

Maternal Bladder Exstrophy Complicating Cesarean Delivery: A Multidisciplinary Approach to Care

Benjamin Boudreau, Allison Cropsey, Kim Nguyen MD
Grand Rapids, Michigan

Background

- Bladder Exstrophy (BE) is a rare and complex anatomical anomaly that requires surgical intervention in early life.
 - Patients often have numerous surgeries in infancy that alters the anatomy of the pelvic cavity.
 - BE has an incidence of 5 cases per 100,000 live births¹.
- Due to its rarity, literature regarding management of BE after surgical correction in pregnancy and during delivery is scarce.
- The challenging anatomy of the pelvic cavity in BE patients increases risk for complications during Cesarean delivery, necessitating a multidisciplinary approach in the preoperative and perioperative setting².

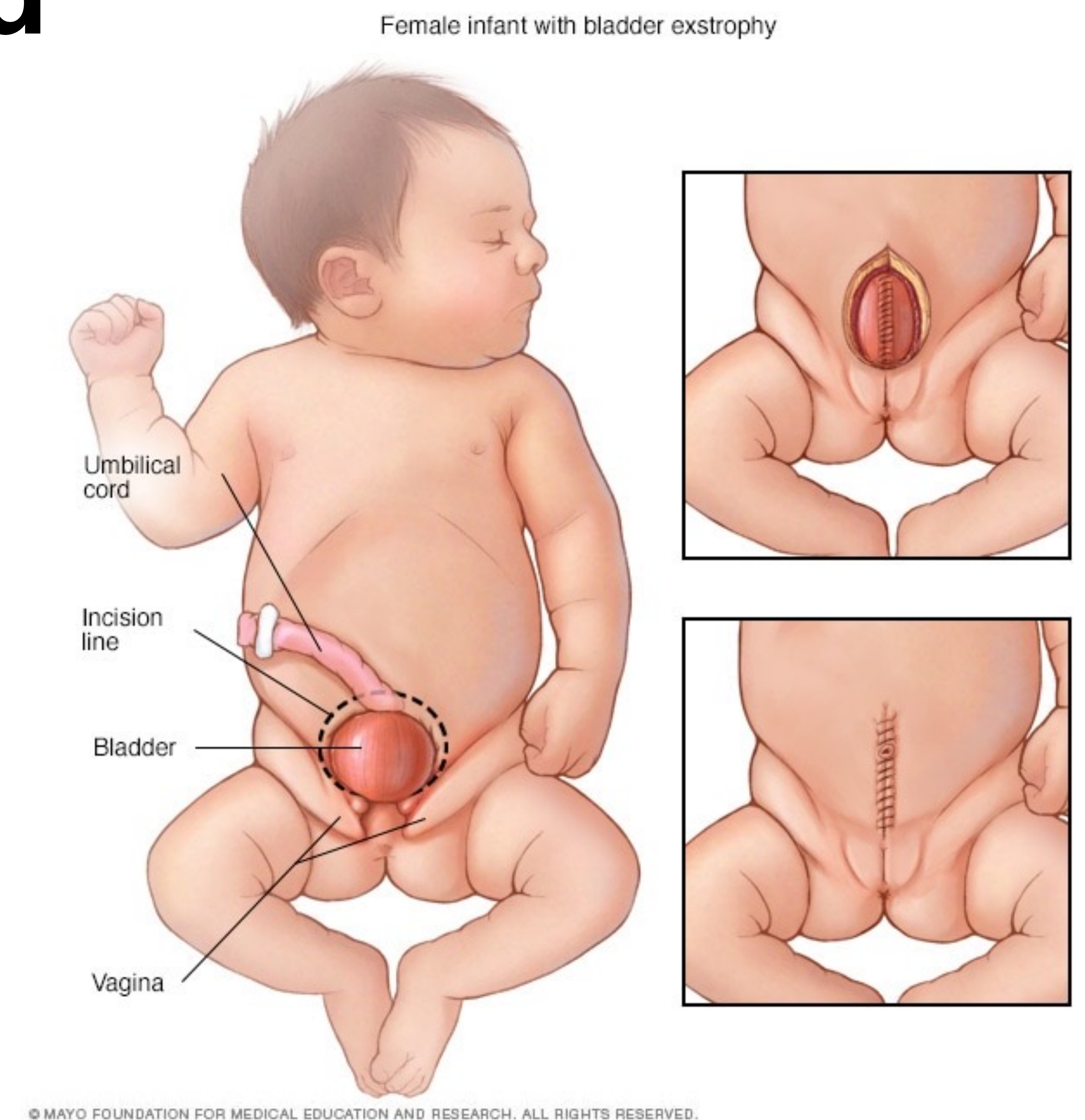


Figure 1: Diagram of bladder exstrophy before and after surgical correction in an infant female.

1. Jayachandran D, Bythell M, Platt MW, Rankin J. Register based study of bladder exstrophy-epispadias complex: prevalence, associated anomalies, prenatal diagnosis and survival. *J Urol.* 2011;186(5):2056-2060. doi:10.1016/j.juro.2011.07.022

2. Kaufman MR. Pelvic organ prolapse and pregnancy in the female bladder exstrophy patient. *Curr Urol Rep.* 2018;19(3):18. doi:10.1007/s11934-018-0767-2

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Case Presentation

- A G1P0 27-year-old female at 36 weeks GA presented in labor for an urgent cesarean section.
 - History of 18 urologic reconstructive surgeries including a Mitrofanoff procedure.
 - Initial planning was for an elective c-section at 37 weeks GA. A multidisciplinary team of Maternal-Fetal Medicine, Structural Urology, OBGYN, Anesthesiology was organized at 21 weeks GA to discuss the case.
 - **Surgical Plan:**
 - Structural Urology: Catheterize Mitrofanoff stoma, vertical incision, create surgical plane
 - OBGYN: Cesarean section at the uterine fundus
 - **Anesthetic Plan:**
 - Combined Spinal-Epidural Neuraxial Block
 - Post-procedure bilateral Transverse Abdominis Plane block
 - The case was performed to plan, patient reported upper body tingling resolving with 200µg of fentanyl.

