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CASE REPORT

Incarcerated Retroverted Uterus Manually Replaced in 24 Week Pregnancy

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Background

An incarcerated uterus is a rare obstetric complication, with a reported incidence of 1 in 3000 pregnancies [1]. It occurs when a retroverted uterus does not resolve beyond mid-gestation and the uterine corpus becomes confined in the hollow of the sacrum. This causes the cervix to become displaced above or against the pubic symphysis [2]. Retroversion of the uterus occurs in 15% of pregnancies and is considered a normal anatomical variation and usually resolves to an anteverted position by 14-16 weeks gestation [3]. In cases of uterine incarceration there is a failure of the retroverted uterus to become anteverted. This can lead to both maternal and fetal morbidity and mortality [4].

Case Report

A low risk midwifery led care primigravida, in her mid-20s, with normal BMI attended for routine anatomy scan at 22 + 4 weeks. The sonographer was unable to complete the scan due to fetal position and noted an unusual shape of the uterus. The fetal head, face, brain and placenta were unable to be assessed completely. Therefore a consultant ultrasound scan was arranged and performed at 23 + 0 weeks.

The findings of that scan were of an acutely retroverted uterus with the cervix above the fetal head suggesting the uterus was incarcerated in the pelvis. Vaginal examination revealed fullness in the posterior vaginal wall in keeping with uterus being in the Pouch of Douglas and a very high anterior cervix behind the symphysis pubis.

MRI was requested and confirmed a retroflexed uterus with the point of flexion a third up the uterine cavity at the level of the maternal lumbo-sacral junction. The uterine fundus was in the Pouch of Douglas with the fetal head situated between the maternal vagina and rectum. The foetus had normal anatomy except for bilateral talipes and the placenta was high in uterine cavity. No fibroids were seen or any other causes for the incarceration.

After extensive counselling the patient underwent a manual replacement of the uterus at 24 weeks and 1 day gestation following the administration of corticosteroids for fetal lung maturation. The patient was placed into the left lateral position following insertion of a spinal anaesthetic. Manual displacement was then performed by the surgeon inserting their clenched hand into the vagina and applying continuous pressure under the fundus for 3 minutes. The uterus was felt to elevate and the sacral hollow became empty. Ultrasound was performed confirming a breech presentation, normal fetal heart activity and a normal position of the uterus. A fetal pillow device and a vaginal pack were inserted into the vagina and remained *in situ* for 24 hours. Atosiban was used for tocolysis throughout procedure and continued for 24 hours post-

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operatively. The patient was discharged home 3 days after the procedure with no fetal/maternal concerns.

At a follow up ultrasound assessment by the consultant obstetrician it was thought that there was a uterine abnormality in the form of a bicornuate uterus. A follow up MRI was requested which showed an arcuate uterus with 6 cm muscular septum splitting the fundus with one third of the cavity on the maternal right and 2 thirds on the left. The fetal head was visualised in the left fundus and fetal body and limbs in right fundus.

The patient had 2 weekly fetal assessment ultrasounds which all showed good growth velocity within normal centiles on a customised growth chart with normal liquor volume and end diastolic flow present on umbilical artery dopplers.

The breech presentation persisted therefore an elective caesarean section was performed at 39+3 weeks. At caesarean section the uterus was found to be bicornuate, with the fetal head extended in the left horn. The operation was uncomplicated and the patient was discharged home the following day.

Discussion

Patients with this condition can present in several ways, including asymptomatically such as our case [3]. Symptoms commonly relate to pressure on the surrounding anatomy by the enlarging uterus: including pelvic fullness, pelvic or back pain, urinary and gastrointestinal symptoms [5,6]. Urinary symptoms include dysuria, frequency and retention; gastrointestinal symptoms include rectal pressure, constipation and lower abdominal pain [2,6,7]. On clinical examination several classical signs may be elicited including a lower than expected fundal height for gestational age, an anteriorly displaced cervix, a smooth mass filling the Pouch of Douglas and an anterior angulation of the vagina [2,6,7]. Suspicion of an incarcerated uterus from the presentation can be confirmed by ultrasound or magnetic resonance imaging [1,3,7].

