P059 Prone and supine percutaneous approach in pediatric urolithiasis

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Introduction & Objectives: Stone disease in the pediatric age is an increasing issue in Western countries. Percutaneous Nephrolithotomy (PNL) can be used for larger and complex stones, remaining the most effective technique in this scenario. As in adults it can be performed in supine or prone position. The debate on which is best is ongoing.

Materials & Methods: We retrospectively reviewed two centers experience in prone/supine PNL in children in order to analyze its results and complications. Written informed consent was obtained from all participants. The study was conducted in accordance with the Declaration of Helsinki principles. T-test & chi-square tests were used for statistical analysis. A $p<0.05$ was considered statistically significant.

Results: 28 patients underwent prone and 17 supine procedure. Patients's characteristics are reported in the Table. Patients with malformations/ previous urological surgery are 6 in the prone and 5 in the supine group. Patients in the prone group were younger than in the supine, while no significant differences were found in stone burden, access size, operative time or complications. Complications were: 8 and 4 Clavien 1 for the prone and supine group respectively, one case of urosepsis (4b) in the prone and 2 cases of Clavien 3 in the supine group (double J stent placement for renal colic and ureteroscopy for steinstrasse). Tubeless procedures, mean nephrostomy and stent removal were in favor of the supine group whereas fluoroscopy time was in favor of the prone group. These data may be conditioned by surgeon's habit rather than approach. Stone free rate was in favor of the supine group (83.3 vs 71.4%), possibly reflecting the capability to perform a combined approach in 12 patients (allowing to reach all the calyx with simultaneous anterograde and retrograde access) or younger age in the prone group (13 vs 2 patients ≤5 years), with no differences in stone burden (3±2.4 vs 3.8±2 cm2).

	Prone	Supine	p value
No of patients	28	17	

No of PNL	28	18	
Mean age (SD)	6.2±3,3	10.1±3,9	p=0,0009
Mean stone area (SD), cm^2	3±2,4	3.8±2	p=0,274
Stone location			
Staghorn	3	1	
Pelvis	13	7	
Upper/Middle pole	1	0	
Lower pole	8	3	
Multicaliceal	3	6	
Mean tract dilatation (SD), Fr	15.2±1.5	14.6±3.3	p=0.35
Acess site			
Middle calix	3	3	
Lower calix	25	15	
Mean Operative Time (SD), min	127.2±33	156.6±50.9	p=0.08
Mean Fluoroscopy Time (SD), sec	46.3±24.6	150.6±105.9	p=0,00003
Mean ureteral stent removal(SD), days	21±7.9	5.7±6.1	p=0.001
Mean nephrostomy tube removal (SD), days	6.8±6.9	2.7±3.2	p=0.025
Tubeless	0	8	
Complications	9 (32.1%)	6 (33.3%)	p=0.93
Stone free After 1 PNL	20 (71.4%)	15 (83.3%)	p=0,0002

Conclusions: Prone and supine PNL are feasible in children. Supine approach seems to guarantee higher stone-free rates. Larger series are necessary to determine what the best technique is in terms X-ray exposure, operative time, complications and costs.