

CASE REPORT

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Maternal death due to ruptured uterus consequent to abruptio placentae: 2 case reports

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Abstract

Background: Abruptio placentae is a complication of pregnancy that can lead to uterine rupture, increasing maternal and fetal mortality, especially when there is a lack of medical outreach in remote areas.

Case presentation: We present two maternal deaths due to uterine rupture in a term pregnancy consequent to abruptio placentae. In one case, the uterus ruptured at the previous lower segment Caesarean section (LSCS) scar site and in another over the lateral wall of Couvelaire uterus. In both cases, the fetus was partially lying outside the uterus in the peritoneal cavity, and there was a massive retro-placental clot.

Conclusions: Early identification of high-risk factors, followed by institutional delivery, may reduce maternal and fetal mortality due to abruptio followed by uterine rupture.

Keywords: Uterine rupture, Abruptio placenta, Maternal death, Couvelaire uterus

Background

The World Health Organization (WHO) defines maternal death as the death of a pregnant female or death within 42 days of termination of pregnancy due to any cause related to or aggravated by the pregnancy or its management other than accidental and incidental causes (World Health Organization, 2004). Premature separation of a normally implanted placenta from the endometrium is referred to as abruptio placentae. It can be of “revealed” type in which there is vaginal bleeding or “concealed” type in which the blood accumulates behind the placenta, without evident external bleeding. Also, it can be “partial” or “total” depending upon the extent of its detachment from the uterine wall (Oyelese & Ananth, 2006). Complete rupture through all three layers of the uterus, i.e., the perimetrium, endometrium, and myometrium, is called uterine rupture. It is known to cause mortality in both mother and fetus (Togioka &

Tonismae, 2021; Gibbins et al., 2015). In most cases, uterine rupture occurs in pregnant women, usually from the site of a previous scar. It may also happen in non-pregnant females consequent upon trauma, infection, or cancer (Herrera et al., 2011).

We present two cases of maternal deaths due to uterine rupture consequent to abruptio placentae. The rupture was at the previous Caesarian scar in one case, and in another case, there was a rupture of the unscarred uterus.

Case presentation

Case 1

A 26-year-old multigravida (G₄P₃A₁) with 40 weeks of gestation presented to a district hospital with complaints of vaginal bleeding for 12 h. She appeared pale and exhausted. Her blood pressure was 80/50 mm of Hg, pulse was feeble, and there was tachycardia. The body temperature was 36.6 °C. Fetal demise was affirmed from the absence of fetal heart sound on fetal Doppler. She had been referred to our tertiary care hospital due to a lack of a specialist doctor and multidisciplinary facilities

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at the district hospital. On her arrival to the tertiary center, she had a non-palpable pulse and unrecordable blood pressure and was unresponsive to stimuli. She was declared dead on arrival. As per the rule, the doctor on duty at the emergency registered the case as medicolegal and the police was intimated.

She was a registered antenatal case in her current pregnancy. Her elder child was born 6 years ago through Caesarean section after attempted vaginal delivery by a traditional birth attendant (TBA). The younger child had been delivered vaginally at home in the presence of TBA. The accompanying relatives were not aware of any other significant medical condition.

Autopsy findings

Legal formalities were completed by the police and the body was brought for postmortem examination after 8 h of death. On external examination, the dead body was pale. The abdomen was distended, with an abdominal circumference at the level of the umbilicus measuring 118 cm. All internal organs were pale with a collection of 1.5 l of clotted and fluid blood in the peritoneal cavity. A fetus and placenta with a massive retro-placental clot consequent to abruptio placenta were seen in the peritoneal cavity (Fig. 1a). The fetus was lying in cephalic presentation with its head within the uterine cavity in the lower uterine segment. The fetus was carefully extracted from the uterus. It measured 52 cm in length and weighed 2.8 kg. The placenta was discoidal in shape and was seen attached with a retro-placental clot of size 22 cm × 20 cm × 10 cm (Fig. 1b). The uterus was woody on palpation, and vertical rugosities depicting the contracted uterus were present on its external surface.

