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A rare case of uterine rupture following caesarean section in the fifth postpartum week

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Abstract
Uterine rupture is a rare complication but an extremely dangerous one for both the mother and the fetus. It has been on an increasing trend as caesarean section rates continue to rise. Although uterine dehiscence or rupture can occur during the antenatal, intranatal, or postnatal period, it is extremely rare in the late postpartum period. Therefore, we would like to present a case of uterine rupture that presented to the hospital on Postoperative day no 37. Although a rare cause, uterine dehiscence or rupture should be considered as a differential in the postnatal period, especially as the risk of mortality and morbidity remains high for this complication.

Keywords: Postpartum infection, postpartum complication, post-operative complication, caesarean section, spontaneous uterine rupture

Introduction
The cesarean section rate has been on an increasing trend [1, 2]. With the rising rate, the complications associated, have also been increasing, hence it becomes important for clinicians to identify these complications as early as possible to limit their associated morbidity and maternal mortality. Spontaneous cesarean uterine wound dehiscence or rupture is extremely rare in postpartum women [3-5]. However, this severe complication is life-threatening and hence there is an urgent need for early diagnosis and intervention [6, 7]. Usually, cesarean scar dehiscence or rupture presents in the acute setting and could present with hemodynamic compromise and shock. In our case, the patient presented with vague symptoms and stable vitals, imaging was done which showed a uterine scar rupture at the post-op day 37, which is a highly unusual presentation.

Case Presentation
A 24-year-old patient, P1L1 was referred from a local hospital to our tertiary center at Bangalore Medical College and Research Institute (Vani Villas Wing) with complaints of vague abdominal pain and low-grade fever for 5 days. History was significant for a lower segment cesarean section 37 days back for Oligohydramnios. Operative notes describing the surgery and immediate post-operative period were uneventful and the patient was discharged on post-operative day 5, with instruction to follow up after 1 week. A post-op follow-up visit was normal and there were no complaints. The patient had no history of recent trauma, infection, or sexual intercourse. There was no relevant medical or surgical history.
She was admitted to our tertiary center and initial clinical examination, vitals, and preliminary evaluation were within normal limits apart from a low-grade fever and mild lower abdomen tenderness. Per vaginum examination revealed uterine motion tenderness. Initial blood investigations which comprised of a urine pregnancy test, complete blood count, CRP, coagulation profile, urinalysis, and renal function tests were normal. Ultrasound was used as the primary imaging modality. Transvaginal ultrasonography revealed a mixed echo pattern in the lower segment of the uterus (Fig.1) along with an anterior scar rupture that extended from the endometrium to the serosa (Fig. 2), a collection of around 4x4 cm was found anterior to the uterus along with significant collection in the pouch of Douglas. The copper intrauterine device was in-situ. Ultrasound findings were further confirmed by a CT scan which showed peripherally enhancing collection measuring 5.3x2.1.x1.9 cm collection noted at the lower anterior uterus

Fig 1: Transvaginal ultrasonography shows a collection of mixed echogenicity in the lower anterior segment of the uterus

Fig 2: Transvaginal ultosonography shows a linear defect in the lower anterior segment of uterus (ruptured uterus), extending from the endometrium to the peritoneal surface as indicated by the cursor

The decision for laparotomy was taken, the patient and the relatives were counselled regarding the same. After taking proper consent, the patient was prepared for laparotomy, and broad-spectrum antibiotics (Piperacillin/ Tazobactum and metronidazole) were started. An incision was made through the same Pfannenstiel incision, the abdomen was opened in layers. Open entering the abdomen, a 4x2 cm organized clot adhered to friable uterine margins was seen over the ruptured cesarean scar on the right side, not extending into the angle or involving the right uterine artery (Fig.3).

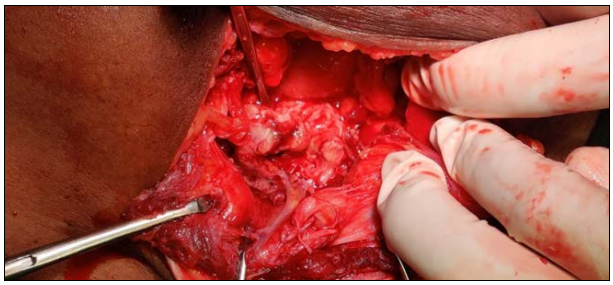

Fig 3: Interaoperative image shows the damaged and necrosed uterine margins (held by allis forceps) of the rupture site

There was around 100 ml of collection in the pouch of Douglas. The Cu-T was visible through the ruptured scar which was removed. The collection was sent for culture and sensitivity. The integrity of the remaining scar was confirmed. The rest of the abdominal inspection revealed nothing significant.

The edges of the wound were grasped with Allis tissue forceps and the collection in its entirety was removed (Fig.4) as a partly organized mass with the help of tissue-holding forceps, the minimal collection remaining was drained by a suction device. The thin, friable, damaged necrosed margins were debrided and the wound was approximated in double layers using a 1-0 vicryl suture material (Fig.5). The pouch of Douglas was also cleaned.

