

1147

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TREATMENT OF URETERAL AND BLADDER INJURIES AFTER UROLOGICAL, GYNECOLOGICAL AND OBSTETRIC SURGERIES

Hypothesis / aims of study

Iatrogenic ureteral and bladder injuries are rare complications which may conclude severe results. We reviewed the diagnostic and operative considerations of ureteral and bladder injuries according to our 10 year experience.

Study design, materials and methods

Five avulsion cases, which 3 of them were complete while 2 of them were incomplete, 5 ligation cases, which 3 of them were complete while 2 of them were partial, and a vesicovaginal fistula case were treated between 1999 and 2010. The first avulsion was repaired with stented primary closure through a foley incision in a case with 7 mm stone in the tortuous and narrow mid-ureter. The second case in which the exploration revealed a 5 cm defect of the anterior serosa and mucosa with intact posterior wall mucosa occurred during basket retrieval of a 8 mm stone from the proximal ureter, then treated by stented primary approximation of the available mucosa with interrupted sutures. Two complete avulsion cases occurred in the pelvic brim and one of them was treated by psoas hitch through a midline infraumbilical approach when the other one was repaired with spatulated end-to-end anastomosis. The third case was diagnosed 5 days after an unsuccessful instrumentation due to distal ureteral stricture for a 7 mm proximal stone. After placement of a nephrostomy, fibrotic proximal ureter was dissected through a foley incision at day 21, and ischemic 7 cm segment was amputated. A 17 cm Boari bladder flap was raised, followed by non-refluxing anastomosis to the ureter. Ureteral stents were removed at 6th week in all cases.

The ligation cases came out as a malignant condition in 4 out of 5 cases and benign condition in 1 out of 5 cases. Three complete ligations were all treated by Boari flap and Psoas Hitch techniques. A double J stent was inserted in one of the partial ligations and in the other case ureteroneocystostomy and Psoas Hitch was performed.

The vesicovaginal fistula case, who was suffering from incontinence after 3 days of her delivery, was investigated with vaginal examination and cystoscopy. A 2 cm laceration between trigone and proximal urethra was observed. Bladder and vaginal wall dissected through the vaginal laceration. Bladder repaired with two layer closure. A right Marthius flap was interposed and fixed over the laceration.

Results

IVP at 6th month demonstrated ureteral patency without any evidence of dilatation or strictures in all ureteral avulsion and ligation cases. At 2nd month cystography of the vesicovaginal fistula case showed a normal cystogram.

Interpretation of results

Trauma of the urinary tract in gynaecological, obstetric and urological surgeries is rare but their ignorance may seriously affect the urinary functions. Although renal autotransplantation and ileal ureter were defined for long ureteral defects in the literature, boari flap could be a versatile solution for ureteral avulsion. The management of ureteric ligation depends on the patient's condition and the extent and location of the injury. In these cases boari flap is a good option however proximal drainage and endoscopic catheterisation of ureter could be a choice in partial ligations due to absorbable sutures.

Concluding message

Boari flap is a versatile solution that may eliminate the need for an ileal ureteric replacement in patients with long defects. Early trans-vaginal approach using Marthius flap is a good choice in vesicovaginal fistula cases.

Specify source of funding or grant	We have no fund
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	No
This study did not require ethics committee approval because	The study presents data from patients operated in our clinic. All patients gave informed consent and institutional review board approval was obtained.
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes