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A Rare Case of Placental Abruption Along With Couvelaire Uterus And Uterine Scar Rupture: A Case Report

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Abstract

Placental abruption (PA), is defined as the detachment of the placenta, partially or fully, from the wall of the uterus before delivery. Severe PA could lead to a couvelarie uterus (CU), a rare but intricate complication. This report discusses the case of a 25-year-old female not only with placental abruption and couvelaire uterus but also with uterine scar rupture, further complicating the matter. This report aims to help reduce morbidity and mortality in such cases, emphasising timely recognition, intervention and swift treatment to achieve favourable outcomes.

Keywords: Placental Abruption, Couvelaire Uterus, Scar rupture, uterine rupture.

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1. Introduction

Placental abruption is the premature separation of the placenta from the lining of the uterus before the second stage of labour.[1] The cause of PA is often unknown; however, some possible risk factors include trauma, injury to the abdomen, loss of amniotic fluid, maternal hypertension, smoking, early rupture of membranes, and chorioamnionitis.[2] It is an uncommon but grievous emergency, threatening both the mother and the developing fetus with an incidence of 0.6% to 1.2%.[3]

Couvelaire uterus is a life-threatening complication of placental abruption with an incidence of around 1%. CU occurs when blood from ruptured decidual spiral arteries seeps into decidua basalis, causing placental separation followed by infiltration in the lateral portion of the uterus.[4]

Together, both of these can be a serious risk to the mother and the fetus because they can decrease/block the baby's oxygen and nutrient supply leading to premature birth, low birth weight or even fetal demise. In mothers, CU can cause maternal postpartum haemorrhage, cardiovascular disease and shock. The maternal mortality rate is found to be 1%-5%.[4]

This report discusses a unique case presentation of a female patient with not just CU and PA but also uterine scar rupture to further complicate the matter. Uterine ruptures usually occur in females with a history of a previous cesarean section (C-section) at a deficient cesarean scar site, and can sometimes be lethal in itself if prompt repair is not done.

2. Case Presentation

We report here the case of a 25-year-old woman, gravida 3, para 2 + 0. According to her past obstetric history, she was a known case of pre-eclampsia in both her previous pregnancies, but she was never investigated for acquired or inherited thrombophilia. This resulted in intra-uterine death (IUD) via spontaneous vaginal delivery (SVD) at 30 weeks, 7 months back. Prior to this, 3 years ago, she had delivered a full-term, alive baby with a birth weight of 2.6kg via lower segment caesarean section.

Her current pregnancy was not booked, but she was still taking tablet Methyldopa 250 mg three times a day for pre-eclampsia as prescribed by her previous obstetrician during her former pregnancies. She had not attended any prenatal check-ups during this pregnancy, and fetal anomaly screening at 21 weeks of gestation was also not done. The rest of her past medical, surgical, and personal history was unremarkable. At 32 weeks of gestation, her blood pressure increased to 140/100 mmHg and remained high despite medication. Additionally, she started experiencing lower abdominal pain and per-vaginal bleeding (revealed) for 5 hours, for which she went to a nearby primary care hospital. She had changed her sanitary pad only once, which was partially soaked, according to the patient. The abdominal examination, according to the hospital note, had revealed decreased fetal movements and fetal heart sounds. On ultrasound, there was no cardiac activity seen, and it was declared as intrauterine death (IUD). Her haemoglobin was 8 g/dl.

At the patient's request, she was then referred to a nearby tertiary care hospital on 29/09/20.

On arrival at our hospital, her blood pressure was 140/100 mmHg, pulse was 90 bpm, and respiratory rate was 20 bpm. She was not booked for prenatal care or delivery at our hospital for her current or any of her past pregnancies. On abdominal examination, the height of the fundus was 32 weeks, on palpation abdomen was woody hard and tense, and fetal heart sounds were absent, which was confirmed by ultrasound as well. These findings indicated fetal demise. The placenta appeared thickened and heterogeneous, 7.3 cm, and no vascularity was noted in the placenta on ultrasound. [Figure 1]. On per-vaginal examination, her os was 3 cm and bleeding +++. She was admitted to the hospital for further monitoring and intervention. Her provisional diagnosis, on admission, was placental abruption, intrauterine death, and pre-eclampsia. Initial blood tests revealed a haemoglobin of 8 g/dl, a low platelet count of 90,000/cumm, and a deranged coagulation profile.

