CASE REPORT

A rare obstetric emergency: acute uterine torsion in a 32-week pregnancy

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SUMMARY

Uterine torsion is rare in pregnancy and the cause in most cases is unknown. It is associated with fetal compromise, with perinatal mortality reported to be around 12%. Our case describes an acute torsion, presenting in pregnancy with severe abdominal pain and vomiting with a viable 32-week gestation. Emergency caesarean section was performed and the 180° uterine torsion was diagnosed intraoperatively. Posterior hysterotomy was required for delivery prior to detorsion of the uterus. This report describes that prompt recognition and intraoperative vigilance can achieve a successful maternal and fetal outcome in this rare and difficult obstetric scenario.

BACKGROUND

Uterine torsion in pregnancy is very rare; most of the literature involves case reports alone. Writing up this case in the literature enables an increased awareness of uterine torsion as a differential diagnosis of obstetric emergency, and highlights that multidisciplinary teamwork and intraoperative vigilance can achieve a good maternal and fetal outcome.

CASE PRESENTATION

A 33-year-old woman was booked under consultant care because of two previous caesarean deliveries. Ultrasound scan at 31 weeks revealed an estimated fetal weight above 90th centile, normal liquor volume and a type 4 anterior placenta praevia, completely covering the internal cervical os. Review at 36 weeks gestation after placental localisation scan and delivery by elective repeat caesarean section was planned, due to two previous caesarean deliveries. The first was emergency caesarean at 42 weeks gestation for fetal distress in labour; the second was an elective caesarean. The patient also had two previous surgical management of miscarriage.

The patient presented at 32+3 weeks gestation, with a 3-h history of sudden onset, severe and constant abdominal pain, predominantly over her previous caesarean scar. She was unable to move position due to the severity of the pain. The pain was associated with uncontrollable vomiting and the woman had collapsed at home. There was no history of vaginal loss or bleeding and normal fetal movements were felt.

A similar pain had resulted in admission 1 week earlier; this was attributed to gastrointestinal causes. Milder, shorter-lasting episodes were described through her second trimester, particularly on

waking, which she had attributed to normal aches in pregnancy.

INVESTIGATIONS

On examination, the patient was in obvious distress due to her severe pain and vomiting. She was hypotensive: blood pressure 53/38 mm Hg, tachycardic: pulse 100 bpm; respiratory rate was 16/min and oxygen saturations were 100% in air. She was afebrile. Abdominal palpation revealed an exquisitely tender abdomen with guarding. Mobile ultrasound assessment on delivery suite demonstrated fetal heart movements, transverse presentation and posterior, low-lying placenta. Fetal monitoring using cardiotocography was initially reassuring, but showed evidence of uterine irritability on the toco-graph; these were high frequency and low amplitude in nature.

The anaesthetic team was urgently asked to review the patient; intravenous access was obtained with difficulty as the patient was haemodynamically collapsed. Urgent bloods were sent for full blood count and four-unit packed red-cell cross-match; haemoglobin was 11.4 g/dL, which was not in keeping with the woman's clinical condition. Fluid resuscitation was started with 500 mL colloid; blood pressure improved to 130/68 mm Hg. A Foley urinary catheter was inserted, revealing a good volume of clear urine.

DIFFERENTIAL DIAGNOSIS

Differential diagnoses included scar dehiscence, uterine rupture and concealed placental abruption.

TREATMENT

Consent was taken for category 1 emergency caesarean section. Prior to transfer to theatre, the fetal heart rate began to decrease from a baseline rate of 140 bpm to 90 bpm; in theatre the fetal heart rate was 85 bpm. General anaesthetic was administered and emergency caesarean section was performed. On entry to the abdominal cavity, the pelvic anatomy was significantly distorted; the uterovesical peritoneum and urinary bladder could not be identified. The left fallopian tube and ovary were pulled across the uterine body to lie on the patient's right side. It was apparent that the uterus had undergone torsion of approximately 180° along its longitudinal axis. As the gravid uterus could not be anatomically corrected, the posterior aspect of the uterus was incised with a curved transverse incision, delivering a live male infant via breech extraction from transverse lie. Apgars were 2 at 1 min and 7 at 5 min and he was transferred to

