

Lower pole stones 1–2 cm: navigating treatment choices

Lower-pole renal stones might represent a challenge in endoscopic treatment, especially for intermediate sizes (1–2 cm), that come with no strong indication or contraindication for one technique over the other [1]. The sharp infundibulopelvic angle, together with the infundibulopelvic width and length, often determine treatment choices, along with the available expertise, cost and patient choice. On the other hand, some might argue that it would be excessive to perform a percutaneous nephrolithotomy (PCNL) for intermediate stone sizes, when other technologies such as flexible ureteroscopy (f-URS) allow for a lesser invasive approach. One of the most frequently applied strategies to treat intermediate-size lower-pole stones is to relocate them in the upper pole or in the renal pelvis. Despite it being a feasible and efficient technique, stone relocation might sometimes be uneasy due to the stone size or the infundibulopelvic angle, prolonging the operative times.

In a recent prospective randomised trial, Elmansy et al. [1] compared the outcomes between f-URS and laser lithotripsy (f-URL) and miniaturised PCNL (mini-PCNL) for these intermediate lower-pole stones without relocation. The most interesting finding of the study is indeed on the important difference in reported stone-free rates (SFRs). They found a 1-day SFR of 50% in the mini-PCNL group vs only 11.1% in the f-URL group, increasing to 72.2% in the mini-PCNL and to 37.1% in the f-URL group at 90-days follow-up. When including fragments up to 2 mm, the 3-month SFR rose in fact to 86.1% and 71.4% for mini-PCNL and f-URL, respectively. Recent data from Brian et al. [2] show that over 50 months, residual fragments >4 mm have a disease progression rate of up to 88% and intervention rate of up to 47%.

Indeed, the difference between mini-PCNL and f-URL reported by Elmansy et al. [1] is significant, favouring the percutaneous treatment [1]. These findings are in line with the literature, reporting higher SFR for PCNL compared to classic f-URL [3]. In a recent review on 1–2 cm lower-pole stones, mini-PCNL showed in fact higher efficacy in complete stone clearance, while demonstrating comparable complications rates and operative times. The difficult position and manoeuvrability of the retrograde access could be addressed as the main limitation for treating this kind of calculi, reaching lower SFRs than the ones usually reported for stones located in medium/upper renal calyces. At the same time, mini-PCNL has shown good safety profiles, at least partially overcoming the classic limitations of the percutaneous access, namely the high bleeding risk and the need for a postoperative nephrostomy. In their study, Elmansy et al. [1] reported a low bleeding risk during the

puncture (7.4%), and good triangulation outcomes avoiding the need for multiple punctures. They also aimed for totally tubeless procedures, lining up with the current, and successfully achieved it in >90% of the mini-PCNLs without influence on the postoperative complication rate.

Despite the reported superiority of mini-PCNL in achieving an optimal SFR, nowadays the introduction of laser technology with thulium fibre laser and suctioning techniques is gathering interest in the urological community as they might be able to overcome the classic downfalls of f-URS [4,5]. Suctioning in f-URS can now be applied via a suction ureteric access sheath (UAS) or via a suction scope in the form of direct in scope suction. As a recent meta-analysis on the application of suction to both mini-PCNL and f-URL revealed that this tool can significantly increase SFR, particularly for the retrograde technique [6]. Finding a comparable overall SFR between the two suctioning-aided techniques, Tzelves et al. [6] stated that the lithotripsy outcomes could be deeply influenced by suction, and this might overturn the outcomes as shown in the recent study by Elmansy et al. [1]. As in this study, f-URL was performed with standard UAS, it might be inferred that the SFR outcomes could change if suctioning was applied. At the same time, there is a lack of research on the specific cohort of lower-pole stones, and we look forward to further investigation that could enlighten the exact role of suction for these and stones in difficult anatomical locations.

Disclosure of Interests

The authors have no disclosures.

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Abbreviations: f-URS(L), flexible ureteroscopy (and laser lithotripsy); (mini-)PCNL, (miniaturised) percutaneous nephrolithotomy; SFR, stone-free rate; UAS, ureteric access sheath.