

Case Report

Sudden Death due to Uterine Rupture in a Primigravida with Placenta Accreta in Unscarred Uterus: An Autopsy Report

¹C Behera, ²Karthik Krishna, ³Rajesh Kumar, ⁴SK Gupta

Abstract

Spontaneous rupture of uterus during pregnancy is a known complication of placenta accreta. Some of the known risk factors for the trophoblastic invasion of the uterine wall leading to placenta accreta during pregnancy are multi-parity, previously scarred uterus, etc. The clinical management of such cases is found in scientific literature; however sudden death due to uterine rupture as a complication of placenta accreta, in a primigravida is not reported till date. We encountered a case, where a 27 year old primigravida, at 29th week of gestation who had no known risk factors, succumbed to death, due to spontaneous uterine rupture. The diagnosis of placenta accreta in this case could be made, only during the autopsy. The clinical presentation and the autopsy findings are discussed in this paper, with a note on diagnostic difficulties, especially in the developing countries.

Key Words: Placenta accreta; Sudden death; Primigravida; Unscarred uterus; Autopsy diagnosis

Introduction:

Placenta accreta is the close adherence of the placenta to the uterine wall. [1] It is a rare clinical condition with incidence ranging from 1: 500 to 1: 93000 deliveries. [2, 3, 4] It may be classified as:

1. **In accordance with its Extension:** focal, partial and total.
2. **Depending on its location:** body or segmental.
3. **According to its Penetration into Uterine layers:** placenta accreta (without penetration, reaching the myometrium: 78-80%), increta (penetrates the myometrium: 15%) and percreta (reaches the uterine serosa, can penetrate it and invade the neighbouring organs: 5 to 7%). [2]

The exact mechanism of placenta accreta is not known, however it may be due to defective or excessive trophoblastic invasion. The risks are high in patients with previous history of placenta previa, curettage and abortion, caesarean delivery, uterine endometrial ablation and radiation or any uterine surgeries.

Corresponding Author:

¹Assistant Professor,
Department of Forensic Medicine
AllIMS, New Delhi, India- 110029
E-mail: drchitta75@rediffmail.com

²Senior Resident

³Junior Resident

⁴Prof & HOD

DOR: 23.07.2014 DOA: 11.01.2015

DOI: 10.5958/0974-0848.2015.00022.6

From the clinical point of view, pregnancy with maternal age more than 35 years, multi-parity or increased alpha-fetoprotein and β -hcG are the known risk factors. [1]

In most of the cases, it is diagnosed at the time of delivery, however pre-natal diagnosis can be made with ultrasound, colour Doppler ultrasound, Magnetic resonance Imaging (MRI) and cystoscopy. In placenta accreta, maternal and peri-natal mortality are high (7- 11.4% and 9.76% respectively) and are mainly due to complications of placenta percreta. [2]

We hereby report a case of sudden death in a primigravida of 29 weeks of gestation, with no known risk factors, and only post-mortem diagnosis of placenta accreta could be established, as a cause of uterine rupture and death.

Case Report:

A 27 year old primigravida, with 29 weeks of gestation, presented to a clinic on 18/08/2013 with complaints of pain abdomen and vomiting since past 3 hours. Her Last Menstrual Period was on 03/02/2013 and expected date of delivery was on 09/11/2013. There was no history of trauma to the abdomen.

She was hemo-dynamically stable at the time of admission. She was given tocolytics, antispasmodics, calcium and antiemetics. The pain was relieved and she was kept under observation and close monitoring. Ultrasound abdomen showed free gas/blood clot in the peritoneal cavity. (Fig. 1)

There was no evidence of free fluid collection. No other abnormality was detected in

this scan report. Ultrasound abdomen was performed for foetal well-being, which revealed a single live intrauterine foetus, of 29 weeks of gestation, with the transverse lie. The foetus appeared to positioned completely on the right side; the placenta was fundal in position. The estimated weight of fetus was 1594grams. Fetal heart rate was 139/min.

After about 8 hours of admission, the patient complained of abdominal pain. The blood pressure had collapsed to 80/50 mm of mercury. The general condition of the patient started worsening with increased perspiration. She was immediately referred in emergency to a tertiary care hospital at about 3:00 PM on the same day, but was declared brought dead at 5.45 pm on the same day, at the referred hospital.