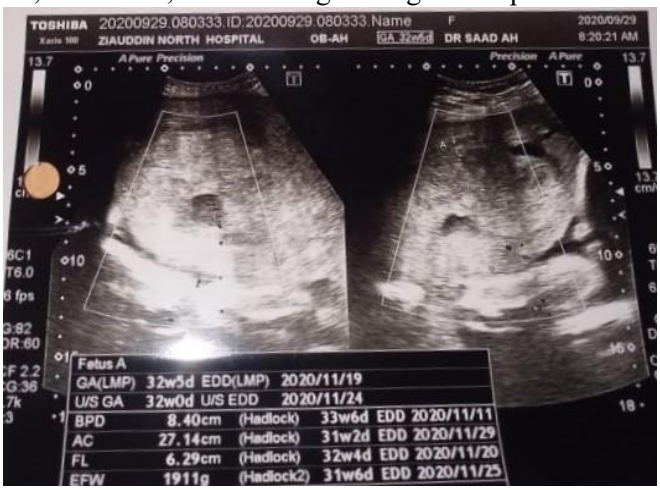

Figure 1: A picture of the patient's ultrasound

Due to the rapidly deteriorating condition of the patient, an emergency lower segment c-section was performed. Our observations unveiled a ruptured uterus accompanied by purple discolouration of serosa and a previous uterine scar rupture of about 2 cm. Repair of the ruptured uterus was done. 1000 ml of retroperitoneal clots were removed, and both of her tubes were found to be swollen, which further confirmed our diagnosis of Couvelaire uterus. Pelvic and medivac drains were kept in place. 1-unit packed cell (PCV) and 6 fresh frozen plasma (FFP) units were transfused to the patient during the operation, emphasizing the severity of this situation. Necessary measures were taken to ensure adequate homeostasis. The uterus was closed in two layers with utmost precaution, and bleeding was successfully controlled. An IUD baby and placenta were delivered a few minutes later along with retroplacental clots. [Figure 2].

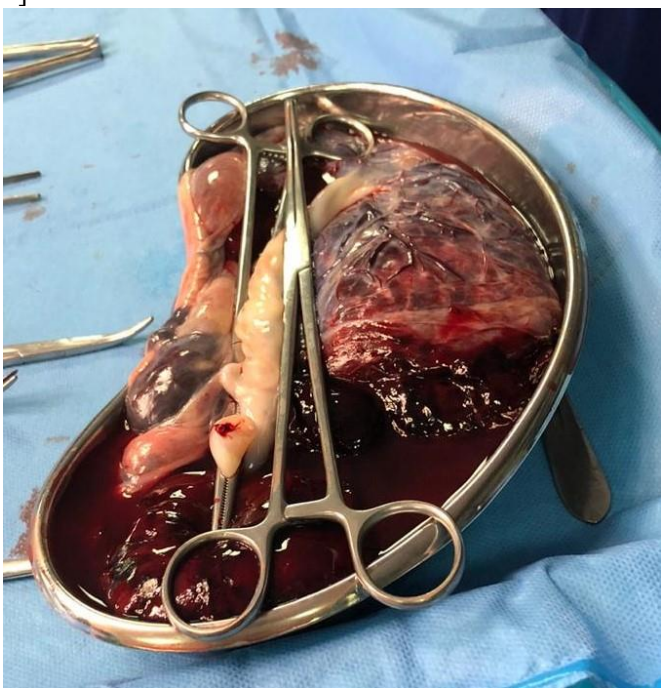

Figure 2: Shows retrieved placenta with abundant clots and bluish discolouration

In the postoperative course, the patient's blood pressure remained high for which she was given Amlodipine 10 mg and transfused 1-unit PCV. Her blood pressure was brought within the normal parameters, and her recovery post-surgery was satisfactory. On the third postoperative day, her haemoglobin was found to be 9 g/dl, indicating a positive response to the procedure. The patient was discharged on the third day in good health. On follow-up, the patient was recovering adequately, her stitches were removed, and there were no further complications. Her blood pressure had returned to normal. She was advised to seek early consultation in all future pregnancies for timely and adequate management. Histopathological analysis of the placenta confirmed inter-membranous and retroplacental haemorrhage consistent with placental abruption.

