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Percutaneous surgery of nephrolithiasis in children

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Introduction: We are presenting our experience of percutaneous surgical treatment of nephrolithiasis in children.

Methods: 680 patients (age 1 to 16 years) underwent percutaneous surgery since 2003. Our experience included 276 patients with multiple renal stones, 284 staghorn calculus, 21 isolated calyx stones, 57 ligature stones, 12 stones due to UPJ primary stricture, 30 stones due to UPJ recurrent stricture. The operations were performed using ultrasonography and C-arm guidance.

Table 1

Disease	Number of surgeries	Lithoextraction	Laser lithotripsy	Ultrasound litholapaxy	Contact lithotripsy + Ultrasound litholapaxy	Standart access	Mini-perc	More than 2 access
Multiple stones	276	23		42	211	191	85	21
Staghorn stones	284		69	12	203	206	78	90
Isolated calyx stones	21	1		4	16	9	12	20
Ligature stones	57	26		12	19	26	31	0
Stone due to UPJ primary stricture	12	4	7	1		2	10	0
Stone due to UPJ recurrent stricture	30	3	2	4	21	5	25	0
Total	680							

Results:

Disease	Number of surgeries	Patient age (years)	Postoperative draining	Surgery time (min)	Draining time (days)	Complications	Patients with residual stones
Multiple stones	279	1-16	Nephrostomy - 100% +Stent - 10%	47	5	Pyelonephritis (40)	23
Staghorn stones	284	1-12	Nephrostomy - 100% +Stent - 10%	87	5	Bleeding (9)	36
Isolated calyx stones	21	6-15	Nephrostomy, no stent	45	14	Pyelonephritis (2)	0
Ligature stones	57	8-16	Stent + Nephrostomy	104	4	Bleeding (3)	0
Stone disease due to primary stricture of UPJ	12	5-16	Stent + Nephrostomy	61	5	Bleeding (1)	0
Stone disease due to recurrent stricture of UPJ	30	7-16	Stent + Nephrostomy	86	7	Bleeding (1)	0
Total	680	2-16 Mean age- 10,1	Stent – 22.7%				

Conclusions: The percutaneous surgical treatment of nephrolithiasis in children is safe, effective, minimally invasive option.