The rupture on the uterus was present anteriorly in the thinned out lower uterine segment at the previous LSCS scar site. Edges of the ruptured wound were irregular and infiltrated with blood (Fig. 1c). The uterine cavity contained about 250cc of blood and blood clots at the site of placental detachment.

Based on gross findings at autopsy, we concluded that the patient died due to “Uterine rupture from Caesarean scar site consequent to abruptio placentae.”

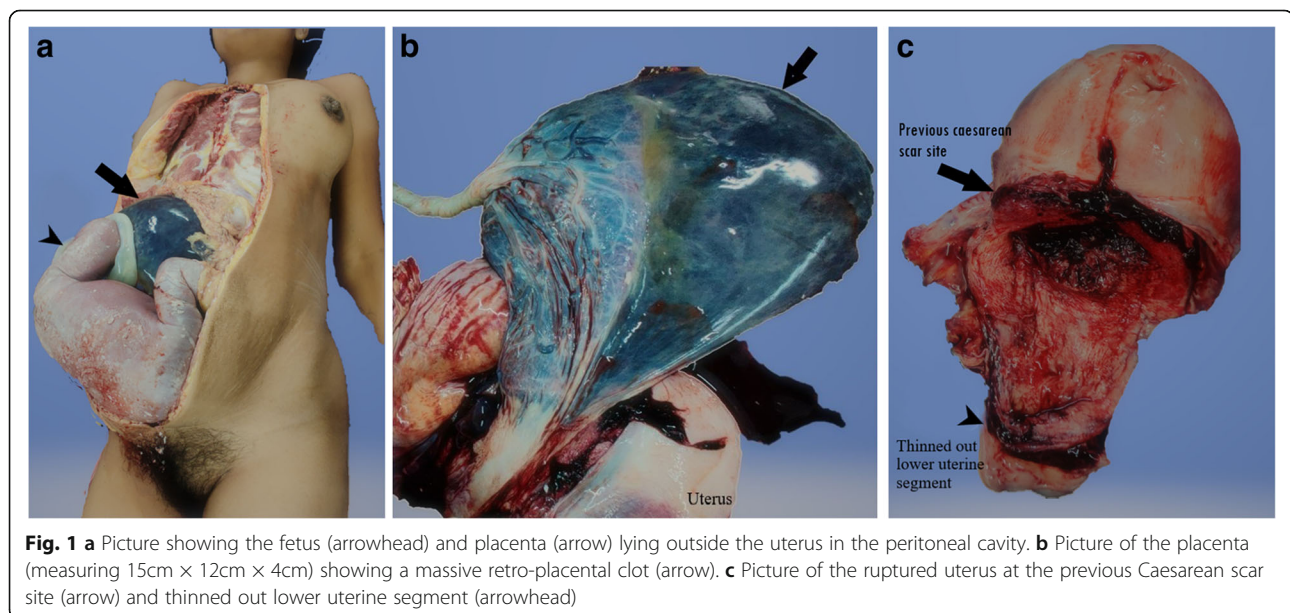
Case 2

A 28-year-old multigravida (G4P3A0) with 38 weeks of gestation was a booked antenatal case with an expected date of delivery (EDD) of 15/03/2021. Just before the EDD, she asked her mother to take her to the hospital and was taken to a primary healthcare center (PHC). From the PHC, she was referred to a district hospital, and further from there, she was sent to a tertiary care center due to a lack of facility and specialist doctor. She died on the way and was declared dead on arrival at the tertiary hospital. As per the rule, the case was labeled as medicolegal and was posted for medicolegal autopsy.

There was no history of bleeding per vaginum. The woman had three children, aged 10, 7, and 2, all of whom were delivered vaginally. The relatives accompanying the lady could not recollect any significant medical condition that she suffered from.

