P023 Retrograde intrarenal surgery for renal calculi: analisys of the factors affecting success rate and complications in a single institution series

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Introduction & Objectives: Retrograde intrarenal surgery (RIRS) is the most widespread procedure to eliminate kidney stones. Different factors analyzed seem to affect the success rate of RIRS. The aim of this retrospective study was to evaluate factors affecting RIRS success and complications in the treatment of renal stones.

Materials & Methods: We collected data of a continuous series of patients who underwent RIRS at our institution from January 2017 to December 2018 with at least 3 months of follow-up. All patients underwent CT scan before RIRS and CT/US scan 3 months after procedure. The RIRS procedure was performed under general or spinal anesthesia, using ureteral access sheath and flexible ureteroscope with holmium laser litotipsy. A tipless nitinol basket was used according to surgeon preference. A double J ureteral catheter was applied at the end in all patients. The procedures were performed by 4 different operators. Factors potentially affecting stone free rate and complications such as patients age, sex, lower calyx stone location, stone burden, stone density (HU), multiple stone presence, uni or bilateral procedure, contextual ureteral laser lithotripsy, preoperative stenting and operative time were collected. Multivariate linear and stepwise regression was used to evaluate the predictors of stone-free status and complications.

Results: 133 patients (83 M/55 F) were included in the analysis. Mean age was 57,8 years (24-87); mean stone burden 17,3 mm (5-32); mean stone density was 989 HU; inferior calyx stones were present in 45,6% of patients, multiple stones in 48,5%; contextual ureterolithotripsy were performed in 25% of patients; preoperative DJ stent in 42,6%. Bilateral procedure was performed in 5 patients. Mean procedure time was 90 min (25-190) and mean postoperative discharge day was 2,5 (1-10). The complication rate was 12%. Stone free rate was 76,5%. On univariate linear regression model only contextual ureterolitotripy had impact on residual stone ($p=0,049$; $r^2 = 3,267$); multiple stones affected the complication rate ($p=0,041$; $r^2 = 3,429$). On multivariate regression analysis, only multiple stone had strongest impact on complications rate ($p=0,041$; r^2: 4,196), while no factor analyzed influenced the stone free rate.

Conclusions: In our study, limited by retrospective analysis, we found that presence of multiple stones and presence of contextual ureteral stones were significant factors affecting RIRS success and complications. These results suggest that patients with complex reno-ureteral stones may need multiple RIRS sessions or additional treatment modalities.