The case sheets of the patient showed that her antenatal check-ups were regular and normal, except for an episode of enteric fever on 30/03/2013. The titres of S. Paratyphi A 'H' were 1:160. Her Blood Group was A, Rh-negative while blood group of her husband was B, Rh-positive.

The patient had married about five years back. Her husband was serving in the military and hence they seldom stayed together for the initial three years of their marriage. She had not conceived for the next two years, even after unprotected sex. The patient was also diagnosed to have polycystic ovaries (as per the Ultrasound examination done on 24/12/2012).

She had bulky ovaries with cystic lesions (measuring 30x21 cm) with single functional cyst and fluid in Pouch of Douglas. She was diagnosed as a case of primary infertility and was prescribed ovulation induction using Clomiphene citrate 50 mg on 03/01/2013.

The ultrasound examination which was done on 16/03/2013, showed a single gestational sac within the endometrium of the uterus, with a single live foetus of gestational age of 5 weeks. Also, the ultrasound examination done on 30/03/2013, showed a gestational sac with a single live foetus of gestational age of 8 weeks within the endometrium of the uterus, eccentrically implant on the right side. (Fig. 2)

The third ultrasound examination conducted on 11/04/2013 had revealed a single live intrauterine foetus of 10 weeks gestation, with adequate liquor with decidual reaction. Also, there was a borderline splenomegaly, with the splenic span being 13cms.

Autopsy Findings:

The body was that of a medium build female, of age 27 years. Rigor mortis was

present all over the body. Faint post-mortem lividity was present on the back and dependant parts of the body in supine position.

The abdomen was distended. There was no external injury present over the body.

On opening the abdominal cavity, an organised blood clot along with fluid blood measuring 2.5 litres in volume was present in the peritoneal cavity. The blood clot was found adherent to the right side of the fundus, near the isthmus of the uterus. (Fig. 3)

On examination of the Uterus: A laceration (rupture) on the uterine wall within to outwards was present, situated at the right side of the fundus region. The laceration was of size (12 x 6) cm, of partial thickness, involving the serosa and the myometrium partially. (Fig. 4)

On examination of the placenta: It was found tightly adherent and inseparable from the uterine wall. Placental vessels had invaded the full thickness of the myometrium.

Discussion:

Death is said to be sudden or unexpected, when a person not known to have been suffering from any dangerous disease, injury or poisoning is found dead or dies, within 24 hours, after the onset of terminal illness.

Cases of sudden death due to uterine rupture in placenta accreta are rarely reported in medical literature. De Roux SJ et al reviewed cases of haemo-peritoneum due to placenta accreta-percreta and found less than 50 such cases, being reported in the past 100 years.

They have reported a fatal case of placenta accreta in a multi-gravid uterus who had later succumbed, due to cardiovascular collapse. [5] Also, few non-fatal cases of uterine rupture, due to placenta accreta are described in literature. Imeseis et al cited a case of uterine rupture in a primigravida uterus which was managed surgically.

He reported that both the mother and fetus had survived without any morbidity. [6]

Kazandi et al also reported two cases of uterine rupture but those were in multi-parous women. [7] Esmans et al and LeMaire et al stressed the need to consider the diagnosis of placenta accreta, even during the early pregnancy (14th week and 16th week respectively) citing their observations.

They had reported the incidence of intra-peritoneal haemorrhages, due to the spontaneous rupture of uterus, with placenta percreta in multi-parous women. [8, 9] The associations of placenta accreta with one or more risk factors like previous caesarean section, dilatation and curettage, multi-parity,

twin pregnancy were observed by Moriya M et al, Endres and Barnet and Topuz S. [10-12]

In our case, the patient was a primigravida, at 29th week of gestation. She was not in labour. There was no previous history of any surgery on the uterus. There was no history of trauma to the abdomen. The fetal was in transverse lie position. Although, she had completed all the antenatal check-ups, yet the ultrasound examination could not detect the placental trophoblastic invasion (placenta accreta). The first ultrasound examination had revealed an eccentric implantation; however the reason was not established.

The treating physician had also suspected pelvic inflammatory disease based on the ultrasound reports, but no clinical symptoms were documented in the patient.

