uterine tenderness associated with placental abruption. Instead, decreased fetal movement and subsequent confirmation of intrauterine fetal death (IUFD) were the initial clues prompting further evaluation. Ultrasonography demonstrated retroplacental hemorrhage, supporting the diagnosis. This finding underscores that placental abruption remains primarily a clinical diagnosis and that concealed abruption may present without overt bleeding or dramatic maternal symptoms, potentially delaying recognition and intervention.[1,10] Similar reports have described concealed placental abruption presenting with minimal or absent vaginal bleeding, underscoring the importance of maintaining a high index of suspicion even in apparently stable patients.[3,11]

Another important challenge in this case was the limited diagnostic sensitivity of ultrasonography. Although ultrasound may identify retroplacental hematoma or hemorrhage, its sensitivity for placental abruption remains relatively low, and negative findings do not reliably exclude the diagnosis.[1,12] Therefore, clinical assessment remains essential, particularly when fetal compromise or maternal laboratory abnormalities are present. In this patient, thrombocytopenia and anemia raised concern for ongoing concealed hemorrhage and evolving consumptive coagulopathy, findings associated with severe placental abruption and increased maternal morbidity.[13]

The most critical aspect of this case was therapeutic decision-making. Vaginal delivery is generally recommended in cases of IUFD because it avoids surgical morbidity and reduces maternal complications.[14] However, in this case, immediate cesarean delivery was deemed necessary because of suspected concealed placental abruption with ongoing hemorrhage, thrombocytopenia suggesting possible coagulopathy, and concern for rapid maternal deterioration. Surgical intervention enabled prompt uterine evacuation and direct intraoperative evaluation. This approach aligns with obstetric management principles that prioritize maternal stabilization and rapid control of hemorrhage in severe placental abruption.[1,10,14]

Intraoperative findings confirmed the severity of the condition, showing extensive retroplacental hemorrhage and a couvelaire uterus involving a large portion of the uterine wall. A couvelaire uterus results from extravasation of blood into the myometrium and beneath the serosa secondary to severe placental abruption.[15] Although conservative management is often feasible, severe myometrial infiltration may impair uterine contractility and contribute to refractory uterine atony.[15] In this patient, persistent hemorrhage and failure of maximal uterotonic therapy necessitated a supravaginal hysterectomy as a life-saving intervention after conservative measures failed. Similar cases requiring hysterectomy for uncontrolled bleeding associated with couvelaire uterus have been reported in the literature.[7]

An additional noteworthy aspect of this

case was the history of repeated traditional abdominal massage during pregnancy. Although external abdominal manipulation has been hypothesized to be a precipitating factor for placental separation through mechanical uterine or placental stress, current evidence remains limited and insufficient to establish causality.[8,9] Therefore, any association between traditional abdominal massage and placental abruption should be interpreted with caution.

Several limitations should be acknowledged. First, as a single case report, it does not allow causal inference or generalization of findings, particularly regarding the possible association between traditional abdominal massage and placental abruption. Second, the incomplete laboratory evaluation, especially the absence of coagulation parameters such as prothrombin time (PT), activated partial thromboplastin time (aPTT), fibrinogen levels, and D-dimer, limits a comprehensive assessment of the severity of coagulopathy and the risk of disseminated intravascular coagulation (DIC). Third, although procalcitonin levels were markedly elevated postoperatively, additional investigations to confirm or exclude infection (such as blood cultures) were not performed, limiting further interpretation of this finding. Fourth, detailed intraoperative quantification of total blood loss was not available, which may affect the accuracy of the hemorrhage severity assessment. Finally, long-term follow-up was limited, restricting evaluation of delayed complications and psychosocial outcomes following hysterectomy in a young primigravida.

Conclusion

In this context, traditional abdominal massage has been reported as a potential contributor to uterine trauma and placental abruption; however, current evidence remains limited, and no large multicenter studies have definitively confirmed this association. In cases complicated by couvelaire uterus, hysterectomy should be considered when extensive myometrial involvement or uncontrolled hemorrhage persists despite conservative management with uterotonics and surgical hemostatic techniques.

Informed consent patient statement

The author(s) confirm that written informed consent has been obtained from the patient involved. The patient has been informed of the details of the case and has approved the publication of this case report.

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Competing interest

The authors declare no competing interests.

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Ethical Approval

This study is exempt from ethical approval, as determined by the institutional and department review board.

Author Contributions

IBP and ASN conceived the design of the article and collected the data. IBP and ASN wrote the draft. DS, WN, and HS directed and supervised the review article. All authors agreed to the following version of the manuscript for publication.

Registration of research studies

Registration of research is not applicable in

our case.

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