

Diagnostic Laparoscopy for Failed Manual Reduction of a First-Trimester Incarcerated Gravid Uterus

Diana Palacios, MD; Josef Jackson, MD; Daniel Lovell, MD; Biba Nijjar, MD
Baylor College of Medicine

Objective

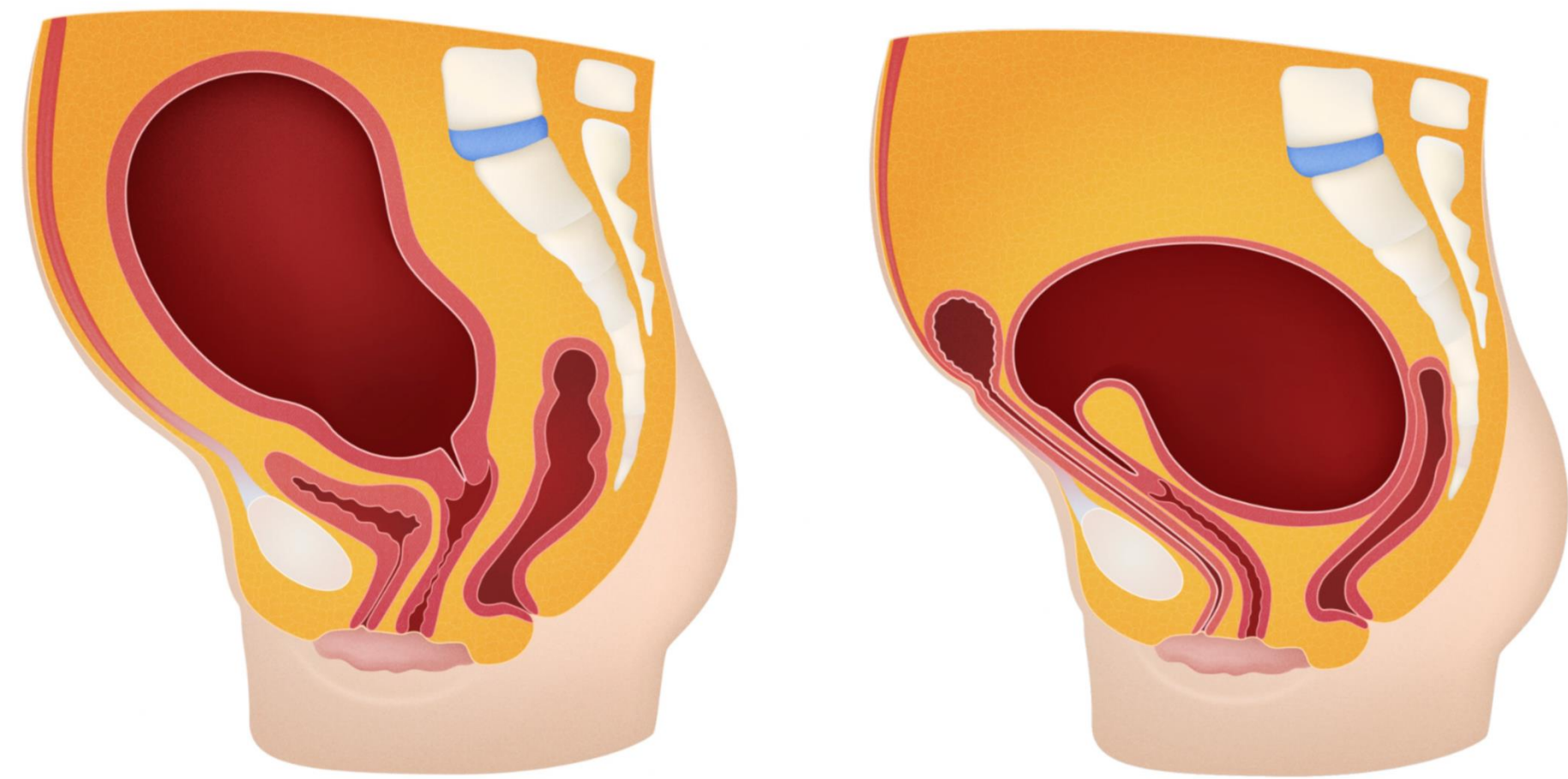
To present a rare case of first-trimester incarcerated gravid uterus presenting with acute urinary retention and describe the role of diagnostic laparoscopy after failed manual reduction in a patient with extensive surgical history for endometriosis.

