

Could surgical experience of adult endourologist overcome the learning curve of retrograde intrarenal surgery in children?

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Introduction & Objectives: With the increasing of the prevalence of pediatric urolithiasis (1-5%), retrograde intrarenal surgery (RIRS) is emerging as preferred option for the management of stones in pediatric patients. Although the principles of RIRS developed in adults can be applied in children, also expert adult endourologists feel uncomfortable to approach young patients due to long learning curve that usually is expected to be required in this particular setting. Aim of the study was to compare peri and postoperative outcomes of RIRS in pediatric and adult patients performed by a single surgeon expert in adult endourology (>500 RIRS) with no experience in pediatric urology.

Materials & Methods: Data on 30 consecutive patients (15 adults and 15 children) undergoing RIRS at our institution were collected prospectively from January 2016 to December 2018. All patients had undergone preoperative radiological investigations. Adult patients had CT urography. Pediatric patients had ultrasound or at least radiogram to establish localization and dimension of stones. All surgeries were performed by a single experienced adult endourologist. All the data were collected by medical doctors. The SPSS software was used for data entry and analysis using univariate analysis.

Results: Mean age for the pediatric group was 11,8 years (IQR 8-16) and for the adult group was 56 years (IQR 49-58). Median stone size was 121 mm² (IQR 100-169) in the pediatric group vs 100 mm² (IQR 90-165) in the adult group (p=0,653). The only difference was preoperative JJ stent placement (53,3% of children and 13,3% of adults; p=0,02). No significative differences in terms of peri and postoperative outcomes were found in the two groups. Median operative time was 60 minutes (IQR: 55-80 min) in pediatric group vs 80 minutes (IQR: 63-105 minutes) in adults (p=0,466). The most common complication was haematuria in 2/30 patients (1 children vs 1 adults) and fever 2/30 (1 children vs 1 adult) (p=1,00) that required antibiotic treatment (Clavien Dindo 2). Median length of stay was 1 day (IQR: 1-1 days) in both groups (p=1,00). Stone free rate was 86,7% in children and 80% in adults (p=0,624).

Conclusions: Our preliminary experience suggests that expert adult endourologist can manage successfully also pediatric cases with results comparable to adults and low complication rate.