Reported maternal complications of an incarcerated uterus include urinary retention rarely leading to ureteric obstruction and renal failure, bowel obstruction with associated necrosis and venous thromboembolism [5]. Obstetric complications involve intrauterine growth restriction, miscarriage, stillbirth, oligohydramnios, pre-term labour and an increased risk of emergency Caesarean section [4,5]. Our patient was fully counselled about the risks of continuing the pregnancy without undergoing a manual replacement of the uterus and also of the risks associated with a replacement such as preterm labour, abruption, uterine rupture and consequently a hysterectomy.

Once an incarcerated uterus is identified it is important the uterus is returned to the normal anatomical position early if it does not resolve spontaneously. There are several options for manipulating the uterus to an anterior position [8-10]. Intervention before 20 weeks gestation can be by passive reduction, manual reduction, colonoscopic reduction, laparoscopic reduction and laparotomy [11]. Ideally attempts to reposition the uterus to the anteverted position should be undertaken between 14-20 weeks gestation, as this is associated with the most success [6,12].

Manual reduction is performed by applying digital pressure to the posterior fornix; general anaesthesia aids the correction of the uterine position by causing flaccidity and relaxation in the pelvic and abdominal muscles [10] however this case report shows that manual reduction can be performed successfully under spinal anaesthetic without complication. Attempts to correct an incarcerated uterus to the normal anatomical position after 15 weeks gestation are associated with increased failure and manual reduction is rarely successful from 20 weeks gestation [2]. This case report shows that manual reduction can be carried out successfully at 24 weeks with a good fetal and maternal outcome however careful planning and adequate informed consent is required.

An MDT approach was used when preparing for the manual replacement of the uterus in theatre. Due to the known complications associated with manual replacement the theatre team consisted of a consultant anaesthetist, consultant colorectal surgeon, colorectal specialist nurse, 5 consultant obstetricians and gynaecologists (including 1 with advanced skills in ultrasound scanning, 1 feto-maternal medicine specialist, 2 urogynaecologists). Three successful cases of uterine release using sigmoidoscopy after 20 weeks gestation have been reported [13] and had manual replacement failed this was a second line option for treatment that had been planned for in this case. Third line management would have included laparotomy and surgical correction.

An increased incidence of incarcerated uteruses is seen in several disorders including pelvic adhesions from surgery, endometriosis, fibroids and congenital uterine malformations [2]. This case report was an incarcerated uterus from a bicornuate uterus that diagnosis was only formally made at caesarean section.

If incarceration persists towards term, normal vaginal delivery is contraindicated and a caesarean section is recommended at 36 weeks gestation. The caesarean section can be very complex due to the significant distortion of the normal anatomy and consideration should be given to the use of a midline abdominal incision. A multidisciplinary team should be involved including urological surgeons due to the potential for urinary tract injury. The remainder of the pregnancy should be closely monitored for fetal and obstetric complications such as intrauterine fetal growth restriction [11] (Table 1).

Table 1: Summary of risks [2-7].

Obstetric	Miscarriage, stillbirth, preterm labour, premature rupture of membranes, death
Haematological	Bleeding, venous thromboembolism
Urological	Urinary incontinence, sepsis, urine retention, ureteric obstruction, renal failure
Gastrointestinal	Constipation, bowel obstruction and necrosis
Fetal	Intrauterine growth restriction, oligohydramnios, malpresentation
Associated with manual replacement	Preterm labour, abruption, uterine rupture, emergency caesarean section, hysterectomy

Conclusion

An incarcerated uterus is a rare obstetric complication that if not detected and managed can lead to significant maternal and fetal morbidity and even mortality. Extensive planning is needed before performing a manual replacement of an incarcerated uterus to ensure all complications are anticipated and prepared for in advance. A multidisciplinary approach including other specialities is advised including radiologists, anaesthetists, neonatologists and colorectal surgeons. This case reports shows that manual replacement of an incarcerated uterus can be performed safety over 24 weeks under spinal anaesthetic with a good obstetric outcome.

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