A case study: Managing Incarcerated Uterus in a high risk pregnancy

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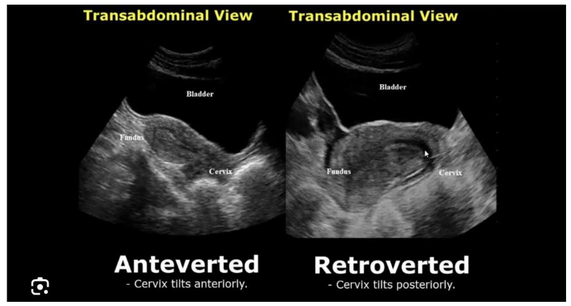
Background

In most women, the uterus is anteverted and flexed toward the bladder; however, approximately 15% have a retroverted or retroflexed uterus tilted toward the spine. During early pregnancy, up to 20% of women present with a retroverted uterus, which typically self-corrects to an anteverted position by the first trimester without adverse effects. In rare instances—roughly 1 in 3,000 to 10,000 pregnancies—the gravid uterus remains retroverted and becomes incarcerated within the pelvis between the symphysis pubis and sacral promontory, resulting in an incarcerated gravid uterus (IGU). Risk factors include prior uterine incarceration, adhesions from previous surgeries, uterine or pelvic structural anomalies, endometriosis, and a deep sacral concavity. IGU often presents with intermittent, recurrent lower abdominal or suprapubic pain, pelvic fullness, urinary frequency, dysuria, and progressive urinary retention, which can lead to severe complications such as miscarriage, preterm labour, uterine or bladder rupture, and, in extreme cases, rectal gangrene. Given the increasing prevalence of high-risk pregnancies involving these predisposing factors. We will explore a case study highlighting the importance of early recognition and intervention.



Case study

Our case involves a 29F G14P3 12+1 weeks presenting with acute urinary retention. The patient reported difficulties voiding over the last few weeks and acutely worsened on day of presentation to emergency department. She did not have any infective symptoms and had otherwise been systemically well. She has no significant medical history. In regard to her obstetric history, she had two term normal vaginal deliveries in 2016 and 2018, followed by an emergency classical caesarean section at 24 weeks in 2019 and three first trimester miscarriages. An indwelling catheter was inserted and drained 1L urine. Despite emptying her bladder, the patient continued to experience ongoing worsening suprapubic pain.

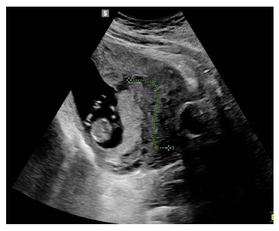
<u>Investigation</u>

FBE: Hb 125, WCC 11.4; UEC Cr 55

US: Live singleton pregnancy. No subchorionic haemorrhage. The uterus is markedly retroflexed, raising the possibility of incarcerated uterus. US KUB No evidence of renal tract obstruction.

<u>Treatment</u>

The patient had a manual reduction of the uterus in theatre with nil complication. A follow up ultrasound demonstrated an anteverted gravid uterus. The patient's symptoms improved significantly, and she was discharged home with routine antenatal clinic follow up.



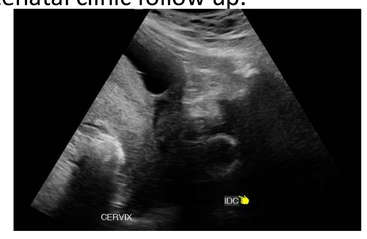


Image 1: Incarcerated Retroverted uterus; Image 2: Successful reduction, Anteverted uterus

Discussion

With the rise of modern obstetrics and assisted reproductive techniques, pregnancies complicated by adhesive conditions such as endometriosis, fibroids, pelvic inflammatory disease, and prior pelvic surgeries have increased, necessitating a closer examination of the clinical epidemiology of IGU. While case reports have identified various risk factors that hinder the ascent of the gravid uterus from the sacral hollow, these factor were found to not impact gestational age at presentation, diagnosis, management, or delivery outcomes. A retroverted gravid uterus may fail to correct its position in the second trimester, leading to compression of surrounding structures and resulting in urinary and bowel symptoms.

Clinical examination remains essential, particularly when a severely anteriorly displaced cervix is unpalpable and difficult to visualize on ultrasound, raising suspicion for IGU. Surgical correction is recommended for IGU cases persisting beyond 20 weeks, but conservative measures, including novel approaches like Bakri balloon placement, may be attempted initially.

Conclusion

In conclusion, incarcerated gravid uterus (IGU) is a rare but potentially serious complication of pregnancy that necessitates early recognition and timely intervention to prevent adverse maternal and fetal outcomes. While risk factors such as prior surgeries, endometriosis, and uterine anomalies may predispose individuals to this condition, IGU can often be successfully managed with manual reduction and close antenatal monitoring. This case highlights the importance of maintaining a high index of suspicion for IGU in pregnant patients presenting with urinary retention and pelvic discomfort, as prompt diagnosis and appropriate management can significantly improve outcomes. As obstetric care evolves, further research and awareness are crucial to refining diagnostic techniques and optimizing treatment strategies for this uncommon but clinically significant condition.

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