On the fateful day, the patient complained of abdominal pain, for which she was initially admitted at a clinic. She was referred to a higher centre in view of her deteriorating condition.

In developing countries like India, Doppler colour ultrasound/ MRI are not routinely done in the antenatal check-ups due to cost factors. Both Doppler and MRI have been found as the investigating tool of choice, to diagnose prenatal placenta accreta, even before any haemorrhagic complications occur. [13-15]

Unfortunately, in our case, it was the post-mortem diagnosis of placenta accreta. At autopsy, a bulky, congested uterus was present, with a rupture on its right lateral wall, near the isthmus. There was a hematoma of volume 2.5 litres in the peritoneal cavity, which was adhered to the breached wall of the uterus. The placental blood vessels and the trophoblastic tissues were grossly visible on the surface of the uterus, suggestive of placenta accreta.

The histopathological examination of the ruptured site on the uterus could not confirm the sub variety of placenta accreta due to post-mortem autolysis. However, the gross examination and clinical features were suggestive of placenta percreta.

The fetus was in transverse lie, an 'unfavourable' position for normal delivery and a risk factor for the uterine rupture. The patient in our case was not in labor and the role of transverse lie for the uterine rupture was ruled out. We report this case, to highlight the fateful complication of placenta accreta, even in the primigravida uterus which needs high degree of clinical suspicion and early management.

If feasible, colour Doppler or MRI is recommended routinely, which is helpful not only

to diagnose placental invasions, but also to differentiate subtypes of placenta accreta. [16]

Caesarean delivery followed with hysterectomy may be considered as the ideal treatment to prevent any future complications due to re-occurrences. However, in young women who are planning for future pregnancy a conservative management (using intervention radiology or medical chemotherapeutic agents) can be opted but with strict monitoring. [17-18]

References:

1. **Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY.** Williams Obstetrics. In: Obstetrical hemorrhage. 23rd Ed. Mc Graw Hill publications USA; 2010. p. 776.
2. **Martinez-Garza PA, Robles-Landa LPA, Roca-Cabrera M, Visag-Castillo VJ, Reyes-Espejel L, Garcia-Vivanco D.** Spontaneous uterine rupture: report of two cases. *Cir Cir.* 2012; 80: 81-5.
3. **Breen JL, Neubecker R, Gregori CA, Franklin JE Jr.** Placenta accreta, increta, and percreta. A survey of 40 cases. *Obstet Gynecol.* 1977; 49: 43-7.
4. **Cox SM, Carpenter RJ, Cotton DB.** Placenta percreta: ultrasound diagnosis and conservative surgical management. *Obstet Gynecol.* 1988; 71: 454-6.
5. **deRoux SJ, Prendergast NC, Adsay NV.** Spontaneous uterine rupture with fatal hemoperitoneum due to placenta accreta percreta: a case report and review of the literature. *Int J Gynecol Pathol Off J Int Soc Gynecol Pathol.* 1999; 18: 82-6.
6. **Imseis HM, Murtha AP, Alexander KA, Barnett BD.** Spontaneous rupture of a primigravid uterus secondary to placenta percreta. A case report. *J Reprod Med.* 1998; 43:233-6.
7. **Kazandi M.** Placenta percreta: report of two cases and review of the literature. *Clin Exp Obstet Gynecol.* 2003; 30: 70-2.
8. **Esmans A, Gerris J, Corthout E, Verdonk P, Declercq S.** Placenta percreta causing rupture of an unscarred uterus at the end of the first trimester of pregnancy: case report. *Hum Reprod Oxf Engl.* 2004; 19:2401-3.
9. **LeMaire WJ, Louisy C, Dalessandri K, Muschenheim F.** Placenta percreta with spontaneous rupture of an unscarred uterus in the second trimester. *Obstet Gynecol.* 2001; 98: 927-9.
10. **Moriya M, Kusaka H, Shimizu K, Toyoda N.** Spontaneous rupture of the uterus caused by placenta percreta at 28 weeks of gestation: a case report. *J Obstet Gynaecol Res.* 1998; 24: 211-4.
11. **Endres LK, Barnhart K.** Spontaneous second trimester uterine rupture after classical cesarean. *Obstet Gynecol.* 2000; 96: 806-8.
12. **Topuz S.** Spontaneous uterine rupture at an unusual site due to placenta percreta in a 21-week twin pregnancy with previous cesarean section. *Clin Exp Obstet Gynecol.* 2004; 31: 239-41.
13. **D'Antonio F, Iacovella C, Bhide A.** Prenatal Identification Of Invasive Placentation Using Ultrasound: A Systematic Review And Meta-Analysis. *Ultrasound Obstet Gynecol Off J Int Soc Ultrasound Obstet Gynecol.* 2013; 13: [Epub ahead of print]
14. **Peker N, Turan V, Ergenoglu M, Yeniel O, Sever A, Kazandi M, et al.** Assessment of total placenta previa by magnetic resonance imaging and ultrasonography to detect placenta accreta and its variants. *Ginekol Pol.* 2013; 84:186-92.
15. **Elhawary TM, Dabees NL, Youssef MA.** Diagnostic value of ultrasonography and magnetic resonance imaging in pregnant women at risk for placenta accreta. *J Matern-Fetal Neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet.* 2013; 26:1443-9.
16. **Cali G, Giambanco L, Puccio G, Forlani F.** Morbidly adherent placenta: evaluation of ultrasound diagnostic criteria and differentiation of placenta accreta from percreta. *Ultrasound Obstet Gynecol Off J Int Soc Ultrasound Obstet Gynecol.* 2013; 41: 406-12.
17. **Khan M, Sachdeva P, Arora R, Bhasin S.** Conservative management of morbidly adherent placenta - A case report and review of literature. *Placenta* 2013; 34: 963-6.

