

Reply to 'Is one-stage f-URS without prior stenting really safe for solitary kidney patients with 1–3 cm renal stones?'

In reply, we would like to thank Dr. Yuzhuo Li and his colleague for their interest and constructive comments [1] on our article [2]. The management of renal stones in patients with a solitary kidney is full of challenges and the goal of surgery may mainly include improving stone-free rate (SFR), decreasing complications, and protecting renal function [3].

Due to the compensatory hypertrophy of the kidney and the dilatation of renal parenchyma, for more than 2 cm renal stones in solitary kidney patients, even though percutaneous nephrolithotomy (PNL) can achieve a higher one-session SFR than flexible ureteroscopy lithotripsy (f-URS), PNL presents relatively higher bleeding risks and longer postoperative hospital stay [4]. Patients' preference is also the key factor. When solitary kidney patients with high stone burden stick to choose f-URS, multi-session operations might be beneficial. If the surgical time for each session could be controlled as little as possible, complications and renal function deterioration might be prevented.

The randomized control trial conducted by Cheung et al. concluded that there was no need to indwell a ureteral stent postoperatively when ureteroscopic laser lithotripsy was performed in patients with uncomplicated ureteral stones [5]. However, they did not discuss whether preoperative stenting is necessary while renal stones in solitary kidney patients are managed by f-URS. As mentioned by Dr. Li and his colleague, there are many advantages of using the ureteral access sheath (UAS). Due to these advantages, inserting a UAS had been routinely attempted in almost every patient during f-URS in our department. Moreover, we agree that prior stenting (PS) might make it easy to indwell the UAS and improve the success rate of UAS placement. This opinion has been verified in patients with bilateral kidneys. Similarly, in our study including only these patients with a solitary kidney, the success rate of UAS placement was also relatively higher in the PS group, even though the statistical difference was not significant [2]. However, due to ureteral tissue irritation and irregular peristalsis, indwelling ureteral stents might result in some common complications such as discomfort, lumbago, urinary tract infection, hematuria, and encrustation [6]. Patients with a solitary kidney are sensitive, thereby the intervention of PS or any complications associated with ureteral stents may impact renal function. It is significant to balance the potential risks and

the higher UAS success rate resulted from PS. Furthermore, during f-URS without PS, the methods of using small-sized UAS and intraoperative ureteric balloon dilation could improve the success rate of UAS placement and prevent ureteral injury, even possibly decrease the need for a secondary procedure [7].

Indeed, a prospective multicenter randomized controlled trial has demonstrated that single-use digital f-URS is an effective and safe alternative to reusable digital f-URS [8]. The single-use f-URS and small-sized UAS have both been widely used in our stone center in recent years, which are also applied in many solitary kidney patients successfully. As for the uncertain ureteral conditions, on one hand, ureteric balloon dilation is useful for patients with a mildly narrow or tortuous ureter; on the other hand, 'when solitary kidney patients experience some comorbidities such as ureteral obstruction and kidney injury, PS before f-URS may be relatively safer and preferred', which has been stated in the 'discussion' of our paper [2]. Therefore, PS might be necessary for partial patients with complications instead of all solitary kidney stone patients.

As reported by Lai et al., for 2–4 cm kidney stones, although the vacuum-assisted UAS (V-UAS) with an intrarenal pressure monitor in f-URS improved surgical efficiency and decreased postoperative early pain scores, it might still require more auxiliary procedures [9]. The V-UAS combined with an intelligent intrarenal pressure monitor is a relatively novel tool, which has been increasingly used in our department this year. Therefore, it was not routinely used during our study. Subsequently, our team might further explore the clinical results of V-UAS combined with an intelligent intrarenal pressure monitor, when solitary kidney patients with large stone burdens are managed by f-URS.

It is our negligence of not realizing that large prospective randomized trials are almost impossible to conduct on this issue due to ethical reasons. We are truly grateful to Dr. Li and his colleague for pointing out this problem. However, our conclusion might be relatively reliable based on our single-center experience. We think it is significant to share our experience since the issue of our study is not well explored yet. In the future, we also hope that multicenter studies with more cases and longer follow-up duration could be conducted to verify our conclusion.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Gang Chen  <http://orcid.org/0000-0002-9901-1927>

References

- [1] Li Y, He Q. Is one-stage f-URS without prior stenting really safe for solitary kidney patients with 1–3 cm renal stones? *Ren Fail.* 2021;43(1):617–618.
- [2] Pan Y, Chen H, Chen H, et al. The feasibility of one-stage flexible ureteroscopy lithotripsy in solitary kidney patients with 1–3 cm renal stones and risk factors of renal function changes. *Ren Fail.* 2021;43(1):264–272.
- [3] Pietropaolo A, Reeves T, Aboumarzouk O, et al. Endourologic management (PCNL, URS, SWL) of stones in solitary kidney: a systematic review from European Association of Urologists Young Academic Urologists and Uro-Technology Groups. *J Endourol.* 2020;34(1):7–17.
- [4] Zhang Y, Wu Y, Li J, et al. Comparison of percutaneous nephrolithotomy and retrograde intrarenal surgery for the treatment of lower calyceal calculi of 2–3 cm in patients with solitary kidney. *Urology.* 2018;115:65–70.
- [5] Cheung MC, Lee F, Leung YL, et al. A prospective randomized controlled trial on ureteral stenting after ureteroscopic holmium laser lithotripsy. *J Urol.* 2003;169(4):1257–1260.
- [6] Lange D, Bidnur S, Hoag N, et al. Ureteral stent-associated complications—where we are and where we are going. *Nat Rev Urol.* 2015;12(1):17–25.
- [7] Kuntz NJ, Neisius A, Tsivian M, et al. Balloon dilation of the ureter: a contemporary review of outcomes and complications. *J Urol.* 2015;194(2):413–417.
- [8] Qi S, Yang E, Bao J, et al. Single-use versus reusable digital flexible ureteroscopes for the treatment of renal calculi: a prospective multicenter randomized controlled trial. *J Endourol.* 2020;34(1):18–24.
- [9] Lai D, He Y, Li X, et al. RIRS with vacuum-assisted ureteral access sheath versus MPCNL for the treatment of 2–4 cm renal stone. *Biomed Res Int.* 2020;2020:8052013.

Gang Chen 

Department of Urology, The First Affiliated Hospital of Chongqing Medical University, Chongqing, China

 chengang2308@163.com

Received 26 March 2021; revised 6 April 2021; accepted 6 April 2021

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.