Robotic-assisted laparoscopic ureteroplasty using a non-transecting side-to-side technique for distal ureteral strictures

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Introduction

- Typical surgical management of distal ureteral strictures requires circumferential dissection and transection of the ureter.
- This can jeopardize the already tenuous blood supply of the distal ureter and contribute to recurrent stricture, specially in patients with an already compromised vascular supply.
- This novel non-transecting side-to-side ureteroplasty technique aims to maximally preserve blood supply to the distal ureter.

Methods

- A retrospective chart review was performed on all patients managed with non-transecting ureteroplasty.
- All surgeries were performed by a single surgeon at the University of Colorado Anschutz Medical Center between 2020 and 2023.
- Data gathered included preoperative characteristics, intraoperative data, and post-operative outcomes.
- Clinical success was defined as freedom from requiring additional surgical intervention due to ureteral stricture recurrence at last follow up.
- Radiologic success was defined as no evidence of hydronephrosis on post-operative renal ultrasound or obstruction on post-operative nuclear medicine renal scan.

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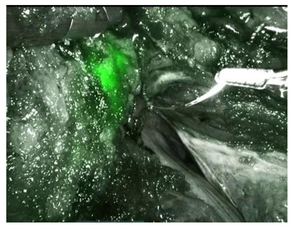
Results

Table 1. Patient Characteristics and Intraoperative and Postoperative Outcomes

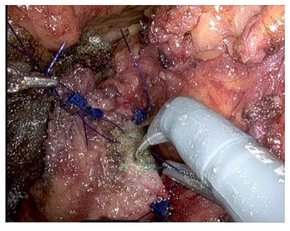
Summary of Results (N=9)

Preoperative Data	
Sex, n (%)	
Female	7 (78)
Male	2 (22)
Age, median (IQR) (years)	50 (45-66)
Stricture length, median (IQR) (cm)	4 (2-8)
Time from diagnosis to treatment, median (IQR) (months)	5 (2.5-8)
Prior Endoscopic Management, n (%)	
Ureteral Stent	6 (67)
PCN	8 (89)
Balloon dilation	0 (0)
Endoureterotomy	0 (0)
Prior ureteral reconstruction attempt, n (%)	0 (0)
Stricture etiology, n (%)	
Iatrogenic	4 (44)
Radiation	3 (33)
Endometriosis	1 (11)
Idiopathic	1 (11)
Stone	0 (0)
Intraoperative Data	
Robotic, n (%)	9 (100)
Adjunct procedure for mobility, n (%)	
None	8 (89)
Psoas hitch	1 (11)
Boari flap	0 (0)
Operative time, median (IQR) (min)	228 (211-333)
Estimated blood loss, median (IQR) (mL)	50 (40-75)
Intraoperative complications, n (%)	0 (0)
Postoperative Outcomes	
Length of stay, median (IQR) (days)	2 (2-3)
Clinical success, n (%)	9 (100)
Radiologic success, n (%)	7 (78)
30-day complication, n (%)	1 (11)
≥ Clavien-Dindo Grade 3	
Follow up, median (IQR) (months)	4 months (1-13)

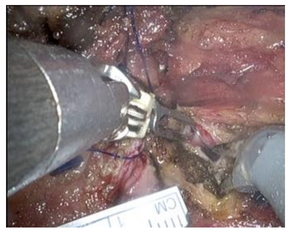
Intra-Operative Images



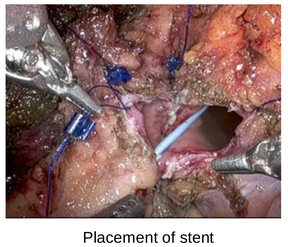
Visualization of L ureter with Firefly imaging



Placement of Stay sutures



Cystostomy



Placement of stent

Creation of the anastomosis between back wall of bladder and ureter

Closure of anterior portion of the anastomosis

Discussion

- There was a 100% clinical and radiological success rate at a median f/u time of four months.
- Our experience was consistent with the prior report on the technique by Slawin et al.
- We found this technique to be advantageous in radiated cases, as it limited the dissection through fibrous tissue and made feasible the treatment of longer strictures measuring up to 8 cm.
- We were able to attain a tension free anastomosis in most cases without the use of adjunctive bladder mobilization procedures, even in the setting of long strictures measuring up to 8 cm.
- One drawback to this technique is the lack of anti-reflux mechanism.
- Limitations of our study include its retrospective nature, small cohort and short follow up time.

Conclusions

- Robotic-assisted laparoscopic ureteroplasty via a non-transecting side-to-side anastomosis is a safe and effective treatment option for distal ureteral strictures.

Disclosures

- None