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Case Report

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A Double-Hit Placental Catastrophe: Spontaneous Expulsion of a Placenta Praevia Followed by Acute Co-Twin Placental Abruption in a Dichorionic Twin Pregnancy-A Case Report

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ABSTRACT

Background: Placenta praevia and placental abruption are leading causes of antepartum haemorrhage. Their sequential occurrence within a single dichorionic twin pregnancy praevia of one placenta followed by acute abruption of the other is exceptionally rare and life-threatening for both the mother and the surviving fetus.

Case: A 26-year-old woman, gravida 2 para 1 with one previous caesarean delivery, presented at 28 weeks and 4 days of a dichorionic diamniotic twin pregnancy with painless vaginal bleeding followed by uterine contractions. Moments after arrival in the labour room, she spontaneously expelled the intact placenta of Twin 1, which showed features of lower-segment (praevia) implantation. Bedside ultrasound confirmed intrauterine death of Twin 1 and a retroplacental hypoechoic area behind the placenta of Twin 2. Within five minutes, Twin 2 developed severe bradycardia (60 bpm) and the mother became hypotensive (85/50 mmHg). A category 1 caesarean section under general anaesthesia revealed a Couvelaire uterus and a retroplacental clot involving approximately 40% of the placental surface of Twin 2. Twin 2 (1100 g) was delivered by breech extraction with Apgar scores of 1 and 3 and an umbilical arterial pH of 7.01. The mother developed uterine atony, a 2000 mL haemorrhage and disseminated intravascular coagulation (DIC; INR 1.8, fibrinogen 90 mg/dL), managed with a massive transfusion protocol, uterotonics, tranexamic acid and B-Lynch compression sutures, with preservation of the uterus. Mother and surviving twin were discharged in stable condition.

Conclusion: This "double-hit" placental emergency suggests that sudden uterine decompression after expulsion of one placenta may precipitate abruption of the co-twin's placenta. Rapid recognition of both pathologies, immediate operative delivery, early activation of a massive transfusion protocol and skilled neonatal resuscitation allowed survival of both mother and co-twin. To our knowledge, this sequence with survival of both has not been previously reported.

Keywords: Placenta Praevia, Placental Abruption, Twin Pregnancy, Disseminated Intravascular Coagulation, Couvelaire Uterus, Massive Transfusion Protocol, B-Lynch Suture, Case Report

Clinical Snapshot

Parameter	Finding
Maternal age / parity	26 years, G2P1, one previous caesarean delivery
Gestation	Dichorionic diamniotic twin pregnancy, 28 weeks + 4 days
Twin 1	Placenta praevia, spontaneously expelled intact; stillborn (intrauterine fetal death)
Twin 2	Acute placental abruption (≈ 40% retroplacental clot; Sher grade II); breech; birth weight 1100 g
Neonatal status (Twin 2)	Apgar 1 and 3 at 1 and 5 min; umbilical arterial pH 7.01, base excess −18 mmol/L; 72 h mechanical ventilation; 8-week NICU stay
Maternal complications	Couvelaire uterus, refractory atony, DIC (INR 1.8, fibrinogen 90 mg/dL), estimated blood loss 2000 mL
Decision-to-incision time	12 minutes
Outcome	Mother (uterus preserved) and surviving twin discharged in stable condition

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Introduction

Placenta praevia and placental abruption are distinct but equally dangerous causes of antepartum haemorrhage. Placenta praevia implantation of the placenta over or near the internal cervical os complicates approximately 0.5% of pregnancies [1-3]. Placental abruption—premature separation of a normally implanted placenta occurs in 0.4–1% of pregnancies [2]. Both are more frequent in multiple pregnancies, reflecting the larger placental surface area and greater uterine distension [3,4]. A previous caesarean delivery further increases the risk of praevia and of the placenta accreta spectrum [5].

Spontaneous expulsion of a placenta praevia before delivery of its fetus is rare and almost invariably results in fetal death, because placental perfusion ceases abruptly. In a twin pregnancy, survival of the co-twin then depends on the integrity of the remaining placenta and on the speed of obstetric intervention. Sudden uterine decompression is a recognised trigger of abruption [2], raising the possibility that one placental event may provoke the other.

We report a dichorionic twin pregnancy at 28 weeks complicated by spontaneous expulsion of a placenta praevia immediately after arrival in the labour room, followed within minutes by acute abruption of the co-twin's placenta, massive maternal haemorrhage with DIC, and successful maternal and neonatal salvage. This report follows the CARE guidelines [6].

Case Presentation

Clinical Presentation and Arrival: A 226-year-old woman, gravida 2 para 1, with one previous caesarean delivery, presented at 28 weeks and 4 days of a spontaneously conceived dichorionic diamniotic twin pregnancy. Her antenatal course had been uneventful until she developed sudden painless vaginal bleeding at home, followed by uterine contractions. During the approximately 15-minute ambulance transfer, bleeding and contractions continued, but no tissue was passed.

Moments after arrival in the labour room, while being transferred onto the delivery bed, she spontaneously and completely expelled a large, fleshy mass. This was immediately recognised, and later confirmed, as the intact placenta of Twin 1 (Figure 1).

