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Semirigid ureteroscopy via access sheath as an alternative to PCNL for the treatment of large kidney stones?

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Introduction: Percutaneous nephrolithotomy (PCNL) is recommended as first line treatment for kidney stones ≥ 20 mm. However, several authors have shown that high stone-free rates (SFR) may be achieved using ureteroscopy (URS). Natural orifice transluminal endoscopic surgery (NOTES) is promoted increasingly. The urinary tract represents the natural access route to the renal pelvis. Due to the anatomical and technical limitations, only calculi up to a certain size could be treated this way. With the recent technological advances, these limits may be redefined.

Materials and Methods: The video shows all steps of the procedure. These include: (a) preoperative ureteral stenting for all patients (DJ catheter 7F), (b) use of a large lumen access sheath (14/16F) with (c) an semirigid URS instrument 7.5F, (d) holmium laser lithotripsy (mostly in vaporisation mode) as well as (e) passive and (f) active fragment extraction. Caliceal stones are removed using (g) a flexible scope.

Results: The analysis of clinical data included 23 cases. Mean cumulative stone size was 27.3mm [20 -43] (21 cases with the main stone mass in the renal pelvis). Mean operating time was 101 min. [60 -155]. Post operative ureteral stenting (2-35 days) was performed in 17 patients (73.9%). Complications Clavien 2 and 3 occurred in 13.0%. The primary SFR after 2-3 months was 73.9% (ultrasound and/or CT controlled) and the overall stone-free rate 86.9% (after a second URS in 3 patients). Three patients rejected further treatment or were lost to follow-up.

Conclusion: This proposed concept offers several advantages. Compared to conventional ureteroscopy, this technique allows an easy intrarenal access and frequent passages for removing the stone mass. Additionally, the use of an access sheath enhances irrigation outflow and vision. These initial results are encouraging. Eventually, this will have to be evaluated compared to PCNL in a controlled trial.

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