P070 — Robotic-assisted pyeloplasty in patients with kidney stones: Feasibility and functional outcomes

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Introduction & Objectives: Kidney stones are common in patients with ureteropelvic junction obstruction. In these patients pyeloplasty is associated with pyelolithotomy as a necessity. Nowadays robotic-assisted pyeloplasty is a common minimally invasive approach more and more often used. However, literature evidences about the outcomes of this surgery in patients with stones compared to those without are sparse.

Materials & Methods: Between 2014 and 2018, 50 consecutive patients underwent robotic-assisted transperitoneal pyeloplasty at our center. All procedures were performed by a single skilled surgeon (more than 1000 laparoscopic or robotic-assisted procedures). Robotic device was the Da Vinci Si, with a three arm configuration. The AirSeal system was used to guarantee the intra-abdominal CO_2 pressure. Anderson–Hynes technique was employed. All patients underwent preoperative clinical evaluation with CT-scan and diuretic isotope renography. Patients were followed up by postoperative clinical examination, sonography, and diuretic renography at three months. Patients were stratified according to the presence or absence of kidney stones. Patients' demographic, radiological and operative findings as well as functional outcomes were noted. Mann-U-Withney test and chi-square test were used to determine statistically significant differences in median and proportions between the two groups. Statistical significance threshold was established as $p<0.05$.

Results: Of all, the 26% of patients had kidney stones at the moment of pyeloplasty. No open/laparoscopic conversions were necessary. Patients with kidney stones were older than those without (51.0 vs. 36.0) but this difference was not statistically significant (p=0.147). Moreover, median preoperative creatinine was 0.8 (IQR 0.7-0.9) mg/dL in those without kidney stones vs. 0.7 (IQR 0.7-1) mg/dL in those with kidney stones (p=0.737). Similarly, no statistically significant differences were found in terms of median postoperative serum creatinine levels (0.8 vs. 0.8 mg/dl, p=0.960). Furthermore, no statistically significant differences were found in terms of median operative time in those with kidney stone compared to those without (110.0 vs. 105.0 minutes, p=0.515). Accordingly, the absolute variation of eGFR was also similar between the two groups with a similar improvement of global eGFR (5 vs. 6 ml/min, p=0.781) after surgery. The median length of stay was also similar between the two groups (5 vs. 5 days, p=0.846). No recurrences were recorded in the 92% of cases with similar rates in both groups (p=0.584).

Conclusions: Robotic-assisted retroperitoneoscopic pyeloplasty exhibits low morbidity and satisfactory operative and functional outcomes even in patients with kidney stones. Accordingly, surgeon can use this technique also in more complex cases.