Peer Review File

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Responds to the reviewer' comments:

Reviewer #1

1) **Response to** "This is a small retrospective case series that presents a novel technique. They utilize a bladder flap onlay to repair complex distal ureteral strictures in a non-transecting fashion. Although this technique is novel, I believe that additional patients and longer follow up (only 5 patients have >12 months follow up) are necessary to more clearly establish this technique as a robust technique. I believe that the paucity of patients makes this paper significantly limited. Additionally, I believe that the definition and assessment of surgical success should be refined (see comments below). Lastly, I do have some technical concerns with this technique that the authors should more clearly address in the methods and discussion section (see comments below). For these reasons, I do not recommend this paper for publication."

Reply: Thank you for your valuable advice. The last follow-up at the time of writing this study was August, 2020. We conducted another follow-up in May 2021, and the patient had no symptoms such as low back pain. This fully demonstrates the effectiveness of this surgery.

Changes in the text: Line 196-197, "during a mean follow-up time of 24.5 months (14-29 months)" was modified.

2) **Response to comment 1**: "I have some concerns regarding the technique based on reconstructive princples. How wide were the bladder flaps? The ureter is very thin in comparison to the bladder. How wide are the flaps that you are creating?"

Reply 1: Thank you for your comment. We have supplemented the size of the bladder flap used by each patient in Table 2 (2.2 * 1.3, 2.1 * 1.2, 2.4 * 1.2, 1.9 *

1.3, 2.1 * 0.9, 2.3 * 1.3). In addition, we use the flap to cover the stenosis and perform the anastomosis, which is different from traditional bladder Boari flap surgery.

Changes in the text: Table 2, “Size of the bladder flap” was added.

3) **Response to comment 2**: “Could you please provide more magnified pictures for Figure 2? It is difficult to see the precise details of how this flap is rotated.”

Reply 2: Thank you for your comment. In order to facilitate everyone to have a deeper understanding of the procedures of the operation, we have provided an educational video of the operation in the additional materials. I think you can intuitively see the precise details of how this flap is rotated by watching this video.

Changes in the text:

Video of surgical procedure was added.

4) **Response to comment 3**: “This technique is only useful for non-obliterated strictures. This should be discussed in the manuscript.”

Reply 3: Thank you for your comment. We have already discussed this on line 181 in the discussion section. The bladder onlay flap required for this operation was smaller than the traditional Boari flap, and the resulting augmentation of the terminal ureter was suitable for the treatment of non-obliterated ureteral strictures.

Changes in the text:

Line 239-244, “In our study we applied the terminal augmented ureteroplasty with bladder onlay flap technique, which allowed reparation of longer ureteral stenosis and tension-free anastomosis. The bladder onlay flap required for this operation was smaller than the traditional Boari flap, and the augmentation of the terminal ureter was suitable for non-obliterated ureteral strictures.” was added.

5) **Response to comment 4**: “How does this technique offer distinct advantages compared to a traditional reimplant/psoas hitch/boari flap? After simple reimplantation and even after psoas hitch, you can almost always create a Boari flap. How is this technique more advantageous compared to a Boari flap (especially when the mean stricture length was short). Based on Figure 3, I believe you can perform a Boari flap (which has robust long term follow up) by taking slightly more bladder. ”

Reply 4: Thank you for your comment. The bladder onlay flap was taken near distal strictured ureter and performed with a terminal augmented anastomosis rather than end-to-end or end-to-side anastomosis, which expanded the lumen of terminal ureter and relieved the tension of anastomosis compared to a traditional reimplant/psoas hitch/boari flap. What’s more, our operation is not required to transect the distal strictured ureter, reducing the risk of destroying ureteral blood transport. Therefore, the anastomotic site has a good blood supply and low tension, which effectively avoid complications such as urinary fistula and anastomotic stenosis.

Changes in the text:

Line 260-267, “Thirdly, the bladder onlay flap was taken adjacent to distal strictured ureter and performed with a terminal augmented anastomosis rather than end-to-end or end-to-side anastomosis, which expanded the lumen of terminal ureter and relieved the tension of anastomosis. What’s more, our operation is not required to transect the distal strictured ureter, reducing the risk of destroying ureteral blood transport. Therefore, the anastomotic site has a good blood supply and low tension, which effectively avoid complications such as urinary fistula and anastomotic stenosis.” was modified.

