Rare disease

Spontaneous rupture of utero-ovarian vessels in pregnancy

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Summary

Spontaneous rupture of utero-ovarian vessels in pregnancy is rare and usually involves utero-ovarian veins. Presenting symptoms include acute-onset abdominal pain and maternal hypovolemic shock secondary to haemoperitoneum. Although this condition had been documented over a century ago, an accurate diagnosis is rarely reached prior to laparotomy due to a multitude of other surgical and obstetrical presentations that may pose a similar clinical picture. In such an event an emergency exploratory laparotomy followed by caesarean section with ligation of the uterine vessels can help in preventing a maternal mortality.

BACKGROUND

This case highlights a rare cause of severe antepartum haemorrhage. We describe a case where the common causes of intraperitoneal causes of bleeding in pregnancy were systematically excluded before the actual cause was discovered and treated. The actions taken resulted in a successful outcome with a well mother and baby discharged safely to home within a reasonable time-frame.

CASE PRESENTATION

The patient was a 32-year-old, gravida 3 para 2 caucasian lady. Her previous pregnancies and deliveries were uneventful. She has two healthy children aged 7 and 5 years. She had attended her routine antenatal appointments and had a normal course of pregnancy. During her 38th gestation week, she developed sudden sharp left lower abdomen pain while walking. She presented to the maternity day care unit promptly. On admission, her blood pressure was 120/70 mm Hg, her heart rate was 80 bpm (regular) and she was afebrile. On examination, her abdomen was tender on gentle palpation in the left upper quadrant. There were no signs of peritonism. Her term uterus was soft. On per vaginal examination no discharge or bleeding was seen. The cervix was closed.

The pain persisted despite treatment with parenteral pethidine and morphine. After 3 h of observation she suffered a sudden cardiovascular embarrassment. Her blood pressure dropped to 90/70 mm Hg and her pulse rose to 100 bpm. The pain began to radiate to both shoulders.

INVESTIGATIONS

Urine dipstick: protein++, blood++ and leucocytes+.

On presentation the cardiotocography (CTG) was normal (baseline 140 bpm); once she deteriorated, repeat CTG was pathological (baseline of 180/min, poor variability and shallow decelerations).

The patient's haemoglobin in antenatal appointments approximated 10.5 g/dl. On acute presentation it was 9.8 g/dl with normal clotting. When she deteriorated her haemoglobin dropped rapidly to 6.4 g/dl.

DIFFERENTIAL DIAGNOSIS

Initially renal colic was considered. However, the drop in haemoglobin combined with the abnormal CTG pointed to an obstetric cause of bleeding. We considered the common causes of obstetric bleeding, which included placental abruption, ovarian cyst and uterine rupture.

TREATMENT

Her treatment on presentation included intravenous rehydration and analgesia. Once she deteriorated and the CTG became abnormal, emergency caesarean section was performed.

During operation, a massive haemoperitoneum was discovered. No obvious cause was seen. A live baby girl weighing 3.3 kg was rapidly delivered. There was no sign of abruption or intrauterine bleeding and the uterus was intact. Following delivery the uterus was closed in two layers and the abdominal cavity was explored thoroughly for any other source of bleeding. None was found. The uterus was exteriorised for a more thorough examination. There was no ovarian cyst but a raw area was found on the posterior surface of broad ligament, which continued to bleed despite gentle pressure. On closer examination, the source of bleeding was a vessel in the left utero-ovarian anastomosis. It was ligated successfully with figure-of-eight stitches. The abdomen closed with a peritoneal drain in situ. The total blood loss was estimated at 3 litres. She received 4 units of packed red cells (blood).

OUTCOME AND FOLLOW-UP

Her recovery was uneventful and she was discharged home on the 10th postoperative day. Her baby was discharged home after 2 weeks with no morbidity.

DISCUSSION

Spontaneous intraperitoneal haemorrhage in pregnancy is an interesting and rare phenomenon. It is associated with high fetal and maternal mortality.¹ The differential diagnosis of intraperitoneal pain and/or haemorrhage in the third trimester of pregnancy includes: uterine rupture, abruption placentae, renal or biliary colic, haemorrhagic pancreatitis,

twisted ovarian cyst, degeneration of uterine fibroid and rupture of extrauterine pregnancy in the broad ligament. Early laparotomy is the most reliable method for confirming the diagnosis and avoiding maternal mortality.²

The causes of peritoneal haemorrhages can be divided into two groups³:

1. Direct intraperitoneal bleed: *rupture of uterus, spleen, ovarian cyst, mesenteric artery, uterine surface veins, placenta percreta and decidual reaction on the pelvic peritoneum.*⁴
2. Retroperitoneal bleed leading to intraperitoneal bleed: *bleeding from utero-ovarian veins, ruptured broad ligament, ruptured aortic aneurysms or aneurysms of the splenic, renal, iliac and haemorrhoidal veins, ruptured branches of coeliac artery and extension of vaginal haematoma.*⁴

In the present case, fetal distress prompted delivery by emergency caesarean section prior to identification of the bleeding source. However, in the absence of fetal distress it would be reasonable to identify and manage the source of bleeding while opting not to perform caesarean delivery.⁵

The aetiology of spontaneous rupture of uterine vessels or utero-ovarian plexus in pregnancy has not been described in the literature. One might speculate that haemodynamic stress during pregnancy or labour may put pressure on already previously quiescent aneurysmal or malformed blood vessels leading to acute haemorrhage.⁶

Learning points

- Spontaneous rupture of utero-ovarian vessels can often be misdiagnosed.
- Obstetricians should be aware of this rare aetiology of hypovolemic shock.
- Active preoperative resuscitation is essential.
- Urgent exploratory laparotomy and control of haemorrhage should be performed to prevent maternal mortality.

Competing interests None.

Patient consent Obtained.

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