

Editorial referring to the papers: Ghosh A, Somani BK. Safety and feasibility of day case ureteroscopy and laser lithotripsy (URSL) in patients with a solitary kidney. *Cent European J Urol.* 2016; 69: 91-95 and: Jones P, Rai BP, Somani BK. Outcomes of ureteroscopy for patients with stones in a solitary kidney: evidence from a systematic review. *Cent European J Urol.* 2016; 69: 83-90.

Solitary kidney – a clinical challenge for endourologist

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From an endourologist's perspective a solitary kidney lithiasis is not a specific condition. It can be approached with all currently available endourological techniques. However, none of these methods are free of complications nor have been exclusively compared in solitary kidney patients. The question still remains, whether the solitary kidney needs extra clinical attention.

Certainly safety issues are of special concern and the priority is to protect renal function as there is no "back-up" kidney. Severe complications are potentially life-threatening and can result in renal replacement therapy. That is why an endourologist should prefer methods which are minimally invasive and associated with the lowest complication risk.

Shock wave lithotripsy is considered the safest method but we should not forget its relatively low stone-free rates (SFR) and rare, but serious complications like renal hematoma or steinstrasse.

Percutaneous nephrolithotomy (PNL) in the solitary kidney patients group has been extensively explored. It is well known that because of the compensatory hypertrophy, the risk of parenchymal injury and bleeding can be higher. In the CROES PNL global study in the solitary kidney group (189 patients out of a total 5745) there were higher transfusion rates and the SFR were significantly lower when compared with the bilateral kidney group [1]. Adanur et al. have claimed that PNL cannot be considered as a minimally invasive surgery in the solitary kidney due to the possible risk of complications. In their opinion, retrograde intrarenal surgery (RIRS) should

be the procedure of choice, even though staged procedures are more likely to improve SFR [2].

On the contrary, ureterorenoscopy (URS) and RIRS have been merely studied. Jones et al. in the systematic review identified only four studies considering URS in the solitary kidney [3]. Nevertheless, the findings of the review confirmed that solitary kidney lithiasis can be effectively and safely managed with URS. Furthermore, Ghosh and Somani showed that URS in the solitary kidney may be performed harmless as a day-case procedure [4]. In a recent study, Kuroda et al. found that RIRS for <2 cm calculi in solitary kidney patients is as safe as in bilateral kidney patients [5]. Moreover, the preferred procedure is often implemented with the special concern to avoid any possible complications. That is why all authors report routine post-operative stenting as an approach to get extra protection against obstructive uropathy resulting from residual fragments.

In the functional or anatomic solitary kidney, the risk-benefit ratio frames the treatment decision because there is much more to lose than in the bilateral kidney patient group. In case of any serious complication we cannot rely on the compensating contralateral kidney. As usual, in ambiguous clinical cases, more dedicated clinical trials are needed to find the evidence-based guided way out. Clinical expertise remains the core factor in offering the best everyday practice, as the management of the solitary kidney stones is like "living on the edge" – one false move and you fail.

References

1. Kamphuis GM, Baard J, Westendarp M, de la Rosette J. Lessons learned from the CROES percutaneous nephrolithotomy global study. *World J Urol.* 2015; 33: 223-233.
2. Adanur S, Aydin HR, Mohamed O, Fathi A. Retrograde intrarenal surgery versus percutaneous nephrolithotomy in patients with significant comorbidities and solitary kidney. *Urolithiasis.* 2015; 43: 385-386.
3. Jones P, Rai BP, Somani BK. Outcomes of ureteroscopy for patients with stones in a solitary kidney: evidence from a systematic review. *Cent European J Urol.* 2016; 69: 83-90.

4. Ghosh A, Somani BK. Safety and feasibility of day case ureteroscopy and laser lithotripsy (URSL) in patients with a solitary kidney. Cent European J Urol. 2016; 69: 91-95.
5. Kuroda S, Fujikawa A, Tabei T, et al. Retrograde intrarenal surgery for urinary stone disease in patients with solitary kidney: A retrospective analysis of the efficacy and safety. Int J Urol. 2016; 23: 69-73. ■

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