6) **Response to comment 5**: “Why was hospital stay so long for each patient? We generally do most minimally invasive ureteral surgeries as outpatient or 23 hour admissions. ”

Reply 5: Drainage and urinary catheters are usually placed after laparoscopic surgery performed in our hospital. After the operation, the drainage must be pulled out to confirm that there is no obvious urinary leakage in the anastomosis before being discharged. For this purpose, our patients usually stay in the hospital for a few days to pay attention to the recovery of the anastomosis.

Changes in the text: no

7) **Response to comment 6**: “Can you specify how you determined surgical success? Did all patients have the same preoperative imaging? Was postoperative imaging always the same as preoperative imaging? If not, how did you compare hydronephrosis between preop and postop period? Comparing hydronephrosis on US to CT is difficult and very subjective. Also, do you believe that "degree of hydronephrosis" is a good predictor of surgical success? How do you know that this system is not obstructed? Could it be that the system is only partially obstructed? ”

Reply 6: The evaluation index of successful operation is divided into subjective index and objective index. Subjective index referred to relief of symptoms, and objective index was defined as decreased hydronephrosis on ultrasonography or CTU with 3D reconstruction models which are easy to compare hydronephrosis pre- and postoperative , or improved differential function on nuclear renography. In this study, 100% of patients were found to have clinical success defined as relief of flank pain and the subjective success was 100%

Changes in the text:

Line 163-168, “The evaluation index of successful operation is divided into subjective index and objective index. Subjective index referred to relief of symptoms, and objective index was defined as decreased hydronephrosis on CTU with three-dimensional reconstruction models and improved differential renal function on nuclear renography.” was modified.

8) **Response to comment 7**: “How does this technique offer advantages to

side-to-side technique? The authors should include more detailed discussion on this."

Reply 7: In recent years, ureteral reimplantation via a non-transecting side-to-side anastomosis was verified as a feasible and effective operation for distal USD which is proved in the assay of "Slawin J, Patel NH, Lee Z, et al. Ureteral Reimplantation via Robotic Nontransecting Side-to-Side Anastomosis for Distal Ureteral Stricture. 2020;34:836-9". Our new technology is similar to the above "side-to-side anastomosis" to a certain extent, the bladder onlay flap is anastomosed with the medial and lateral wall of the incised ureter by "side-to-side" anastomosis which is feasible and effective.

The bladder flap was taken near distal strictured ureter and performed with a terminal augmented anastomosis rather than end-to-end or end-to-side anastomosis, which expanded the lumen of terminal ureter and relieved the tension of anastomosis.

Changes in the text:

Line 236-239, "In recent years, ureteral reimplantation via a non-transecting side-to-side anastomosis was verified as a feasible and effective operation for distal USD but limited after multiple reconstructive surgery." was modified.

Special thanks to you for your comments.

Reviewer #2

1) **Response to comment 1:** "Why was the postoperative hospital stay so long?"

Reply 1: Drainage and urinary catheters are usually placed after laparoscopic surgery performed in our hospital. After the operation, the drainage must be pulled out to confirm that there is no obvious urinary leakage in the anastomosis before being discharged. For this purpose, our patients usually stay in the hospital for a few days to be paid attention the recovery of the anastomosis.

Changes in the text: no

2) **Response to comment 2**: “Why did patient 6 stay only 4 days with a bladder catheter and 120 days with a JJ catheter, unlike other cases?”

Reply 2: I am very sorry that I mistakenly took the time of the drainage tube in the body for patient 6 as the time of the indwelling catheter because of a writing error. The actual indwelling catheter time is 10 days and I have corrected it in Table 1. The operation on patient 6 was completed in November 2019. Due to the impact of the COVID-19, the patient has not gone to the hospital to remove the stent tube.

Changes in the text:

Table 1, the actual indwelling catheter time of patient 6 is corrected as 10 days.

3) **Response to comment 3:** “I think an educational video of the new surgical technique would add value to this paper.”

Reply 3: Thank you for your comment. In order to facilitate everyone to have a deeper understanding of the procedures of the operation, we have provided an educational video of the operation in the additional materials.

Changes in the text: Video of surgical procedure was added.

Special thanks to you for your good comments.