Autopsy findings

On external examination, the dead body was pale. The abdomen was distended with an abdominal girth of 125 cm at the level of the umbilicus. Internal examination revealed a collection of 2 l of clotted and fluid blood in



the peritoneal cavity. A single dead fetus was lying partly in the peritoneal cavity on the left side and partly in the lower uterine segment. The fetus was lying in the cephalic presentation with its head in the lower uterine segment and the rest of the body in the peritoneal cavity (Fig. 2a). The fetus measured 46 cm in length and weighed 2.9 kg. Dark purple color patches with ecchymosis and indurations were seen on the left lateral as well as the anteroinferior surface of the uterus. The uterus was found ruptured on the left lateral side throughout, with irregular margins (Fig. 2b). On further dissection, there was massive extravasation of blood in the uterine musculature extending up to the serosal surface (depicting Couvelaire uterus). A discoidal shape placenta was found inside the uterine cavity attached with a massive retro-placental clot of size 24cm × 22cm × 10cm (Fig. 2c). All internal organs were pale.

Based on gross findings at autopsy, we concluded that the patient died due to “Uterine rupture (Couvelaire uterus) consequent to abruptio placentae.”

Discussion

In recent years, there has been an increasing number of cases of uterine rupture as many females’ desire of trial of labor after Caesarean section (TOLAC) (ACOG Practice Bulletin No. 205, 2019). Even though the trial of labor is an acceptable practice, it can cause fatal complications like uterine rupture and may result in maternal as well as fetal mortality. Thus, it becomes imperative for a doctor to counsel the patient regarding its risks and benefits before a TOLAC (Habak & Kole, 2021). Rupture of the uterus is more common in females with a history of previous LSCS delivery, and its risk increases with the number of previous LSCS deliveries undergone

by the woman (Guiliano et al., 2014; Toppenberg & Block, 2002; Tahseen & Griffiths, 2010).

The rupture of an unscarred uterus usually occurs in the late gestational period in the absence of any identifiable risk factor (You et al., 2018). The incidence of rupture in an unscarred uterus has been reported to be 1 per 10,000 to 25,000 deliveries. Recorded risk factors for uterine rupture include maternal age > 35 years, parity > 3, labor induction, previous uterine scar, and fetal macrosomia (Al-Zirqi et al., 2017). Uterine rupture has also been reported in the unscarred uterus after application of fundal pressure during labor (Pan et al., 2002). A patient with uterine rupture may present with pain in the abdomen, with the abnormal contour of the uterus in a distended abdomen, superficially palpable fetal parts, absence of cardiac activity of fetus, maternal tachycardia, or hypovolemic shock (Akhade et al., 2021). The predisposing factors associated with abruptio placentae include pre-eclampsia, maternal hypertension, diabetes, and polyhydramnios (Dafallah & Babikir, 2004).

Severe forms of abruptio placentae may result in Couvelaire uterus (utero-placental apoplexy). It occurs due to vascular damage in the placenta leading to seepage of blood into decidua basalis which causes separation of the placenta (Hubbard & Hosmer, 1997). The affected myometrium gets weakened and may get ruptured during subsequent uterine contractions at the time of labor. Direct visualization and biopsy are the only two diagnostic modalities for Couvelaire uterus; thus, it is underreported and underestimated in the literature (Habek et al., 2008).

The cases are being presented with the regret that had both these cases reported to a tertiary care center in time, four lives could have been saved.