Methods

Video case report demonstrating the evaluation and laparoscopic management of a 41-year-old G5P2022 at 10w1d with recurrent acute urinary retention secondary to an incarcerated gravid uterus.

Background

Incarcerated gravid uterus is a rare obstetric complication (approximately 1 in 3,000 pregnancies) in which a retroverted pregnant uterus becomes trapped within the pelvis, preventing its normal ascent into the abdominal cavity as gestation progresses.



- Most cases are diagnosed between 14–16 weeks gestation
- Common presenting symptoms:
 - Acute urinary retention
 - Urinary frequency, urgency, or dysuria
 - Pelvic pain or pressure
 - Vaginal bulge or fullness
 - Constipation
 - Low back or sacral pain
- Risk factors:
 - Retroverted uterus
 - Endometriosis
 - Pelvic adhesions
 - Prior pelvic surgery
 - Uterine anomalies
- Risk Delayed diagnosis may result in:
 - Hydronephrosis
 - Bladder injury
 - Pregnancy loss
 - Uterine rupture
 - Preterm birth

Case

A 41 year old G5P2022 at 10w1d with a history of stage IV endometriosis and four prior laparoscopic endometriosis resections presented with 2 weeks of progressive difficulty voiding and a sensation of a vaginal bulge.

Pelvic examination demonstrated anterior displacement of the cervix behind the pubic symphysis with a palpable posterior cul-de-sac mass. Transvaginal ultrasound was nondiagnostic, and pelvic MRI confirmed an incarcerated retroverted gravid uterus.

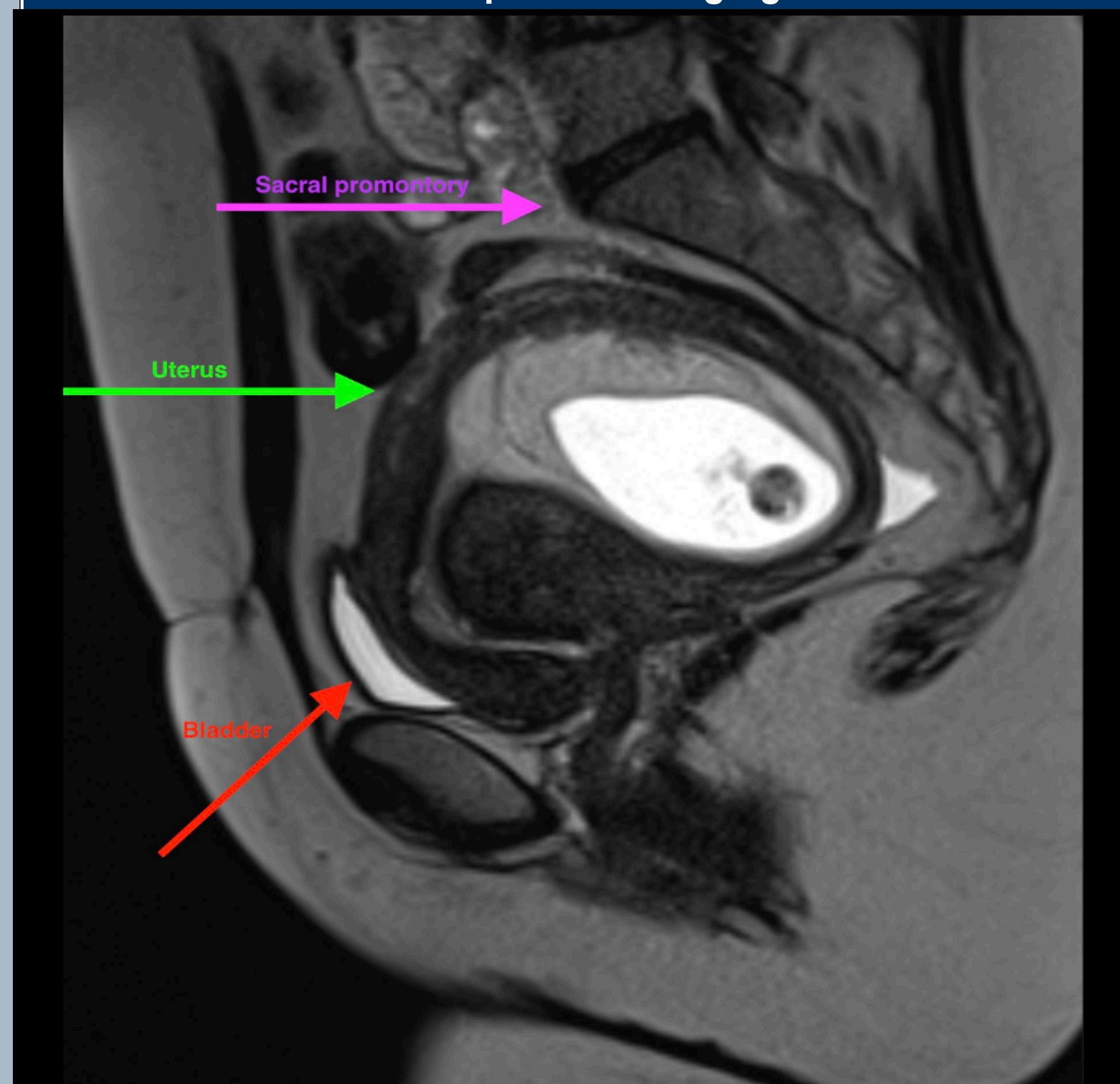
Following bladder decompression, the patient initially passed a voiding trial and was discharged. Six days later, she returned with recurrent acute urinary retention after being unable to void for more than 12 hours.