4. Discussion

We present an unusual case of PA and CU where the patient was treated successfully without the need for a hysterectomy, despite severe bleeding. The most common reasons for PA as reported by the New Jersey Placental abruption study were retroplacental clots

(77.1%), vaginal bleeding with uterine hypertonicity (27.8%) and vaginal bleeding with non-reassuring fetal status (16.1%).[4] In our case, the main risk factor associated was preeclampsia.

Usually, there is a triad of symptoms associated with Placental abruption consisting of abdominal and pelvic pain along with uterine hypertonia and vaginal bleeding, which don't occur in all cases, leading to diagnostic difficulties. Fortunately, all were present in our patient, leading to a quick diagnosis. However, unfortunately, there is still no established clinical criterion for placental abruption.[4] A definitive diagnosis can only be made after birth by examining the placenta, hence a focused history and physical examination are critical, especially to rule out other causes such as placenta previa. The presence of a retroplacental clot and purple discolouration of the serosa of the uterus [Figure 2] leads to a diagnosis of a couvelaire uterus based on visualization or biopsy.

The mainstay of surgical treatment is hysterectomy or hysterotomy. Hysterectomy is preferred in cases with profound myometrial damage or inability to achieve hemostasis despite conservative measures.[5] Favorably, a hysterectomy was not needed in our case. The couvelaire uterus sometimes loses its contractile power but usually responds well to intravenous oxytocin. Hence, in our case, Syntocinon was administered.[6] Where possible, it should be managed conservatively, and emphasis should be placed on decreasing the need for hysterectomy if it is not absolutely required. Rather, it is discouraged to opt for a hysterectomy, as done in our case, as the uterus was repaired, and drains were secured successfully.

Uterine scar rupture is another serious condition, having a prevalence of about 0.74% after the previous cesarean section.[7] Within pregnant women, there are two populations at risk for uterine rupture: those with an unscarred uterus and those who have a myometrial scar from previous surgery. The rate of unscarred uterine rupture is increasing, though the incidence is low. Rupture is more common in women with a prior cesarean delivery, particularly dependent upon the type of uterine incision given and the number of cesarean deliveries. The risk is slightly low if a low-transverse uterine incision was made versus a vertical incision in the previous delivery.[8] A uterine rupture can cause vaginal bleeding, abdominal pain, a change in the contraction pattern, or a non-reassuring fetal heart rate tracing, all of which were present in this case except the contraction pattern, which couldn't be assessed due to continuous abdominal pain.

It is pivotal for a multidisciplinary team, including obstetricians, anesthesiologists, and haematologists to keep the possibility of PA and its complication in mind and take prompt action when needed. There is a clear need for heightened awareness for not just healthcare providers for early intervention and risk factor monitoring, but also patient education especially emphasizing the need for antenatal checkups as well as when to seek medical help, in order to decrease the potentially negative outcomes linked to this ailment. If the patient had attended the recommended antenatal checkups in the duration of her pregnancy and hence been monitored for her high blood pressure, this case might have been prevented entirely and the fetus might have had a positive outcome.

5. Conclusion

In conclusion, our case highlights the challenges and issues faced by doctors in managing obstetric emergencies. The uniqueness of the above case further shows the complexity that could be faced, but with timely intervention and diagnosis, an IUD could also have been prevented. We aim to emphasize the need for regular antenatal checkups, educating patients regarding any danger signs and when to seek prompt help. The importance of attending regular obstetric checkups for expecting females should be highlighted to the community as a whole so that mothers and infants can be protected from many such preventable scenarios by getting the support they need to reach out to medical workers.

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