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the neonatal unit for continuous positive airway pressure. The placental delivery was uncomplicated; the placenta was not incised upon uterine entry as it was sited anteriorly and entry was by posterior hysterotomy. Placental delivery was completed by controlled cord traction alone; the placenta was not adherent to the uterine wall. Syntocinon infusion was started due to uterine atony and a minor degree of bleeding from the placental bed. The posterior uterine wall was closed in two layers and the uterus was detorted by 180°, returning it to its correct anatomical position, revealing the bladder and previous anterior caesarean section scars. No pelvic abnormalities were noted. Routine closure of the abdomen was then completed. The total intraoperative blood loss was 800 mL.

OUTCOME AND FOLLOW-UP

The patient had an uneventful recovery and was discharged to midwifery care on the second postoperative day. However, at 4 weeks postpartum, our patient was re-admitted with symptoms suggestive of sepsis. CT of the abdomen and pelvis showed appearances of recent pyelonephritis in a malrotated right kidney. Following 48 h of intravenous antibiotics, our patient was discharged home on oral antibiotics for 5 days, where she made a full recovery.

DISCUSSION

Uterine torsion is rare; in pregnancy, uterine torsion is unlikely to be encountered more than once.¹ It is defined as the rotation of the uterus of more than 45° on its long axis. It can range from 60° to 720°, with most reported cases in pregnancy being around 180°. It occurs at the junction between the cervix and the uterine corpus.² Slight rotation of the uterus is common during pregnancy but rarely exceeds 45° and is most often to the right.³

Uterine torsion is associated with fetal compromise, with perinatal mortality reported to be around 12%.¹ One cause is thought to be directly due to tissue ischaemia following uterine artery compression.¹ The other described theory is due to venous compression causing increased pressure in the uteroplacental bed, causing abruption, resulting in antepartum haemorrhage and fetal hypoxia.⁴

Maternal mortality is variable depending on gestation; no maternal deaths are reported below 20 weeks gestation; rates of 17% have been reported between 20 and 28 weeks gestation; rates of 10% at 29–34 weeks gestation and maternal mortality rates of 9% are reported at term gestation.^{2,5} Overall the maternal mortality is around 13% and appears to be proportional to the duration of gestation and degree of torsion.⁶ However, since 1960, only one maternal death due to uterine torsion has been reported.^{7,8}

The cause of uterine torsion in most cases is unknown. A case series by Piot *et al* described a number of possible associative and causative factors: 32% cases had a fibroid uterus, 15% had other uterine anomalies such as a bicornuate uterus, 8% had pelvic adhesions, 7% had ovarian cysts or other adnexal masses, 5% had abnormal fetal presentation and fetal abnormalities were identified in 3% cases. In this series, over 30% cases had no discoverable cause.⁹ More recent studies with no identified causative pelvic factors have suggested previous caesarean section as a common feature, and MRI of patients after caesarean section has suggested that poor isthmic healing, resulting in an elongated cervix with structural weakness and angulation may predispose to torsion of the uterus.⁷ Presentation of uterine torsion appears independent of maternal age, parity and gestation.¹⁰

The difficulty with diagnosing uterine torsion in pregnancy is that the presenting symptoms and signs are non-specific and often mimic more common obstetric emergencies, such as scar dehiscence or abruption, thus these diagnoses are more likely to be considered. A case series reported 75% patients presented with non-specific lower abdominal pain with varying degrees of severity; 19% presented in shock and 10% with an antepartum haemorrhage.¹ Uterine torsion in pregnancy may also present with more insidious symptoms, with 16% reporting gastrointestinal symptoms and 7% urinary symptoms. Seventeen per cent were associated with labour dystocia in the first stage, while a further 11% were asymptomatic.¹

Studies have postulated that certain postures or movements of the pregnant patient may predispose to uterine torsion.¹¹ In our case, the woman had similar episodes of pain to the attending complaint prior to her admission, usually waking with pain followed by resolution on mobilising. It is possible that her supine posture during sleep caused a partial torsion which then resolved on standing. As gestation increased, the uterine size may have prevented spontaneous detorsion, resulting in the acute presentation.