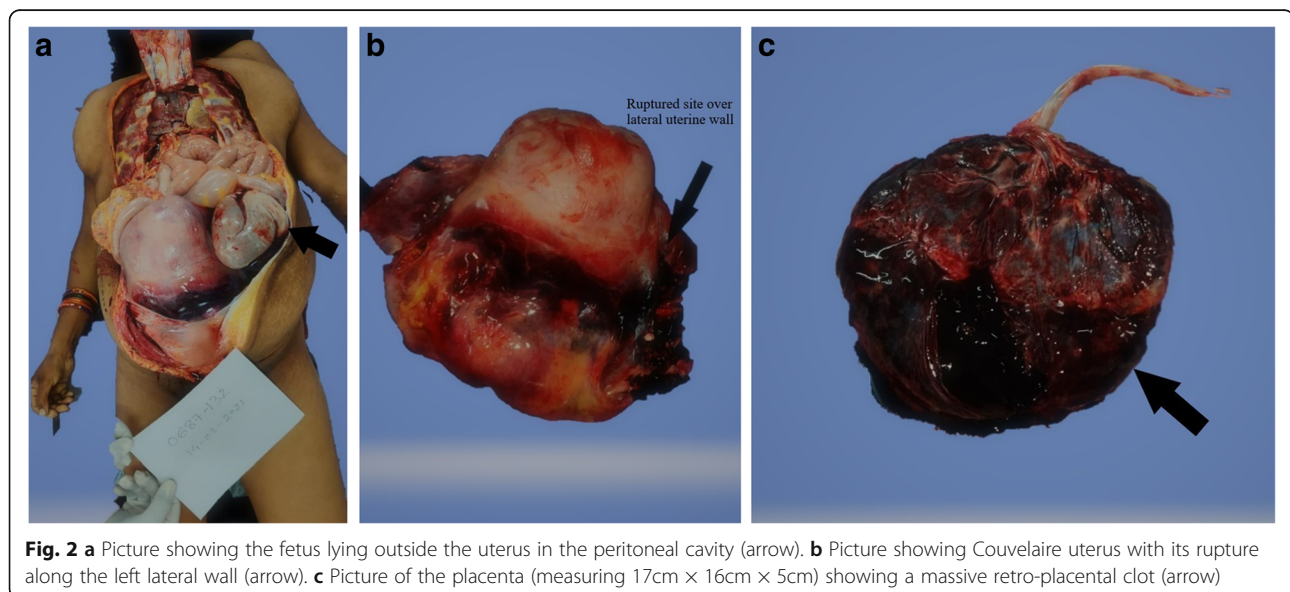


Fig. 2 a Picture showing the fetus lying outside the uterus in the peritoneal cavity (arrow). b Picture showing Couvelaire uterus with its rupture along the left lateral wall (arrow). c Picture of the placenta (measuring 17cm × 16cm × 5cm) showing a massive retro-placental clot (arrow)

Our cases highlight the importance of early diagnosis of abruption placenta and carrying out such high-risk deliveries in an institution. TOLAC, even though an accepted practice, must be performed under strict monitoring and in centers having specialist services (gynecologists, anesthetists, surgeons, radiologists), blood bank facilities, well-equipped operation theater, and ventilator facilities. We also highlight the fatal complications of attempted vaginal delivery in previous LSCS by TBA in rural areas. Such consequences can be reduced by creating awareness among the high-risk pregnancy groups as well as among TBA. We also recommend that patients with a previous LSCS must avoid subsequent pregnancy for at least 6–8 months (Ye et al., 2019).

Conclusions

Maternal and fetal mortality due to abruption followed by uterine rupture can be reduced by early diagnosis of high-risk factors. Failure to diagnose early and manage subsequently may have alarming consequences on the health of the mother and her child, including death.

Abbreviations

WHO: World Health Organization; TBA: Traditional birth attendant; TOLAC: Trial of labor after Caesarean section; LSCS: Lower segment Caesarean section; EDD: Expected date of delivery; PHC: Primary healthcare center

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Authors' contributions

A medicolegal autopsy was conducted by Dr. UT and Dr. AKJ. The article was conceptualized and designed by Dr. AKJ, Dr. SJB, Dr. UT, and Dr. KJ. Relevant literature was searched by Dr. AKJ, Dr. UT, and Dr. VS. Dr. AKJ and Dr. UT drafted the manuscript which was further edited and reviewed by Dr. SJB and Dr. KJ. All authors read and approved the final manuscript.

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Not applicable

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Competing interests

The authors declare that they have no competing interests.

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