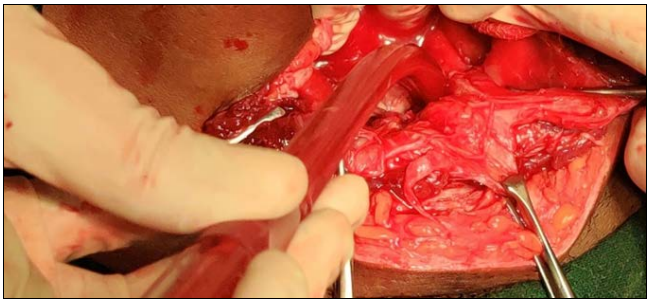

Fig 4: Debridement of the uterine rupture wound done

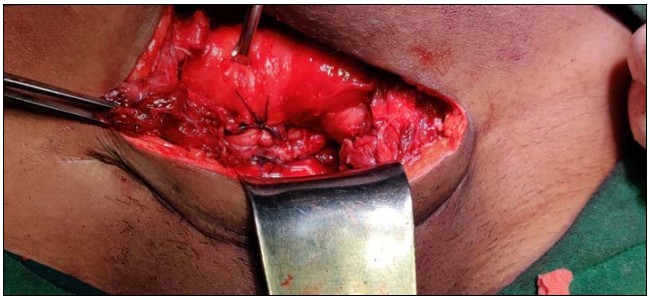

Fig 5: Following debridement, uterine wound approximated by vicryl 1-0 suture and hemostasis secured

Hemostasis was confirmed when the mean arterial pressure was 70 mmHg. Peritoneal wash was done. The abdomen was closed in layers. The patient withstood the procedure well. The immediate post- operative and subsequent post-operative days were uneventful. Cultures were positive for Klebsiella aerogenes which was sensitive to Meropenem and Amikacin. The patient was discharged on the POD 8 and was followed up in the outpatient department after a week, where she had no complaints and was doing well.

Discussion

Cesarean section has been on an increasing trend as we have mentioned before. Cesarean section also requires a longer recovery time, and operative complications such as lacerations and bleeding, at rates varying from 6% for elective cesarean to 15% for emergency cesarean [8]. Cesarean delivery increases the risk of major bleeding in a subsequent pregnancy because of placental anomalies such as the risk of placenta accreta spectrum, placenta previa (5.2 per 1000 live births), and placental abruption (11.5 per 1000 live births) [9, 10]. The major non-anesthesia-related complications related to cesarean birth are surgical site infection, particularly superficial wound complications, hemorrhage, injury to pelvic organs, and thromboembolism. The risk of severe maternal morbidity is generally higher after an unplanned cesarean birth during labor than after a scheduled pre-labor cesarean birth [11, 12]. Cesarean birth in the second stage of labor is generally associated with higher maternal composite morbidity than cesarean birth in the first stage of labor, as the risk of hemorrhage, extension of the uterine incision and risk of injury to the nearby pelvic organs increases especially the uterine bladder [13].

Rupture of the pregnant uterus is a rare and potentially life-threatening condition for the mother and the fetus which can occur in the antenatal, intranatal, and even in the postnatal period. Spontaneous uterine rupture is a rare complication that

can lead to maternal and fetal death when the diagnosis is delayed. It occurs in 5.3 per 10000 deliveries [14]. Spontaneous ruptures mostly occur in a scarred uterus with or without complicated delivery or operative manipulation although these increase the risk for the same. The most common risk factor is multiple previous uterine scars where the risk of rupture is 22-74 in 10000 deliveries [15].

Advanced maternal age, grand multiparity, macrosomia, multiple gestation, bleeding, uterine anomalies, placentation anomalies, trauma, obstetric maneuvers (e.g. internal version and breech extraction, instrumental delivery), labor induction, and augmentation are the other risk factors for uterine rupture [16]. Nevertheless, there are cases reported without any risk factors [17].

In our patient, the only possible risk factor could be a low-grade infection which leads to the weakening of the tensile strength of the suture and the uterine tissue which subsequently lead to the rupture. Spontaneous rupture of an unscarred uterus is a serious complication that should be kept in mind even though it is very rarely seen. Any situations that cause hemoperitoneum and abdominal pain should be suspected as uterine rupture. Spontaneous cesarean uterine wound dehiscence or rupture is usually seen during the antenatal period or labor, especially in a scarred uterus. By contrast, postpartum cesarean uterine wound dehiscence or rupture is very rare [3-5].

Uterine rupture has non-specific symptoms and it depends on the time of presentation. Uterine rupture during the antepartum or intrapartum period may present with unstable vitals, variable deceleration of the fetal heart, sudden cessation of uterine contractions, bleeding may or may not be present, and during the intrapartum period, the presenting part may ascend back into the uterus. In the postnatal period, the symptoms may range from abdominal pain to hemodynamic instability. In contrast, our patient was fairly stable with complaints of only vague abdominal pain and low-grade fever.

Uterine rupture is usually associated with massive postpartum hemorrhage (PPH) which could be life- threatening, but this may not always be the case, as witnessed in our case. Bleeding can be due to damage and tear of the uterine muscles, slippage of ligature, or inadequate hemostasis of the uterine vessels during the surgery. Although in this particular patient, there was bleeding but the patient did not develop any hemodynamic complications or hypovolemia, moreover, the blood counts were within normal limits.

Healing of surgical wounds is by regeneration of the muscular fibers and complete uterine involution. Complete restoration of anatomy requires close to at least 6 months. Also to note, that within 6 months after a cesarean section, sexual intercourse may cause wound dehiscence or rupture [18]. Hence any violence and traumatic activity should be well avoided. Attempts to predict women who are at increased risk of uterine rupture require adequate imaging techniques and the most common diagnostic tool used is ultrasound which has been recommended. The measurement of the thickness of the lower uterine segment is the target of ultrasound scanning [19].

Conclusions

As the rate cesarean rate rises, clinicians should be well aware of the common complications as well as these rare complications with unusual presentations as they can lead to significant maternal morbidity, and if not corrected in time, then even maternal mortality. Through the medium of this case, we want to bring to attention that something as dangerous as uterine rupture can occur even in the fifth week of postpartum status. Therefore, uterine scar rupture or dehiscence should always be considered as a differential when evaluating the causes of late postpartum complications.

Conflict of Interest
Not available

Financial Support
Not available

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