The cause of pain in uterine torsion is likely to be due to ischaemia of the myometrium following occlusion of the uterine arteries, and/or pressure within the uterus due to engorgement and oedema because of blockage of the venous return. Urinary and gastrointestinal symptoms may be as a result of direct compression or displacement of affected organs. Shock in these women can be hypovolaemic shock following haemorrhage, or neurogenic shock caused by profound parasympathetic nerve stimulation, similar to that of cervical shock.^{6,12}

As in our case, the acute presentation of pain and maternal collapse in many case reports in the literature leads the attending clinicians to misdiagnose the woman with one of the other obstetric emergencies (scar dehiscence, uterine rupture, placental abruption), the true diagnosis only being realised during caesarean section.¹² In our case, there were subtle signs, which if fully appreciated, may have elicited uterine torsion as a differential diagnosis preoperatively:

- ▶ Persistent vomiting, although a non-specific symptom often brought on by pain, was probably caused by vagal stimulation.
- ▶ Admission blood pressure was low, indicating neurogenic shock rather than hypovolaemia. In the absence of blood or fetus passing through the cervix, this is a sign of uterine torsion.
- ▶ Foley urinary catheterisation revealed a good volume of clear urine; uterine rupture is associated with haematuria; hypovolaemia results in low volume, concentrated urine.
- ▶ Maternal haemoglobin concentration was normal, decreasing the likelihood of a large haemorrhage (from rupture or abruption) as the cause of our woman's collapse and pain.
- ▶ Posterior placenta was noted on ultrasound scan, in contrast to the recorded anterior, low-lying placenta from an earlier scan.

Ultrasound, CT and MRI have been described in confirming the diagnosis of uterine torsion.¹² However, as uterine torsion presents either with vague symptoms or as in our case with an obstetric emergency necessitating urgent delivery, it is unlikely that imaging will commonly be used for diagnostic purposes.

Signs of uterine torsion on ultrasound.⁸

- ▶ Transposition of placental site compared to previous scan.
- ▶ Transposition of known uterine leiomyoma compared to previous scan.
- ▶ Doppler recognition of ovarian vessels anterior to the uterus.

The management of a uterine torsion in a near-term viable gestation is delivery by caesarean section, and detorsion of the uterus, thereby preventing the risk of deterioration of the mother and fetus. The benefit of making the diagnosis prior to the uterine

incision is that an attempt could be made to detort the uterus prior to delivery, thereby preventing a posterior uterine wall hysterotomy.¹² The advantage of avoiding posterior hysterotomy is that it reduces obstetric risks in a subsequent pregnancy, by allowing an opportunity for vaginal birth after caesarean section in women with no previous uterine incisions. In our case, it was during the caesarean section that the surgeon diagnosed the uterine torsion, but it was not until after delivery via posterior wall hysterotomy that the uterus was detorted along its longitudinal axis, as it was not possible to detort the uterus prior to delivery of the fetus.

The incidence of repeat uterine torsion or uterine rupture (resulting from posterior uterine wall hysterotomy) in subsequent pregnancy has not been studied.¹ Therefore, women with posterior uterine wall hysterotomy should be advised to have repeat caesarean delivery in any future pregnancy. Our patient was fully counselled regarding her delivery and the recommendation for delivery by elective repeat caesarean section in any future pregnancy was explained.

Learning points

- ▶ Uterine torsion is a complication rarely encountered by the obstetrician, often not being diagnosed until just before or just after delivery at caesarean section.
- ▶ Uterine torsion is associated with significant morbidity and mortality of mother and baby.
- ▶ Effective multidisciplinary teamwork alongside urgent delivery by emergency caesarean section, with prompt recognition and intraoperative vigilance in this rare obstetric complication can optimise maternal and fetal outcome.

Contributors The case report was written by KLM with contribution from all the coauthors (MGW and RPF). All coauthors were directly involved in the clinical management of the case described.

Competing interests None.

Patient consent Obtained.

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