A Complex Case of Herniated Gravid Uterus Rupture with Placenta Accreta

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Abstract
A 35 year old woman from rural India, with a prior history of caesarean delivery, presented to the emergency room in hypovolemic shock at 34 weeks’ gestation, with an unusual protrusion of the infra-umbilical portion of the anterior abdominal wall. The lower abdominal bulge turned out to be the ruptured gravid uterus with the intact amniotic sac (amniocele) herniating through the anterior abdominal wall incisional hernia. There was an associated placenta accreta, yet another obstetric condition with high maternal morbidity and mortality. With a prompt diagnosis and surgical intervention, both the mother and the foetus survived.

Keywords
Herniated gravid uterus; Incisional hernia; Amniocele; Caesarean scar rupture; Placenta accreta

Introduction
Cases of gravid uteri herniating through either incisional or umbilical hernias have been described in the past [1-7] but a case of a herniated gravid uterus, caesarean scar rupture and concurrent placenta accreta with a favorable maternal and fetal outcome has not been reported. We report one such case and proceed to discuss diagnostic and management strategies when faced with such a complex clinical dilemma.

Case Report
An unbooked 35 year old G4P3L2 from rural India, with a history of one prior caesarean section, presented to the emergency room in hypovolemic shock at 34 weeks’ gestation with an abnormal protrusion on her abdomen below umbilicus. Her obstetric history revealed two live term vaginal deliveries at home around 13 and 9 years back. In her 3rd pregnancy she underwent a caesarean delivery which was one year back for transverse lie with hand prolapsed at term in which she developed wound infection that later healed by secondary intention. She was a thin built woman, poorly nourished, bidi (tobacco flakes wrapped in dried plant leaves used in rural India as cigarette) smoker with history of chronic cough.

In the morning of 15th November, 2009 she developed pain in the abdomen which gradually increased for which she came to the hospital. Just before reaching the labor room the pain decreased, while the patient started having giddiness and sweating. On examination, she was conscious, oriented, afebrile but perspiring and pale. Her pulse was feeble 124/min and systolic blood pressure was 80 mm/Hg. She had a midline vertical infra-umbilical scar with a huge bulge (Figure 1). Skin over the bulge looked stretched, thin and shiny but no ulceration or excoriation was observed. Fundal height was 32 weeks and fetal head was felt in the right hypochondria with fetal tachycardia. Ultrasound scan revealed a single live intrauterine foetus in breech presentation along with a rent in the anterior uterine wall through which amniotic sac with fetal hand was herniating (Figure 2). She was subjected to immediate laparotomy in view of scar dehiscence. On incising the abdominal wall, intact amniotic sac (amniocele) was seen bulging without intervening myometrium or peritoneum along with hemato-peritoneum (Figure 3) suggestive of uterine scar rupture. Sac was incised and a female baby of 2.1 kg with APGAR score of 7 was delivered. Placenta was found morbidly adherent to the anterior uterine wall just above the scar leading to primary post partum hemorrhage for which caesarean hysterectomy was done. Herniorrhaphy was done by suture repair of the rectus sheath using No-1 prolene. Redundant skin and subcutaneous tissue were excised and skin was approximated. She later received broad spectrum antibiotics (Ampicillin, Metronidazole and Gentamycin) along with two units of whole blood and an abdominal binder in the post operative period. She had an uneventful recovery. After stitch removal patient was discharged on the 12th post-operative day with her baby. Both mother and baby were found to be healthy after 6 weeks and 1 year follow up.

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Figure 1: Protrusion of 30-32 weeks ruptured gravid uterus through an incisional hernia site.

Figure 2: Abdominal US sagital view showing protrusion of intact amniotic sac through rent in the anterior uterine wall.
The incidence of placenta accreta has increased 10-fold in the past 50 years and now the incidence of placenta accreta is high in the previous caesarean delivery cases. It can be diagnosed antenatally on the sonography by the absence of plane between the placenta and the uterine wall or disruption of the utero-placental interface and the vessels seen crossing the interface on Doppler [13]. The incidence of placenta accreta has increased 10-fold in the past 50 years and now the incidence of the same is 1 in 2,500 deliveries [6].

The incidence of anterior abdominal wall incisional hernia varies between 5%-15% while with caesarean section it accounts for 3.1% [3]. The incisional hernia is usually found to be associated with midline incisions, postoperative abdominal distension, intra-abdominal sepsis, wound infection, wound dehiscence and postoperative fever [8]. Infection, malnutrition along with chronic cough and a short inter-pregnancy interval might have played a role in the etiology of incisional hernia in our patient.

Literature search revealed ten cases of gravid uteri herniation through Incisional hernia [1,3-7] and 5 cases through Umbilical hernia, of which 8 developed incarceration, while only one case had uterine scar rupture with stillbirth [2]. Herniation of gravid uterus has chances of incarceration, strangulation, necrosis of abdominal wall, burst abdomen and other complications [1] while rupture uterus & placenta accreta itself has grave fetal and maternal outcomes respectively.

