

Laparoscopic appendicular interposition ureteroplasty for mid-ureteral defect

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ABSTRACT

Patients with ureteral defects and salvageable renal units present a challenge in reconstructive urology. Vermiform appendix interposition is an option in the management of mid-ureteral defects that can not be managed by primary ureteroureterostomy. Laparoscopic appendicular interposition ureteroplasty is a technically demanding and an infrequently attempted procedure. We present a video demonstration of laparoscopic appendicular interposition for a 4-cm long right mid-ureteral defect in an elderly male. Laparoscopic appendicular interposition ureteroplasty for mid-ureteral defects can provide good long-term functional outcomes with results comparable to an open approach and has the advantage of reduced morbidity.

INTRODUCTION

Commonly used reconstructive options in the management of mid-ureteral defects are ileal interposition, Boari flap, and renal autotransplantation.^[1,2] The use of vermiform appendix in ureteral reconstruction has been described for a long time^[3] but literature regarding laparoscopic appendicular interposition ureteroplasty is limited. We present a video demonstration of the same.

CASE REPORT

A 58-year-old male presented with colicky right loin pain of 1-month duration. Computed tomography (CT) urogram showed a 2-cm long intramural soft tissue lesion in the right mid-ureter. The patient had initially undergone ureteroscopic biopsy of the lesion with double-J (DJ) stenting done at another institution before presenting to us. The biopsy was reported as benign neoplasm with fibrocollagenous tissue and

there was no evidence of malignancy. Retrograde pyelogram done at our institution showed a 2–3 cm filling defect at the right mid-ureter. Ureteroscopy showed a broad-based papillary neoplasm at mid-ureteric level and the rest of the ureter was found to be normal. Since the patient had undergone biopsy earlier and our diagnostic ureteroscopy impression was consistent with previous biopsy report, repeat biopsy was not done. A provisional diagnosis of benign ureteral polyp was made.

Laparoscopic segmental resection of the mid-ureteric neoplasm with involved ureter was carried out with minimal handling and without spillage, keeping in mind the very rare possibility of concomitant malignancy.^[4] Only the involved part of the ureter was resected, salvaging maximal length of normal ureter. Then, the proximal and distal ureter was mobilized. There was a gap of approximate 4 cm that could not be bridged by a primary ureteroureterostomy. We felt even if a renal descensus is performed for a 4 cm defect, the anastomosis will remain under tension. It was decided to

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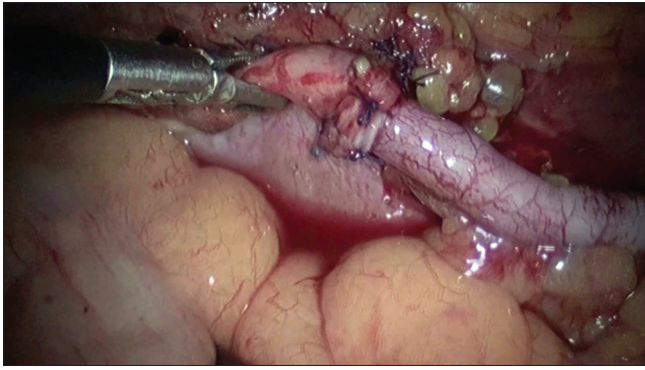
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bridge the gap with the vermiform appendix. The appendix was then mobilized with the mesentery. Care was taken not to injure the appendicular artery. The lumen of the appendix was exposed both at the tip and the base.

The proximal ureteral end was anastomosed to the basal portion of the appendix and the distal ureteral end was anastomosed to the tip of the appendix. A DJ stent was properly positioned. The anastomosis was retroperitonealized and the procedure was concluded. The postoperative period was uneventful. The histopathological report was suggestive of fibroepithelial polyp. The DJ stent was removed 8 weeks after the surgery. Follow-up CT urogram at 3 months showed unobstructed drainage of urine with no leak of contrast. The patient remained asymptomatic at 2 years of follow-up.

The appendicular substitution does not need tapering and causes negligible electrolyte imbalances.^[2] We anastomosed the appendix in an anti-peristaltic fashion, theoretically avoiding tension in the mesoappendix and reducing chances of anastomotic breakdown, and also allowing unimpeded flow of urine.

CONCLUSION

Appendicular interposition is a reconstructive option for mid-ureteral defects. Laparoscopic appendicular interposition ureteroplasty can provide good long-term functional outcome with reduced morbidity and comparable efficacy to open approach.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images, surgical videos and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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