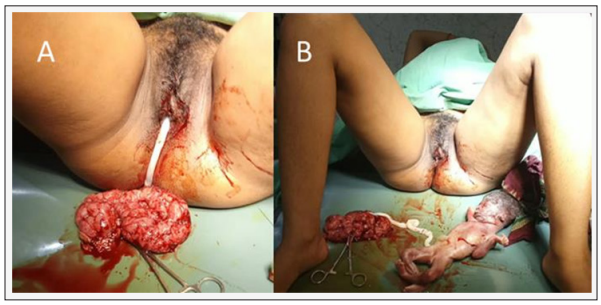


Figure 1: Gross Specimen Photograph of the Spontaneously Expelled Placenta of Twin 1, Showing the Lower-Segment Attachment Pattern Characteristic of Placenta Previa

Initial Assessment. On arrival (T = 0), she was pale and tachycardic (heart rate 110 bpm, blood pressure 110/70 mmHg). The expelled placenta was identified as that of Twin 1, with gross features consistent with lower-segment implantation. Vaginal examination was avoided. Bedside ultrasound showed intrauterine fetal death of Twin 1 and a live, breech-presenting Twin 2 with a fetal heart rate of 140 bpm and variable decelerations. A retroplacental hypoechoic area behind the placenta of Twin 2 provided an early sonographic sign of evolving abruption (Figure 2).



Figure 2: Bedside Ultrasound of the Placenta of Twin 2 Showing a Retroplacental Hypoechoic Area Consistent with Evolving Placental Abruption.

Surgical Management and Findings: Within five minutes, the fetal heart rate of Twin 2 fell to 60 bpm and maternal blood pressure fell to 85/50 mmHg. A category 1 ("crash") caesarean section was performed under general anaesthesia, with a decision-to-incision interval of 12 minutes. Intraoperative findings were:

- **Couvelaire Uterus:** the myometrium was diffusely ecchymotic and discoloured (Figure 3). Couvelaire uterus the uterus was hypertonic and diffusely ecchymotic.
- **Placental Abruption:** the placenta of Twin 2 bore a retroplacental haematoma involving approximately 40% of its maternal surface (Figure 4).
- Delivery: Twin 2 (1100 g) was delivered by breech extraction.



Figure 3: Intraoperative View of the Couvelaire Uterus Showing Diffuse Subserosal Ecchymosis of an Atonic, Discoloured Myometrium.

Haemorrhage and DIC: After delivery, the uterus remained atonic despite uterotonics, and haemorrhage reached an estimated 2000 mL. The massive transfusion protocol was activated, and

she received 8 units of packed red cells, 6 units of fresh frozen plasma and additional blood components as part of a high-ratio transfusion strategy. Uterotonic therapy comprised oxytocin, carbetocin and carboprost, and 1 g of intravenous tranexamic acid was given. Haemostasis was achieved with B-Lynch compression sutures, and the uterus was preserved. Laboratory results (INR 1.8, fibrinogen 90 mg/dL) were consistent with DIC [7].

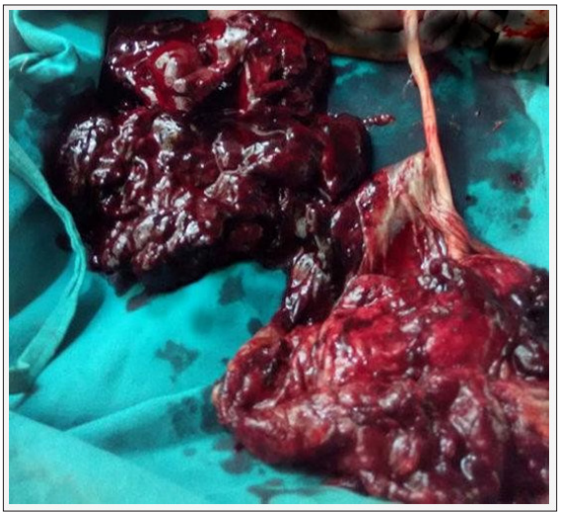


Figure 4: Retroplacental Haematoma on the Maternal Surface of the Placenta of Twin 2, Involving Approximately 40% of the Surface (Sher grade II).

Neonatal Outcome (Twin 2): Apgar scores were 1 and 3 at 1 and 5 minutes. Umbilical arterial pH was 7.01 with a base excess of −18 mmol/L. The infant was intubated immediately and received surfactant. After 72 hours of mechanical ventilation and an 8-week NICU stay, the infant was discharged in stable condition with normal neurological findings at discharge; long-term neurodevelopmental outcome will require continued follow-up

