CASE REPORT

Stranded under the Prom: impacted gravid uterus presenting as acute urinary retention

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SUMMARY

Acute urinary retention in pregnancy secondary to an impacted uterus is a rare occurrence. It can have non-specific presentations, leading to delay in diagnosis, hence potentially increasing maternal and fetal morbidity and mortality. A number of risk factors for the condition have been identified. We describe the case of a 31-year-old woman presenting with urinary retention at 18 weeks' gestation. Clinical examination revealed features consistent with a gravid uterus impacted in the pelvis. Management with urinary catheterisation followed by gentle manual disimpaction of the uterus was successful.

BACKGROUND

Uterine impaction secondary to retroverted gravid uterus is a rare occurrence and can have varying presentations, including urinary retention. We report a case presenting at 18 weeks' gestation. While this diagnosis remains relatively uncommon, its prompt recognition and diagnosis is crucial in order to avoid maternal and fetal morbidity and mortality.

CASE PRESENTATION

A 31-year-old woman (G5P1) at 18 weeks' gestation presented to her primary care physician, with a 1-week history of urinary frequency and urgency associated with a sensation of incomplete bladder emptying.

Previous obstetric investigations for the current pregnancy included an ultrasound scan at 12 weeks' gestation, which showed a crown-rump length consistent with the gestational age and a retroverted uterus (figure 1).

The patient's medical history was relevant for recurrent urinary tract infections, while her obstetric history included uncomplicated delivery of a healthy baby 12 months prior to her current pregnancy, and three previous miscarriages 2 years prior at 7–10 weeks' gestation. Previous investigations for her recurrent miscarriages had been unremarkable, with normal parental karyotypes, thyroid function tests and glycated haemoglobin (HbA1c). Additionally, her thrombophilia screen including lupus anticoagulant, anticardiolipin antibody, factor V Leiden mutation and prothrombin G20210A mutation was negative. Her serum was also negative for antinuclear antibodies.

Previous gynaecological investigations 2 years prior to her current presentation included laparoscopy, which demonstrated extensive adhesions of the ovaries and fallopian tubes to the pelvic wall

consistent with previous pelvic inflammatory disease, as well as endometriosis to both ovaries. Management of these included ablation of the endometrial deposits with diathermy and surgical division of adhesions with successful mobilisation of bilateral adnexae. A hysteroscopy and salpingogram performed at the time revealed a normal uterine cavity and patent fallopian tubes.

In view of the patient's history of urinary tract infections, a urine microscopy and culture were ordered and she was treated empirically with a course of oral antibiotics for a presumed urinary tract infection by her primary care provider.

However, she developed worsening intermittent right-sided pelvic discomfort and presented to her primary care physician 5 days later for further investigations.

INVESTIGATIONS

The patient's urine microscopy and culture from her initial review were noted to be unremarkable. A pelvic ultrasound however revealed findings consistent with urinary retention, with a bladder volume of 1430 mL before micturition, and 1126 mL after attempting to void.

TREATMENT

Given the finding of urinary retention, an urgent review with the patient's obstetrician was arranged for the same day. Abdominal examination revealed a grossly distended and tender bladder, which made it difficult to palpate the uterus. On vaginal examination, an enlarged uterus was found to be impacted in the pelvis.

A 13 Fr indwelling urinary catheter was inserted with prompt drainage of 1.8 L of clear urine.

Figure 1 Ultrasound scan performed at 12 weeks' gestation showing retroversion of the uterus.

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Following emptying of the bladder, a vaginal examination was repeated and the uterus was gently manipulated out of the posterior fornix. In the absence of a distended bladder, an 18-week-size uterus became immediately palpable abdominally.

The patient experienced prompt relief in her pelvic discomfort and her urinary catheter was successfully removed after 48 h, with resumption of normal urinary function.

OUTCOME AND FOLLOW-UP

The patient progressed to have an uncomplicated pregnancy and delivered a healthy 2.8 kg female child at 39 weeks' gestation via spontaneous vaginal delivery.

DISCUSSION

Impaction of a retroverted gravid uterus is rare, with an estimated incidence of 1 in 3000 to 1 in 10 000 pregnancies.^{1 2} While it can have non-specific presentations, its prompt recognition is important as delay in the diagnosis can lead to significant maternal morbidity or fetal mortality.

Retroversion of the uterus in itself is not uncommon. It has an estimated prevalence of 15% in early pregnancy, although most of these eventually progress to have uncomplicated pregnancies.¹ A number of risk factors have been identified for the incarceration and impaction of a gravid retroverted uterus. These include endometriosis, the presence of pelvic adhesions, congenital abnormalities of the uterus, uterine fibroids or anatomical variations in the pelvic shape.¹⁻³ This is reflected in the case of our patient, who had two of the aforementioned predisposing factors.

