

PN Cinel, B Dağdemir Ezber, S Hancıoğlu, BD Demirel, B Yağız

Ondokuz Mayıs University, Department of Pediatric Surgery

Objective: Isolated bladder diverticulum is rare in children. Commonly, they are pseudo-diverticula characterized by protrusion of bladder mucosa through a detrusor muscle defect. Surgical correction can be performed by an extravesical or intravesical approach utilizing either open, laparoscopic, or robotic techniques. In cases with a close relation of the diverticular neck with the ureteral orifice, a simultaneous ureteroneocystostomy may be necessary. In this study, we report our 6 years experience of laparoscopic intravesical diverticulum excision in children.

Material and method: The patients who underwent pneumovesicoscopic surgery for bladder diverticulum between 2017 and 2023 (n=9) are enrolled in the study. The patients with neurogenic bladder secondary to organic causes (Spina bifida) and the patients who were converted to open surgery were excluded.

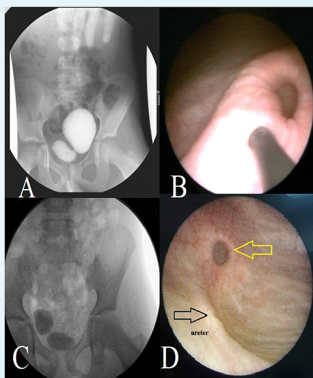


Figure 1. Appearance of paraureteral diverticulum on VCUG (a) and endoscopy (b). Independent bladder diverticulum apart from the ureteral orifice (c and d).

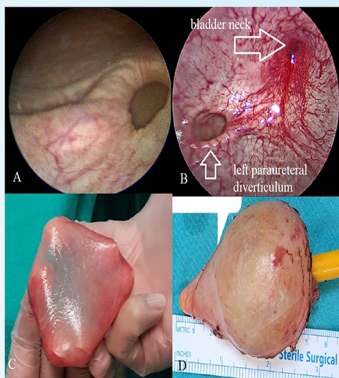


Figure 2. Endoscopic (a) and pneumovesicoscopic (b) appearance of paraureteral diverticulum. Diverticular mucosa after excision (c and d).

Results: Six patients were boys and 3 were girls while the diverticulum was located on the left side in 6 patients and 3 patients on the right side. Three ports were employed in all of the patients. The mean age of the patients was 9.26 ± 1.63 years, surgical duration was 139.66 ± 16.54 minutes and follow-up was 32.44 ± 6.29 months (mean \pm std error). Admitting symptoms were recurring urinary tract infection (n=4), abdominal pain (n=3) and prenatal hydronephrosis (n=2). Coexisting conditions were overactive bladder (OAB) in 2 patients and mild/debatable appearance of posterior urethral valve. The diverticulum was paraureteral in 7 patients but was not close to the ureteral orifice in 2. Three patients received Politano-Leadbetter ureteroneocystostomy (UNC), 1 received Glenn-Anderson UNC and the detrusor defect was repaired after diverticular excision without any UNC in 3 patients. In 2 patients where diverticula were irrelevant from the ureteral orifice, diverticula were excised and the detrusor defect was repaired without any further action. All patients except 1, recovered uneventfully (OAB and VUR experienced 2 postoperative UTI). Control cystogram revealed no VUR and symptoms were resolved after proper OAB management.

Conclusion: Pneumovesicoscopic repair of the bladder diverticulum appears as successful as open surgery. It provides lesser tissue trauma, better vision, exposure, and cosmesis. Further studies with more patients and longer follow-up are needed to confirm our findings.

Keywords: bladder diverticulum, laparoscopy, pneumovesicoscopy, ureteroneocystostomy