Micro-percutaneous nephrolithotripsy: our first experience  
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Introduction and Objectives: Percutaneous nephrolithotomy (PCNL) is considered the gold standard technique for treatment of large renal stone. Recently, the progressive miniaturization of instruments in percutaneous nephrolithotomy has increased the interest in so-called micro percutaneous nephrolithotripsy (MicroPerc), particularly for the treatment of smaller renal stones (<2cm). As the renal access is performed using smaller size instruments, the risk of complications is significantly reduced when compared with classic PCNL. MicroPerc is usually performed as a totally tubeless procedure, but if necessary a nephrostomy or a retrograde stent can be inserted. The aims of this video are: review and describe the most important aspects of the MicroPerc procedure; report our initial experience on MicroPerc.

Materials and Methods: We report the two first cases of MicroPerc in our centre. Both patients received antibiotic prophylaxis based on their renal function and pre-operative urine culture. In the first step of the operative technique the patients were in the lithotomy position and placed a ureteral 7Fr catheter. The second step was the renal pelvis access under ultrasound and fluoroscopic guidance and the pulverization of the stone, this was performed in Valdivia position. We used the 1.6mm (4.85Fr) diameter three part all-seeing needle. The stones were disintegrated with a 270 micron holmium laser fibre. Urethral Foley catheters were removed in postoperative day 1. Ureteral double-J stents were removed 2 weeks after surgery.

Results: Between April 10th and April 24th 2015 we performed our first two micro-percutaneous nephrolithotripsy. The mean patients age was 52 years (36-68), 1 male and 1 female. The stones were located in the renal pelvis (1) and caliceal diverticulum (1). Mean stone size was 16mm (range: 14-18mm). The procedures were performed in Valdivia position. Both procedures were preceded by ureteral catheterization and retrograde pyelography. A double-J stent was placed in both cases, which was removal 2 weeks later. The mean operative time was 117min (105-130min). The mean hospital stay was 3 days (range: 2-4 days). One patient had peritoneal effusion, without clinical relevance. Both procedures achieved complete stone pulverization.

Conclusion: MicroPerc surgery has been recently introduced as an alternative to treat patients with reasonably large stones with less invasiveness, a significantly reduced risk of complications and a faster recovery period when compared to a standard PCNL; Our results confirm the efficacy of this procedure, the low morbidity rate, high satisfaction level and good clinical outcomes of this procedure; MicroPerc represents an excellent surgical procedure for the treatment of symptomatic renal stones, particularly if they are oversized for retrograde intra-renal surgery or in a difficult anatomical location.