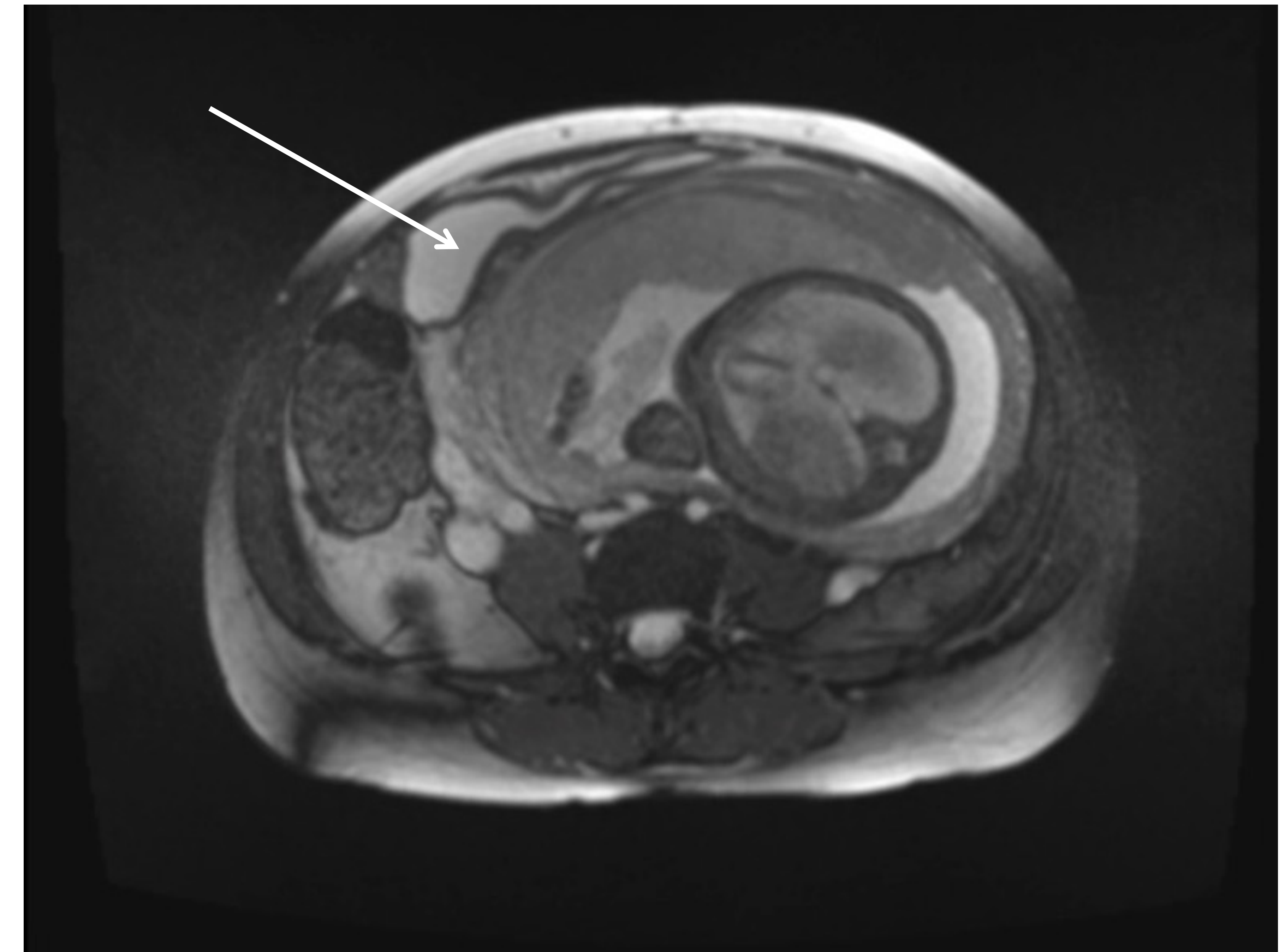


Figure 2: T2 weighted MRI at 32 weeks GA. Note the bladder (arrow) fixated to the right lower quadrant with the Mitrofanoff stoma leading towards the umbilicus.

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Teaching Points

- BE increases the surgical complexity and risks of complications during delivery and often requires a prospective multidisciplinary team to maximize patient care.
 - Surgical and anesthetic plans were discussed and created 15 weeks prior to delivery. Although the patient presented urgently, the patient and plan were familiar to the team with the urologist being called in for the procedure.
- The anesthetic plan for patients undergoing complex Cesarean delivery involves appropriate pre-planning and multimodal pain control with many patients able to be awake during their procedure.
- TAP blocks with intrathecal morphine should be considered in patients with complex c-sections for optimal pain control.
 - Liposomal bupivacaine was used for the TAP blocks due to its superiority in reducing post-operative opioid use compared to normal bupivacaine³.

3. Nedeljkovic SS, Kett A, Vallejo MC, et al. Transversus abdominis plane block with liposomal bupivacaine for pain after cesarean delivery in a multicenter, randomized, double-blind, controlled trial. *Anesthesia & Analgesia*. 2020;131(6):1830.
doi:10.1213/ANE.0000000000005075