18. Knuttinen MG, Jani A, Gaba RC, Bui JT, Carrillo TC. Balloon occlusion of the hypogastric arteries in the management of placenta accreta: a case report and review of the literature. *Semin Interv. Radiol.* 2012; 29: 161-8.

Fig. 1: Ultrasound Abdomen showing Free Gas/Blood Clot (Arrow Head) In the Peritoneal Cavity

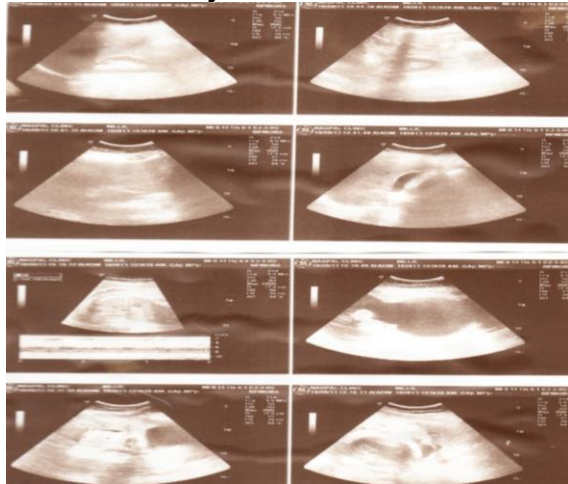


Fig. 2: Ultrasound Abdomen Showing Single Gestational Sac With-in Endometrium of Uterus Eccentrically Implanted on the Right Side

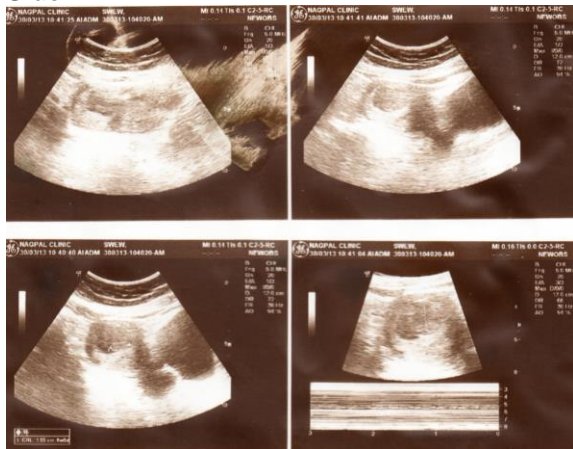


Fig. 3: Haemo-Peritoneum Seen as Clotted Blood Adherent to Right Side of Uterus



Fig. 4: Rupture Site and the Visible Placental Vessels in Uterus