Conservative management with bladder decompression, maternal positioning, and manual reduction were unsuccessful because of significant pain and inability to mobilize the uterus. Given the unusually early presentation and concern for adhesive disease related to her history of extensive endometriosis surgery, she underwent diagnostic laparoscopy to evaluate the pelvic anatomy and facilitate reduction.

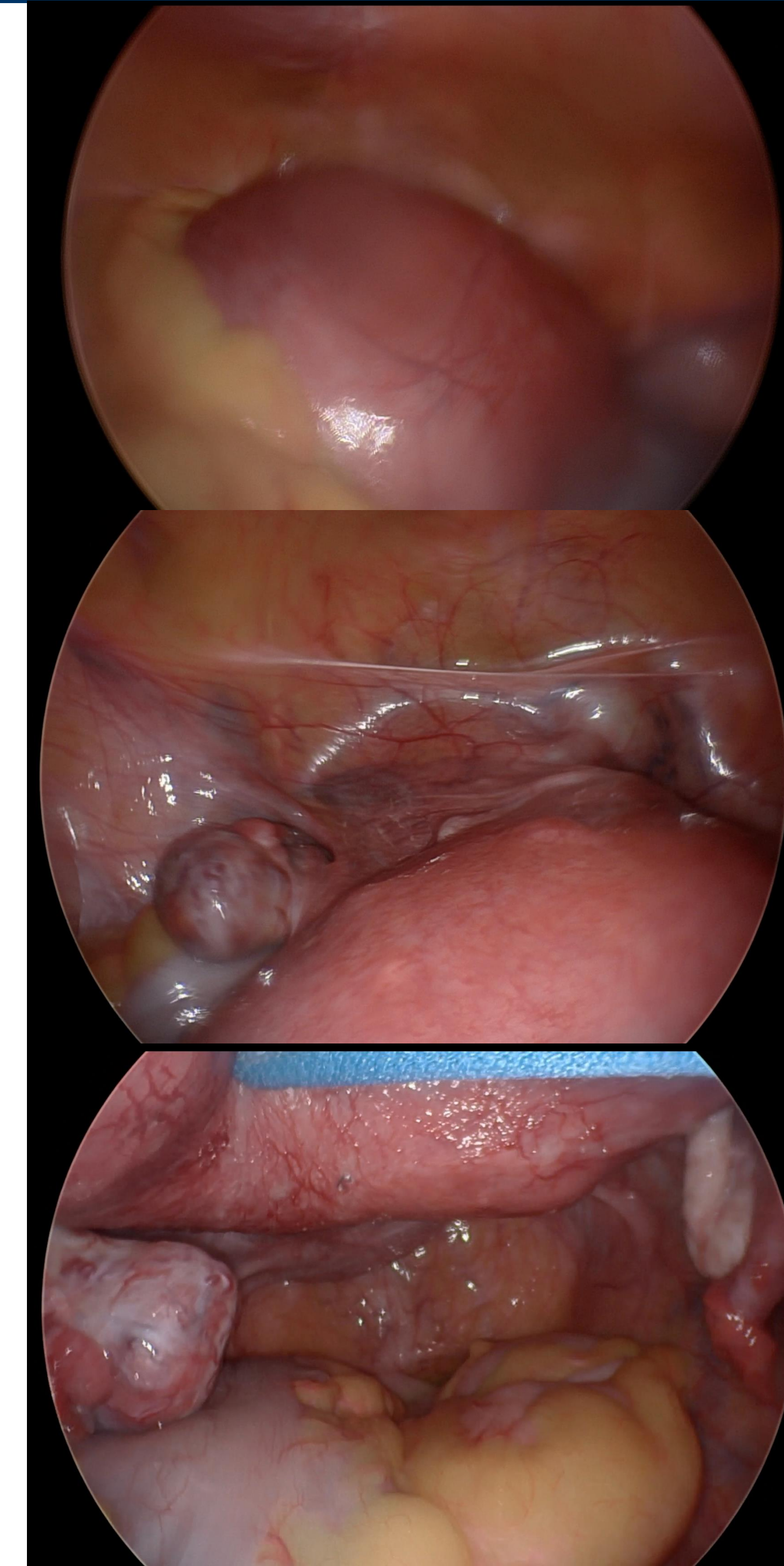
Laparoscopy demonstrated the gravid uterus impacted within the posterior pelvis without dense adhesions preventing reduction.

