CASE REPORT

Spontaneous rupture of an unscarred gravid uterus at 32 weeks gestation

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A case of spontaneous rupture is reported which occurred in a non-labouring uterus with no apparent previous factors at 32 weeks gestation.

Key words: grandmultiparity/oxytocin/spontaneous/uterine rupture

Introduction

Rupture of the unscarred gravid uterus is very rare and potentially catastrophic for both mother and fetus. Spontaneous ruptures are virtually always intrapartum and characteristically involve the lower segment, since previous classical Caesarean sections are delivered electively at 38 weeks gestation by Caesarean section. Literature reports of uterine rupture associate ruptures with risk factors such as uterine abnormalities, grandmultiparity, macrosomic fetus, cephalopelvic disproportion and trauma to the uterus from prior instrumentation such as in abortion, version and oxytocin stimulation. The commonest cause of rupture is dehiscence from previous section scar, especially in the presence of oxytocin stimulation in unrecognized cephalopelvic disproportion. We report a case of spontaneous uterine rupture which occurred in a non-labouring uterus with no previous risk factors at 32 weeks gestation.

Case report

A 27 year old Caucasian woman in her first pregnancy was admitted as an emergency at 32 weeks gestation with sudden sharp right sided abdominal pain associated with nausea but no vomiting. The pain was localized in the right iliac fossa, although it had commenced around the umbilical region. She also complained of shoulder tip pain and experienced slight difficulty in breathing. She had no significant past medical history and her antenatal care had been uneventful. Clinically, she looked ill but was haemodynamically stable (temperature 37.3°C; pulse 90 beats/min and regular, blood pressure 120/60 mmHg). Haematological investigations, including coagulation profile, were normal (haemoglobin 11.0 g/dl, white cell count 13×10^9/l, platelet count 228×10^9/l). Urine microscopy was unremarkable. Chest examination revealed good air entry in both lungs. The abdomen was soft, but slight tenderness and guarding was elicited in the right iliac fossa. The uterus was soft and consistent with gestation, with no uterine activity detected. The fetus presented as cephalic and the heart rate was normal. An i.v. line was established and blood obtained for grouping and cross matching.

Ultrasound showed a viable fetus with normal biometry consistent with gestation. The placenta was fundally sited with no evidence of abruption, but a soft tissue mass measuring 12×10×7 cm³ was noted adjacent to the posterior surface in association with free peritoneal fluid. The gall bladder looked normal. Diagnosis appeared in keeping with ruptured appendix, hence surgical opinion was requested. While awaiting this review, she deteriorated dramatically (pulse 120 bpm; blood pressure 90/60 mmHg), becoming increasingly restless and dyspnoeic.

Emergency laparotomy was therefore performed. Frank haemoperitoneum of approximately 1000 ml of fresh blood and clots was recovered. The anterior surface of the uterus and the appendix appeared normal. The source of bleeding could not easily be identified because of the gravid uterus. An emergency lower segment Caesarean section was therefore performed, which resulted in a female infant weighing 2040 g with Apgar scores of 2/7 at 1 and 5 min. The liquor was clear and the placenta normally sited, with no evidence of abruption.

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On delivering the uterus out of the pelvis for examination, a vertical 2 cm tear located above the insertion of the right uterosacral ligament was identified as the source of rupture. The tear extended into two-thirds of the uterine wall, explaining the haemoperitoneum. The uterine vessels were not torn but small actively bleeding vessels in the tear were present. The rest of the pelvis looked normal, with no evidence of endometriosis or adhesions. The uterine tear was repaired with interrupted vicryl sutures which secured haemostasis. She was transfused four units of blood because of an estimated total blood loss of 2000 ml. Intravenous syntocinon was given to ensure that the uterus remained well contracted. Her postoperative period was uneventful. The infant had no problems and was discharged home with her mother on postoperative day 7. The discharge haemoglobin was 10.5 g/dl.

At 6 weeks postnatal review, both mother and baby were well. The mother was using the combined pill for contraception and had resumed normal periods. The pelvic organs were normal at bimanual examination. Further questioning failed to reveal any contributory risk factors to the rupture, such as dilatation and curettage or insertion of an intrauterine
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contraceptive device. Review of her old notes was unhelpful. She was advised that future pregnancies would be monitored carefully and delivery would be achieved electively by Caesarean section.

Discussion
Rupture of the non-labouring uterus is rare and is a potentially catastrophic event. Spontaneous ruptures are virtually always intrapartum (Sweeten et al., 1995) and associated with such risk factors as uterine abnormalities, grandmultiparity, macrosomic fetus, cephalopelvic disproportion and uterine trauma from prior instrumentation from abortion, version and oxytocin stimulation. Risk factors associated with early uterine rupture in pregnancy include previous salpingectomy and cornual resection following ectopic pregnancy, trauma, myomectomy, congenital abnormalities and sacculation of the entrapped retroverted uterus (Dubuisson et al., 1995; Arbab et al., 1996). Although rupture has been reported in the non-pregnant nulliparous uterus, it was associated with risk factors (Parry et al., 1995), none of which was apparent in this case. The patient denied any history of previous gynaecological surgery such as dilatation and curettage, termination of pregnancy or use of an intrauterine contraceptive device which could have resulted in undiagnosed uterine perforation, and a review of her previous case notes was unhelpful. To the best of our knowledge, this is the first documented rupture of a gravid uterus occurring before onset of labour without previous risk factors. The reported incidence of spontaneous rupture occurring in the absence of previous surgery ranges from 1 in 8000 to 1 in 15 000 deliveries (Sweeten et al., 1995). Spontaneous ruptures are virtually always intrapartum, and characteristically involve the lower segment, since previous upper segment scars are traditionally delivered electively before onset of labour by Caesarean section.

It has been suggested that predisposing risk factors to such unexpected uterine rupture may include uterine diverticulae (M'Lellan, 1916), arteriovenous malformation, endometriosis and injudicious oxytocic stimulation (Parry et al., 1995). Although we did not biopsy the rupture site, there was no evidence of diverticular disease at surgery; moreover, diverticulosis of the bowel does not necessarily equate to uterine diverticulae, which is exceedingly rare (Sweeten et al., 1995). Arteriography is an important tool in the identification of arteriovenous malformation, but this was not carried out in this case because of absence of symptoms before and after uterine rupture suggestive of the malformation, such as abnormal menstrual pattern or uterine hypotonia following delivery (Chow et al., 1995). There also was no evidence to suggest that endometriosis was to blame for this rupture, since no evidence of endometriosis was found at surgery and since rupture of the uterus is not a common feature.

The location of rupture appears to suggest a traumatic event, but rupture did not involve full thickness of the uterine wall, suggesting perhaps that the uterus was deficient in this area. A full thickness rupture would have resulted in vaginal bleeding, fetal distress and a clinically hard uterus. The mass detected by ultrasound lying posterior to the uterus appears to have been blood clots removed at laparotomy. Uterine rupture of the gravid uterus is associated with high maternal and fetal mortality and morbidity (Padyar and Hassanzadeh, 1978; Golan et al., 1980). We believe that the good outcome in this case was due to its early presentation, the continuous clinical assessment and prompt surgical intervention. Although it has been recommended that hysterecny should be carried out in the ruptured gravid uterus to save the mother (Kaftas and Taner, 1995), we feel that management should be tailored to the individual patient, as in this case, on the basis of factors such as parity, extent of the defect and magnitude of bleeding.

References

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