

## Peer Review File

Article information: <http://dx.doi.org/10.21037/tau-21-305>

### Reviewer A

**Comment 1:** How is the use of omentum different from the results previously published in these papers?

- Fan S, Yin L, Yang K, Wang J, Li X, Xiong S, Yu X, Li Z, Guan H, Zhu H, Zhang P, Li X, Zhou L. Posteriorly Augmented Anastomotic Ureteroplasty with Lingual Mucosal Onlay Grafts for Long Proximal Ureteral Strictures: 10 Cases of Experience. *J Endourol.* 2021 Feb;35(2):192-199. doi: 10.1089/end.2020.0686. PMID: 32878451.
- Cheng S, Fan S, Wang J, Xiong S, Li X, Xu Y, Li Z, Guan H, Zhang P, Zhu H, Huang C, Zhang L, Yang K, Li X, Zhou L. Laparoscopic and robotic ureteroplasty using onlay flap or graft for the management of long proximal or middle ureteral strictures: our experience and strategy. *Int Urol Nephrol.* 2021 Mar;53(3):479-488. doi: 10.1007/s11255-020-02679-5. Epub 2020 Oct 10. PMID: 33037521.

**Reply 1:** Thanks for your question. The two literatures you listed are the series of studies of our team on upper urinary tract reconstruction. The first one mainly described the combination of posterior augmented anastomotic technique and lingual mucosal grafts technique to repair ureteral strictures. The second one mainly described the repair strategies based on the site and length of the ureteral strictures, including the use of pelvic flaps, appendiceal flaps, and lingual mucosa grafts. However, the present study mainly describes the theoretical basis and technical points of the omentum wrapping technique using in ureteral reconstruction with autologous onlay flap/graft.

Changes in the text: None.

**Comment 2:** What does omentum add for patients undergoing appendiceal onlay?

**Reply 2:** Thanks for your question. One of the fundamental properties of the omentum is revascularization in regional and adjacent structures to promote the healing process in ischemic and inflamed tissue (1,2). The omental wrapping can prevent surgical anastomosis sites from ischemia, infection, and scar adhesions to a certain degree. Using omentum to wrap the anastomosis of appendiceal onlay and the ureteral stricture can increase the blood supply and improve the success rate of ureteral reconstruction surgery.

Changes in the text: None.

### Reviewer B

**Comment 1:** Why did the authors chose lingual and appendicial graft as apposed to buccal graft?

**Reply 1:** Thanks for your question. The appendix is an organ with limited functions in the human body, especially for adults. Based on the anatomical location, the appendiceal onlay flap is suitable for repairing the right ureteral stenosis. In our institution, for stenosis of the right proximal and middle ureters,

we prefer to perform appendiceal onlay flap ureteroplasty. And we choose to perform lingual mucosa graft ureteroplasty, if the patient has had appendicitis in the past or the appendix is not long enough. On the contrary, for stenosis of the left proximal and middle ureters, we prefer to perform lingual mucosa graft ureteroplasty. The reasons why we choose lingual mucosa instead of buccal mucosa are as follows. Although the buccal mucosa is first used to repair urethral and ureteral strictures, few studies have demonstrated that the lingual mucosa can provide a longer repair length and more feasible to harvest, and had fewer complications at the donor site after the harvesting (3-6). However, both lingual mucosa and buccal mucosa are effective autologous materials for repairing ureteral strictures. Lee C. Zhao et al. reported their multi-institutional experience of using buccal mucosa grafts for ureteral reconstruction and achieved good outcomes (7,8). Compare to harvest buccal mucosa, we think it is more convenient to harvest lingual mucosa. We have more experience in the harvest of the lingual mucosa. Therefore, the harvest of the buccal mucosa has not been performed temporarily.

Changes in the text: None.

**Comment 2:** Was it necessary to circumferentially mobilise the ureter as apposed to an onlay and omental cover anteriorly - leaving the ureter in situ and reducing further risk of ischaemia with overmobilisation.

**Reply 2:** Thanks for your question. Your viewpoint is correct, the blood supply of the ureter should be protected as much as possible. However, complex ureteral strictures were usually densely adherent to the surrounding structures, and the ureteral lumen was obliterative in some severe cases. We had to excise the scar tissue in the narrow segment of the ureter, which means that the blood supply of the ureter will be damaged. Moreover, in such cases, the end-to-end ureteral anastomosis usually can't be completed. Therefore, ureteroplasty with grafts or onlay flaps was needed. At the same time, we wrap the anastomosis with omentum which has the qualities of revascularization (1,2) and provides sufficient blood supply for anastomosis healing.

Changes in the text: None.

**Comment 3:** What were the long term complications of using appendix - ? stones - was there any other long term recurrence ?

**Reply 3:** Thanks for your question. So far, our team have completed 15 cases of appendiceal onlay flap ureteroplasty, and 13 patients have been followed up for more than 6 months. The mean follow-up duration was 17.4 months (range, 8-24) of all 13 patients, and there were no patients who developed stenosis recurrence.

Changes in the text: None.

**Comment 4:** please show postoperative radiological images of the cases depicted to show resolution of the stricture.

**Reply 4:** Thanks for your advice. We have shown the preoperative anterograde and

retrograde urography and postoperative imaging urodynamics examination, respectively. Please check the revised Figure 2.

Changes in the text: The revised Figure 2 (figure legends can be seen on page 19).

s

### **References**

1. Shah S, Lowery E, Braun RK, et al. Cellular basis of tissue regeneration by omentum. *PLoS One* 2012;7:e38368.
2. Mazzaferro D, Song P, Massand S, et al. The Omental Free Flap-A Review of Usage and Physiology. *J Reconstr Microsurg* 2018;34:151-69.
3. Maarouf AM, Elsayed ER, Ragab A, et al. Buccal versus lingual mucosal graft urethroplasty for complex hypospadias repair. *J Pediatr Urol* 2013;9:754-8.
4. Hongyong J, Shuzhu C, Min W, et al. Comparison of lingual mucosa and buccal mucosa grafts used in inlay urethroplasty in failed hypospadias of pre-pubertal boys in a Chinese group. *PLoS One* 2017;12:e0182803.
5. Simonato A, Gregori A, Lissiani A, et al. The tongue as an alternative donor site for graft urethroplasty: a pilot study. *J Urol* 2006;175:589-92.
6. Li B, Xu Y, Hai B, et al. Laparoscopic onlay lingual mucosal graft ureteroplasty for proximal ureteral stricture: initial experience and 9-month follow-up. *Int Urol Nephrol* 2016;48:1275-9.
7. Zhao LC, Weinberg AC, Lee Z, et al. Robotic Ureteral Reconstruction Using Buccal Mucosa Grafts: A Multi-institutional Experience. *Eur Urol* 2018;73:419-26.
8. Lee M, Lee Z, Koster H, et al. Intermediate-term outcomes after robotic ureteral reconstruction for long-segment ( $\geq 4$  centimeters) strictures in the proximal ureter: A multi-institutional experience. *Investig Clin Urol* 2021;62:65-71.