Gentle cephalad traction restored the uterus to its normal position, and a vaginal pessary was placed to reduce the risk of recurrence. Estimated blood loss was less than 5 mL, with no intraoperative complications. Urinary retention resolved immediately, the pessary was removed at 16 weeks without recurrence, and the pregnancy resulted in an uncomplicated term vaginal delivery.

Pre-operative Imaging

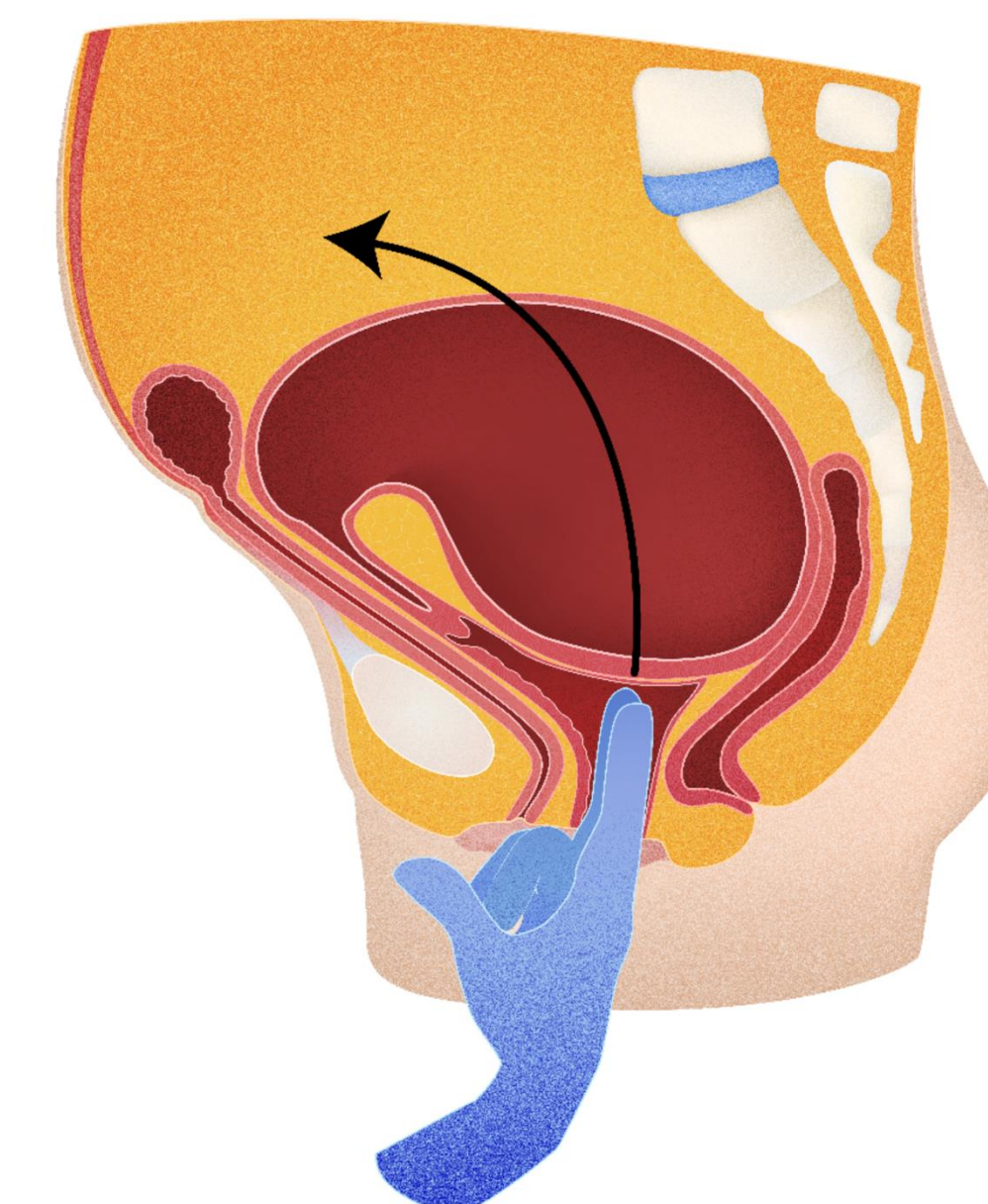


Intra-operative Images



Manual Reduction Technique

1. Empty the bladder with Foley catheter for decompression
2. Position the patient in dorsal lithotomy or knee-chest position to facilitate uterine mobilization
3. Provide adequate analgesia or anesthesia to improve patient comfort and pelvic floor relaxation
4. Apply gentle upward (cephalad) pressure to the uterine fundus through the posterior vaginal fornix while avoiding excessive force
5. Confirm successful reduction with pelvic examination and/or ultrasound, and monitor for recurrence



Discussion

Incarcerated gravid uterus is a rare obstetric complication that most commonly presents during the late first or early second trimester. This case is notable for its presentation at only 10 weeks gestation, earlier than is typically reported, in a patient with significant risk factors including severe endometriosis and multiple prior pelvic surgeries.

Urinary retention is one of the most common presenting symptoms of uterine incarceration and should prompt careful pelvic examination when accompanied by a retroverted uterus or abnormal cervical position. When ultrasound findings are inconclusive, MRI can provide valuable diagnostic confirmation and assist with preoperative planning.