Van Rooyen et al. in 1977 reported a case of pregnant woman having ulceration around caesarean section scar due to pressure necrosis with protrusion of the gravid uterus through the ventral hernia [9]. Apart from ulceration, herniated gravid uterus may also cause incarceration, strangulation, preterm labor, intrauterine fetal death [4] and burst abdomen [5].

Uterine rupture is a major obstetric hazard in developing countries like India [10] accounting for 5-10% of all maternal deaths [11]. As per the multicentric study on approximately 39000 term pregnant women with a prior caesarean delivery, the overall risk for uterine rupture was 0.32%, while the risk was 0.78% in those women who were given trial of labor with serious adverse perinatal outcome in form of stillbirth, hypoxic ischemic encephalopathy and the risk of neonatal deaths was 0.27% [12]. Risk increases with increased number of caesarean deliveries. Prior vaginal delivery does not decrease the risk of scar rupture.

Placenta accreta is a condition characterized by abnormal adherence of the whole or a part of placenta to the uterine wall, which often requires obstetrical hysterectomy. Incidence of Placenta accreta is high in the previous caesarean delivery cases. It can be diagnosed antenatally on the sonography by the absence of plane between the placenta and the uterine wall or disruption of the utero-placental interface and the vessels seen crossing the interface on Doppler [13]. The incidence of placenta accreta has increased 10-fold in the past 50 years and now the incidence of the same is 1 in 2,500 deliveries [6].

The diagnosis of herniation of a gravid uterus in an incisional hernia is usually made by the history of hernia between the pregnancies, presence of an unusual bulge of the abdomen with stretched skin [4] and easily palpable uterus and fetal parts. Imaging studies like ultrasound and magnetic resonance imaging can also assist to make the diagnosis [14]. In our case, we made the preliminary diagnosis by clinical examination and it was later confirmed by the ultrasound.

The management of incisional hernia in pregnancy is mainly conservative [1,4,15]. Post partum elective herniorrhaphy is usually the norm [16] because progressively stretching abdominal wall during pregnancy may interfere with proper repair along with an associated risk of wound disruption, infection and foetal compromise [9]. But incarceration, strangulation or burst abdomen necessitates an immediate antenatal herniorrhaphy and then the pregnancy may be continued till term after the surgery [15].

Alternatively ventral hernia repair can be done at the time of delivery, concurrently with caesarean section if tissues appear healthy. Best approach for incisional hernia repair is delayed mesh repair after 6-8 weeks [1] of delivery. Incisional hernia per se is not an indication for caesarean section but the uncertainty about the wound integrity and high intra-partum complication rate during vaginal birth in women with herniated gravid scarred uterus has lead most obstetricians to favour an elective repeat caesarean section as the safest mode of delivery [1].

During such surgery great care must be taken to avoid injury to any vital structures such as the small or large bowel during the incision on the abdomen, as these structures can be present in the hernial sac. The skin and the peritoneum covering the hernial sac may be very thin [17]. The well established surgical principles for repair remains the same i.e. 1.) Wound closure should be free of excessive tension, 2.) Sutures should be placed in healthy tissue, and 3.) Strong non absorbable suture material should be used to support the wound through the critical period of healing [18]. Our case had the caesarean scar rupture so an emergency laparotomy was done followed by caesarean hysterectomy owing to the primary postpartum haemorrhage due to morbidity adherent placenta. Then the herniorrhaphy was done at the same time as the patient was judged to be fit for the suture repair (without mesh). However, mesh repair is a better option in patients with midline abdominal wall incisional hernias for the prevention of recurrence regardless of the size of the hernia [19].

Survival of foetus in our case might have been possible due to the presence of intact amniotic sac (Amniocele) bulging into the abdominal wall hernia despite scar rupture, delay in the separation of morbidity adherent placenta maintaining foetal supply and the timely surgical intervention. The term “Amniocele” was coined by Kushnir and colleagues who found the herniation of the amniotic sac through the uterine defect [7].

The extension of effective and affordable medical care, obstetric services and proper timely referral is required in rural settings of the developing countries, [1,8] to reduce the incidence of maternal & foetal morbidity and mortality and facilitating its early treatment to prevent the occurrence of such life-threatening conditions [10].

**Conclusion**

The management of herniated gravid uterus needs to be individualized depending upon the severity of complications and
the gestational age at presentation. With such a complex clinical presentation as the scarred uterus lying in the incisional hernia along with placenta accreta, the frequent follow up and timely surgical intervention are the key factors to improve the feto-maternal survival. Conservative treatment until term, caesarean for obstetrical indications, and elective herniorrhaphy after 6 weeks postpartum using mesh is recommended for such complicated senerio.

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