

ROBOTIC-ASSISTED SIMPLE ENUCLEATION FOR THE TREATMENT OF CLINICAL T1 RENAL MASSES: SINGLE-CENTER EXPERIENCE

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Scopo del lavoro

The simple enucleation is a technique of nephron sparing surgery that excises the tumor surrounded by no visible rim of healthy parenchyma. The aim of the study was to report the feasibility and perioperative outcomes of endoscopic robotic-assisted simple enucleation (ERASE) performed at our institution.

Materiali e metodi

Between January 2010 and January 2013, 130 consecutive patients had ERASE for suspicious solid renal lesions. Clinicopathologic variables, nephrometry scores, perioperative parameters, and renal functional outcomes were prospectively recorded and analyzed.

Risultati

Mean ($\pm$ SD) tumor size was 3.2 cm ($\pm$ 1.5). Median PADUA score was 8; 42 (32.3%) tumors had PADUA $\geq$ 8, and 10 (7.7%) had PADUA $\geq$ 10. Overall, 101 (77.7%) tumors were clinically T1a, 29 (22.3%) T1b, 30 (23.1%) cases were performed without clamping the hilum or renal artery, while a super selective arterial branches clamping was done in 14 (10.8%) cases. In 66.1% of cases the main renal artery/renal pedicle was clamped and mean warm ischemia time (WIT) was 18 minutes ($\pm$ 6). A WIT $\geq$ 25 minutes was necessary in 21 cases (16.2%). The median operative time (WIT) was 157 min ($\pm$ 54). The median blood loss was 119 mL. Postoperative surgical complications were reported in 11 (8.6%) patients and of those, 6 (4.7%) were major complications according to the Calver-Dindo classification. No urinary fistulas occurred in this series. The mean Δ Hb was 2.2g/dL and the mean Δ serum creatinine was 0.06 mg/dL. Histopathologic analysis revealed 107 (82.3%) renal cell carcinomas and 23 (17.7%) benign tumors. Positive surgical margins were observed in 3 cases (2.3%). Pathological T stage was pT1a in 70 (55.4%) cases, pT1b in 25 (23.4%), pT2a in 1 (0.9%), pT3a in 11 (10.3%).

Discussione

The robotic surgical system may enable faster and greater technical proficiency, facilitating a minimally invasive approach to more difficult lesions while reducing ischemia time.

Conclusioni

Robotic approach enhances the phase of enucleation and keeps the field less bloody. The vision magnification allows a more accurate identification of small vessels, that can be readily coagulated during enucleation. This makes ERASE a feasible and safe technique associated with a low incidence of surgical complications, low risk of urinary fistulas and lower positive surgical margin rate.

SIMPLE ENUCLEATION VERSUS STANDARD PARTIAL NEPHRECTOMY FOR CLINICAL T1 RENAL MASSES: PERIOPERATIVE OUTCOMES BASED ON A MATCHED-PAIR COMPARISON OF 396 PATIENTS (RECORD PROJECT)

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Scopo del lavoro

To compare simple enucleation (SE) and standard partial nephrectomy (SPN) in terms of surgical results in a multicenter dataset (RECORD Project).

Materiali e metodi

patients treated with nephron sparing surgery (NSS) for clinical T1 renal tumors between January 2009 and January 2011 were evaluated. Overall, 198 patients who underwent SE were retrospectively matched with 198 patients who underwent SPN. The SPN and SE groups were compared regarding intraoperative, early post-operative and pathologic outcome variables. Multivariate analysis was applied to analyse predictors of positive surgical margin (PSM) status.

Risultati

SE was associated with similar WIT (18 vs 17.8 min), lower intraoperative blood loss (177 vs 221 cc, $p=0.02$) and shorter operative time (121 vs 147 min; $p20$ minutes. The incidence of PSM was significantly lower in patients treated with SE (1.4% vs 6.9%; $p=0.02$). At multivariate analysis, PSM was related to the surgical technique, with a 4.7-fold increased risk of PSM for SPN compared to SE. The incidence of overall, medical and surgical complications was similar in both groups.

Discussione

The RECORD Project is a 4-Year prospective observational multicenter study promoted by the Italian Society of Urology. To our knowledge this is the first multicenter study based on a matched-pair comparison of patients treated by standard partial nephrectomy and simple enucleation.

Conclusioni

Type of NSS technique (SE vs SPN) adopted has a negligible impact on WIT and postoperative morbidity but SE seems protective against PSM occurrence.

Univariate analysis	Multivariate analysis	
	SE	SPN
Age (mean $\pm$ SD)	67.1 $\pm$ 10.1	67.1 $\pm$ 10.1
Gender (male/female)	198/198	198/198
Tumor size (mean $\pm$ SD)	3.2 $\pm$ 1.5	3.2 $\pm$ 1.5
Median PADUA score	8	8
WIT (mean $\pm$ SD)	18 $\pm$ 6	17.8 $\pm$ 6
Operative time (mean $\pm$ SD)	121 $\pm$ 54	147 $\pm$ 54
Blood loss (mean $\pm$ SD)	177 $\pm$ 119	221 $\pm$ 119
PSM (%)	1.4	6.9
Complications (%)	8.6	8.6
Pathologic T stage		
pT1a	70	70
pT1b	25	25
pT2a	1	1
pT3a	11	11
Benign tumors (%)	12.3	12.3

Table: Univariate and multivariate analysis of patients treated with simple enucleation and standard partial nephrectomy in 396 malignant tumors.