Initial management consists of bladder decompression, maternal positioning, and manual reduction. In this case, manual reduction under intravenous analgesia was unsuccessful, and the patient's surgical history raised concern that adhesive disease or altered pelvic anatomy might be preventing reduction. Diagnostic laparoscopy therefore served both a diagnostic and therapeutic role by evaluating for anatomic barriers to reduction while allowing safe laparoscopic reduction of the uterus. Although dense adhesions were not identified, laparoscopy excluded surgically correctable pathology and facilitated successful reduction with minimal morbidity.

Temporary pessary placement following reduction may help maintain uterine position until the enlarging uterus rises out of the pelvis, potentially reducing the risk of recurrent incarceration.

This case highlights the importance of maintaining a high index of suspicion for incarcerated gravid uterus in patients presenting with urinary retention early in pregnancy and demonstrates that diagnostic laparoscopy can be a safe and effective management strategy when conservative measures fail and underlying adhesive disease is suspected.

Learning Points

- Maintain a high index of suspicion for incarcerated gravid uterus in first-trimester urinary retention.
- MRI is an excellent adjunct when ultrasound is nondiagnostic.
- Failure of manual reduction, especially in patients with endometriosis or prior pelvic surgery, may justify diagnostic laparoscopy to evaluate for adhesive disease and assist with reduction.

Acknowledgments

The authors thank Baylor College of Medicine for supporting this work and the patient for consenting to the publication and educational presentation of her case.