Timeline of Events

Time	Event
Home	Sudden painless vaginal bleeding followed by uterine contractions; ambulance summoned
En route (≈ 15 min)	Continued bleeding and contractions; no tissue passed
T = 0 (arrival)	Transferred directly to the labour room; pale, tachycardic (HR 110 bpm), BP 110/70 mmHg
T = 0–2 min	Spontaneous expulsion of the intact placenta of Twin 1 (praevia)
T = 2–5 min	Bedside ultrasound: IUFD of Twin 1; Twin 2 breech, FHR 140 bpm with variable decelerations; retroplacental hypoechoic area behind placenta of Twin 2
T = 5 min	FHR of Twin 2 falls to 60 bpm; maternal BP 85/50 mmHg; decision for category 1 caesarean section
T = 17 min	Skin incision (decision-to-incision interval 12 min); breech extraction of Twin 2 under general anaesthesia
Postpartum	Refractory atony, EBL 2000 mL, DIC (INR 1.8, fibrinogen 90 mg/dL); massive transfusion protocol, tranexamic acid, B-Lynch sutures

Discussion

Proposed Mechanism: Sudden Uterine Decompression: We hypothesise that expulsion of the placenta of Twin 1 and its membranes caused an abrupt reduction in intrauterine volume. Contraction of the uterine wall beneath a non-contracting placenta can generate shearing forces that separate a normally sited placenta. Sudden decompression after membrane rupture in polyhydramnios or after delivery of a first twin is an established risk factor for abruption [2]. In the present case, the same process appears to have followed expulsion of a placenta rather than a fetus.

Alternative explanations deserve consideration. Praevia and abruption share risk factors, including previous caesarean delivery, multiple pregnancy and abnormal placentation [2,3,5], and the abruption may have begun independently before admission. The retroplacental hypoechoic area seen within minutes of arrival is compatible with either sequence. The Couvelaire uterus and early DIC indicate a substantial abruption and are typical of severe separations [8].

Classification: The abruption was classified as Sher grade II, because the fetus was alive at diagnosis with signs of compromise; grade III is reserved for abruptions with fetal death [8].

Factors Associated with Survival

- **Avoidance of Vaginal Examination**: Avoidance of Vaginal Examination which prevented further disruption of the praevia bed.
- **Rapid Escalation:** A category 1 caesarean section with a 12-minute decision-to-incision interval limited the duration of fetal hypoxia in Twin 2.
- **Early Haemostatic Resuscitation:** Prompt activation of the massive transfusion protocol and tranexamic acid [9] addressed consumptive coagulopathy, in line with current postpartum haemorrhage guidance [10].
- **Conservative Surgery:** B-Lynch compression sutures-controlled atony despite DIC and a Couvelaire uterus, avoiding hysterectomy and preserving fertility [11].
- **Neonatal Resuscitation:** Immediate intubation and surfactant for a severely acidotic 28-week infant.

Comparison with the Literature: Spontaneous expulsion of a placenta praevia before fetal delivery is reported only sporadically, and historical reports are dominated by fetal and maternal loss. To our knowledge, survival of both the mother and the co-twin after spontaneous expulsion of a placenta praevia followed by co-twin abruption has not previously been described.

Limitations: This is a single case, and the proposed mechanism is inferred rather than proven. Long-term neurodevelopmental outcome of the surviving infant is not yet known.

Conclusion

Dual placental pathology in a twin pregnancy demands a high index of suspicion and a coordinated multidisciplinary response. Even after expulsion of one placenta followed by abruption of the other, survival of both mother and co-twin is achievable with immediate operative delivery, early haemostatic resuscitation, uterus-preserving surgery and skilled neonatal care.

Learning Points

- In a twin pregnancy presenting with an expelled placenta but no fetus, suspect placenta praevia of one twin and anticipate abruption of the co-twin.
- Sudden uterine decompression, whether in transit or in the labour room, can trigger abruption in multiple pregnancies; continuous fetal monitoring and a theatre-ready team are essential.
- A retroplacental hypoechoic area on bedside ultrasound supports the diagnosis of abruption, but a normal scan does not exclude it.
- Activate the massive transfusion protocol early to stay ahead of consumptive coagulopathy.
- B-Lynch compression sutures are an effective, fertility-preserving option for atony, even with a Couvelaire uterus.
- In women with a previous caesarean delivery and a twin pregnancy, placental location should be clearly documented on mid-trimester ultrasound, with follow-up imaging if the placenta is low-lying

Declarations

Funding: The authors received no specific funding for this work.

Conflicts of Interest: The authors declare no conflicts of interest relevant to this article.

Ethics Approval: This case report was prepared in accordance with the ethical standards of the Institutional Ethics Committee of Swaraj Hospital and Research Institute, Bolangir, Odisha, India, and with the 1964 Declaration of Helsinki and its later amendments. Formal ethics committee approval was waived for this single-patient report in line with institutional policy.

Consent to Participate and for Publication: Written informed consent was obtained from the patient for the anonymised use of her clinical data and for publication of this report and the accompanying images. A copy of the consent form is available to the Editor-in-Chief on request.

Availability of Data and Material: Data supporting this report are available from the corresponding author on reasonable request.

Author Contributions: S.M. conceived the report, managed the case and drafted the manuscript. S.K.M. contributed to intraoperative management, data collection and critical revision of the manuscript. Both authors reviewed and approved the final manuscript.

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Reporting Guideline: This report was prepared in accordance with the CARE guidelines [11].

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