Impaction of a gravid uterus can have varying presentations. These may include abdominal discomfort and urinary symptoms as described in our case, and gastrointestinal and rectal symptoms, such as tenesmus and progressive constipation. Potential serious complications include rectal gangrene, irreversible uterine ischaemia, hydronephrosis leading to acute kidney injury, bladder or uterine rupture, or spontaneous miscarriage.^{1 2 4}

Most cases of an impacted gravid uterus leading to urinary retention have been reported to occur between 10–16 weeks' gestation.^{1 3 5} In the case of our patient, presentation occurred slightly later, at 18 weeks' gestation, and had a number of predisposing factors for the condition.

In a normal pregnancy, the uterus ascends into the abdominal cavity by the end of the first trimester. Impaction of a retroverted uterus is believed to occur when it remains retroverted as pregnancy progresses, leading to the uterine fundus getting hindered below the sacral promontory.

The exact pathophysiology by which a gravid retroverted impacted uterus causes urinary retention is a subject of debate. While impingement of the urethra between the cervix and the pubic symphysis as a result of uterine entrapment within the pelvis was traditionally thought to be the causative mechanism, a case series of five patients by Yang and co-authors^{1 3} suggested otherwise. Using ultrasound imaging, they noted that compression of the lower bladder by anterosuperior displacement of the uterus impeded drainage into the urethra, while the urethra itself was neither distorted nor compressed. Valsalva manoeuvre was also noted to exacerbate compression of the lower bladder. Interestingly, most cases of acute urinary retention were noted to occur around midnight.¹

Typical external examination findings include a low fundal height for age of gestation and bladder distension, while vaginal examination often reveals difficult visualisation of the cervix as it is displaced behind the symphysis pubis. A large palpable mass is also palpable in the cul de sac.^{2 6} Subsequent investigations

may include ultrasound, although some authors recommend magnetic resonance imaging (MRI) as a more definitive test to exclude other possible diagnoses.^{2 7}

The initial management of urinary retention secondary to a retroverted uterus consists of decompression of the bladder using an indwelling urinary catheter. This is then followed by measures to decompress the impacted uterus in order to restore normal uterine perfusion.³ The first-line treatment is usually manual reduction during vaginal examination, with simultaneous gentle pressure applied to the suprapubic region of the abdomen. If this is not successful, other manoeuvres can be trialled, or reduction is attempted under sedation. Repositioning of the uterus via laparoscopy or laparotomy is only considered if the previous methods of manual reduction have failed.

Recurrence of urinary retention in the setting of a retroverted uterus has also been reported. Suzuki *et al* reported a case of two patients who developed recurrence in the same pregnancy, with both patients also developing urinary retention in a subsequent pregnancy, whereas Gecit *et al*⁴ reported the case of a patient who developed urinary retention in three separate pregnancies.⁵ In view of the morbidity associated with the condition, a number of measures have been proposed to avoid recurrence, although their efficacy is variable. These include limiting fluid intake before bedtime, avoidance of the Valsalva manoeuvre, changing from the supine position to the prone position prior to getting up to void, leaning forward at the start of micturition, or the Credé manoeuvre, whereby the patient applies pressure to the suprapubic region during micturition.^{1 5 8} Irrespective of the success rate of these prophylactic measures, given the potential serious complications of a delayed diagnosis, the patient has to be educated about the risk of recurrence and be instructed to seek immediate medical advice at the earliest warning sign.

Urinary retention from a gravid impacted uterus is a medical emergency. It can have dire consequences for both the mother and the fetus, and prompt recognition and diagnosis by all healthcare providers is essential.

Learning points

- ▶ Acute urinary retention secondary to an impacted retroverted gravid uterus is a medical emergency and typically occurs between 10 and 16 weeks' gestation.
- ▶ Recognised risk factors include the presence of pelvic adhesions, endometriosis, congenital abnormalities of the uterus, uterine leiomyoma and variations in the shape of the pelvis.
- ▶ Management consists of urgent decompression of the distended bladder with a Foley catheter, followed by manual reduction of the retroverted uterus.
- ▶ The patient should be educated about preventative measures and asked to seek medical advice at the earliest sign of a recurrence.
- ▶ Given the significant maternal and fetal morbidity and mortality associated with the condition, an increased awareness among medical practitioners is important.

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Competing interests None declared.

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