RANZCOG Regional SYMPOSIUM 2024 Glenelg

11 - 14 APRIL | STAMFORD GRAND GLENELG

A Rare Case of Spontaneous Uterine Rupture During Second Trimester of Pregnancy in an Unscarred Uterus: Case Study and Report

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Background

Spontaneous uterine rupture during pregnancy is a rare, life-threatening condition associated with high maternal and fetal morbidity and mortality. There is limited literature of few reported cases internationally especially in the context of nulliparous women with no history of uterine surgery.

Case Report

A 25-year-old woman, gravida 1 para 0 at 27+0 weeks' gestation presented to the emergency department with a syncopal episode followed by sharp abdominal pain 10/10 severity, radiating to the epigastrium. The pain was aggravated by movement and associated with intermittent chest pain and watery diarrhoea.

Past surgical history included a laparotomy (Lanz incision) aged 7 years for a suspected appendicitis, during which she was found to have ovarian torsion with large ovarian cyst and underwent right oophorectomy (benign cystic mature teratoma 32x56x56mm). She was on aspirin in pregnancy after prothrombin mutation was diagnosed during fertility assessment.

On presentation she was mildly hypotensive to 98/69, pale with a generally tender abdomen (worst in the LLQ and epigastrium), without rebound tenderness or rigidity and Murphy's sign was positive. Cardiotocography (CTG) was normal (figure 1), haemoglobin level 117 g/L and lactate 1.5 mmol/L. Bedside ultrasound showed cephalic fetus with visible fetal movements. On speculum examination cervix was long and closed and fetal fibronectin was negative (4ng/ml). She was admitted with differential diagnoses including gastroenteritis, acute cholecystitis and ovarian cyst accident. The pain improved with opiate analgesia. Repeat haemoglobin after 8 hours was 92g/L, symptoms and clinical examination unchanged and CTG remained normal. Urgent ultrasound abdomen and pelvis was arranged due to concern for an intra-abdominal haemorrhage and showed 570ml free fluid with no obvious cause (343ml Morrison's pouch, 175ml in right lower quadrant, 41ml in upper quadrant and 11ml in pouch of Douglas); pancreas, liver, spleen and kidneys appeared normal and the fetus was cephalic with estimated fetal weight 1200g (88th percentile), abdominal circumference 85 percentile, normal amniotic fluid (index 12.8cm) and cervical length 19mm transabdominally.

