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Robot-Assisted Laparoscopic Bladder Diverticulum Excision and Ureteral Reimplantation: Three Case Reports

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Objective:

The aim of this study was to share the robotic surgical techniques applied to three pediatric cases with vesicoureteral reflux (VUR) and bladder diverticulum, which were evaluated due to recurrent urinary tract infections (UTIs).

Materials and Methods:

Three male patients aged three, five, and seven presented with a history of recurrent UTIs. Voiding cystourethrography (VCUG) revealed vesicoureteral reflux and Hutch-type bladder diverticulum in all three patients. One patient additionally had a right VUR along with a urethral diverticulum. All patients underwent robotic-assisted laparoscopic bladder diverticulum excision and ureteral reimplantation.

Case 1

- 7Y , male
- UTIs
- USG (2022): Bladder Diverticule + Hydronephrosis (Right: Grade-1 , Left :Grade 1-2
- Operation (2023): Cystoscopy, JJ İnsertion, Robotic-assisted Laparoscopic Bladder Diverticula Excision
- USG (postop 1 month) : normal
- 2024 MAG3: Right : %46, Left : %54
- USG (postop 2 year): Right AP : 16 mm, Grade 1-2 ectatic
  Left AP : 2 cm, Grade 2 ectatic

Case 2

- 5Y , male
- UTIs
- 2022 VCUG: Right : Grade 2 dilatation in calyces, right ureter wide and slightly tortuous.
- 2022 MAG3: Right : %20 , Left : %80
- Operation 2023: Robotic-assisted Laparoscopic Reimplantation (Lich Gregoir)
- 2023 VCUG
  Right : VUR
  Left : paraurethral diverticulum (HUTCH Diverticulum)+ Grade 2 VUR
- Operation 2023 : Cystoscopy + Ureterorenoscopy + STING
- 2024 VCUG: Left : Grade 2 VUR
- 2025 : Left STING
- 2025 VCUG : VUR

Case 3

- 10Y , male
- UTIs, Dysuria
- 2024 USG : Right : Grade 2 pelvicalyceal system Left : Grade 1 ectasis
- MAG3: Right : %31, Left : %69
- VCUG :
  Right : Grade 4 VUR
  Bilateral Hutch diverticulum
  Increased bladder volume
- Operation 2025 Bilateral Robotic Lich Gregoir
- 05.2025 VCU:
  Right : Grade 2 VUR
  Left : Grade 1 VUR
- 09.2025 VCU:
  Right : Grade 2-3 VUR
  Left: Grade 4 VUR

Results:

Robotic surgery enabled diverticulum excision and ureteral reimplantation without the need to open the bladder. No serious complications were observed in the patients during the postoperative period. All cases were mobilized early and discharged with short hospital stays. No recurrence of infection was observed during postoperative follow-ups.

Conclusion:

Robot-assisted laparoscopic bladder diverticulectomy is less invasive than open surgery and offers advantages such as low morbidity, short hospital stays, and rapid recovery. Consistent with the literature, this case series supports the robotic approach as a safe and effective option in pediatric patients. We aimed to share the technical details of robot-assisted laparoscopic bladder diverticulectomy surgery and the key points to consider during surgery.