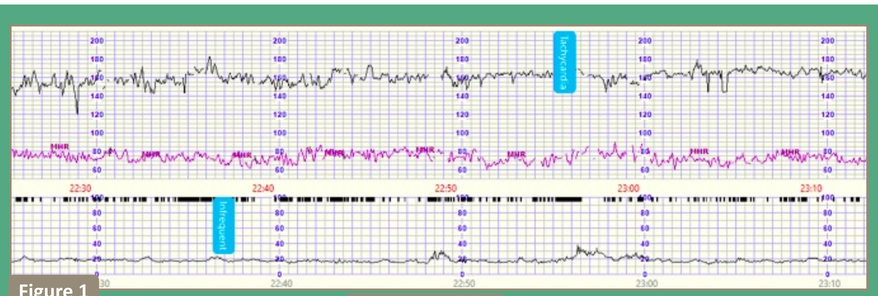

Figure 1

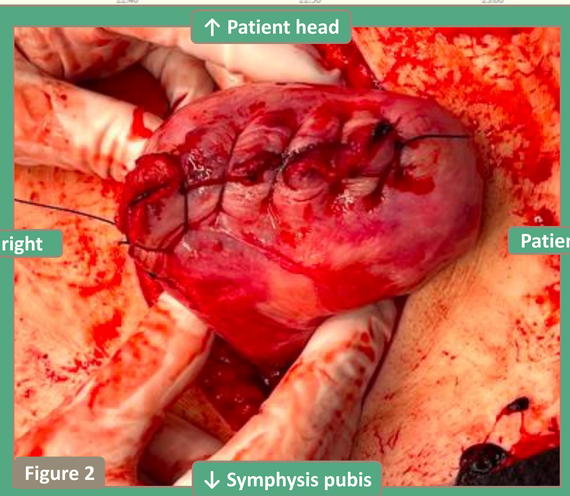

Figure 2

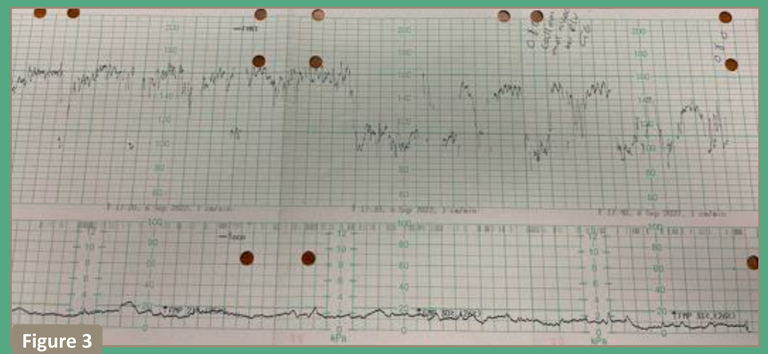

Figure 3

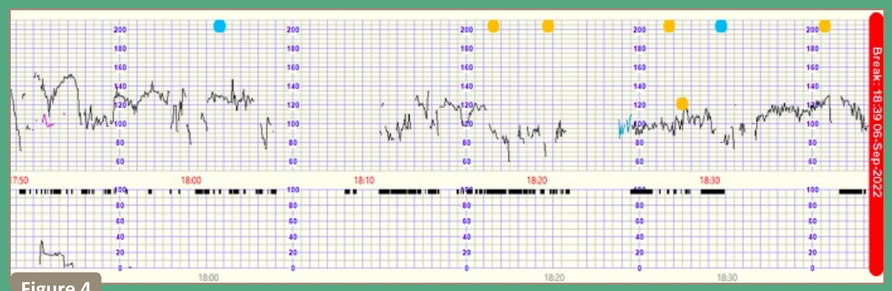

Figure 4

Case Report Continued

Differential diagnosis was ruptured ovarian cyst with haemoperitoneum. On serial general surgical review, she was noted to be haemodynamically stable with a plan for further serial haemoglobin and repeat ultrasound to assess the appendix.

19 hours after initial presentation she had a further witnessed syncopal episode, abdomen was distended with moderate upper abdominal tenderness, haemoglobin drop to 81g/L was noted and CTG remained normal. Further urgent imaging was requested CT abdomen and pelvis angiography/delayed phase and first dose of betamethasone 11.4mg IM was administered. 19.5 hours after presentation the fetal cardiotocography became pathological with recurrent decelerations (figures 3 and 4), uterine activity was detected, and cervix remained long and closed. Packed red blood cell transfusion was commenced, and she was transferred to theatre for a midline laparotomy with category 1 caesarean section with the obstetric and general surgical team present. On entry 2litre haemoperitoneum was noted with fetal parts visible through intact membranes within the abdominal cavity. No hysterotomy needed to be made and the fetus, which was delivered by breech extraction, showed no signs of life at birth and was subsequently unable to be resuscitated. A large retroplacental clot was noted and a 5-6cm uterine rupture across the fundus deviated to the right cornu was repaired with 3-layer closure and 10 French Varivac abdominal drain inserted.

Post-operatively she was admitted to the intensive care unit and treated for acute pulmonary oedema secondary to the massive transfusion protocol initiated intraoperatively. She was stepped down to the postnatal ward on day 1 post-operatively and drain removed on day 2. On day 3 repeat haemoglobin was 91g/L and she was discharged with follow up in the perinatal loss clinic.

Discussion & Conclusion

This rare case adds to the limited literature available on spontaneous pre-labour uterine rupture in the second trimester in a patient with no history of uterine surgery. It demonstrates the need for high clinical suspicion and the potential diagnostic dilemma and difficult decision for surgery and preterm delivery with large volume free fluid on imaging and normal serial fetal cardiotocography.

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Figure 1: normal antenatal CTG on admission
Figure 2: intraoperative photograph of exteriorised uterus through midline laparotomy with first layer of closure of the uterine rupture across the fundus deviated to the right cornu
Figure 3 & 4: pathological antenatal CTG with recurrent decelerations