

Functional outcomes after minimally invasive nephron sparing surgery: Can we compare cT2a and cT1b tumors in terms of kidney function impairment after surgery?

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Introduction & Objectives:

While Partial Nephrectomy (PN) is considered the gold standard treatment for T1 renal masses, this approach for higher stage tumor is still debated. The aim of the study was to compare the perioperative and functional outcomes of clinical T2a (cT2a) and clinical T1b (cT1b) renal tumors treated with PN.

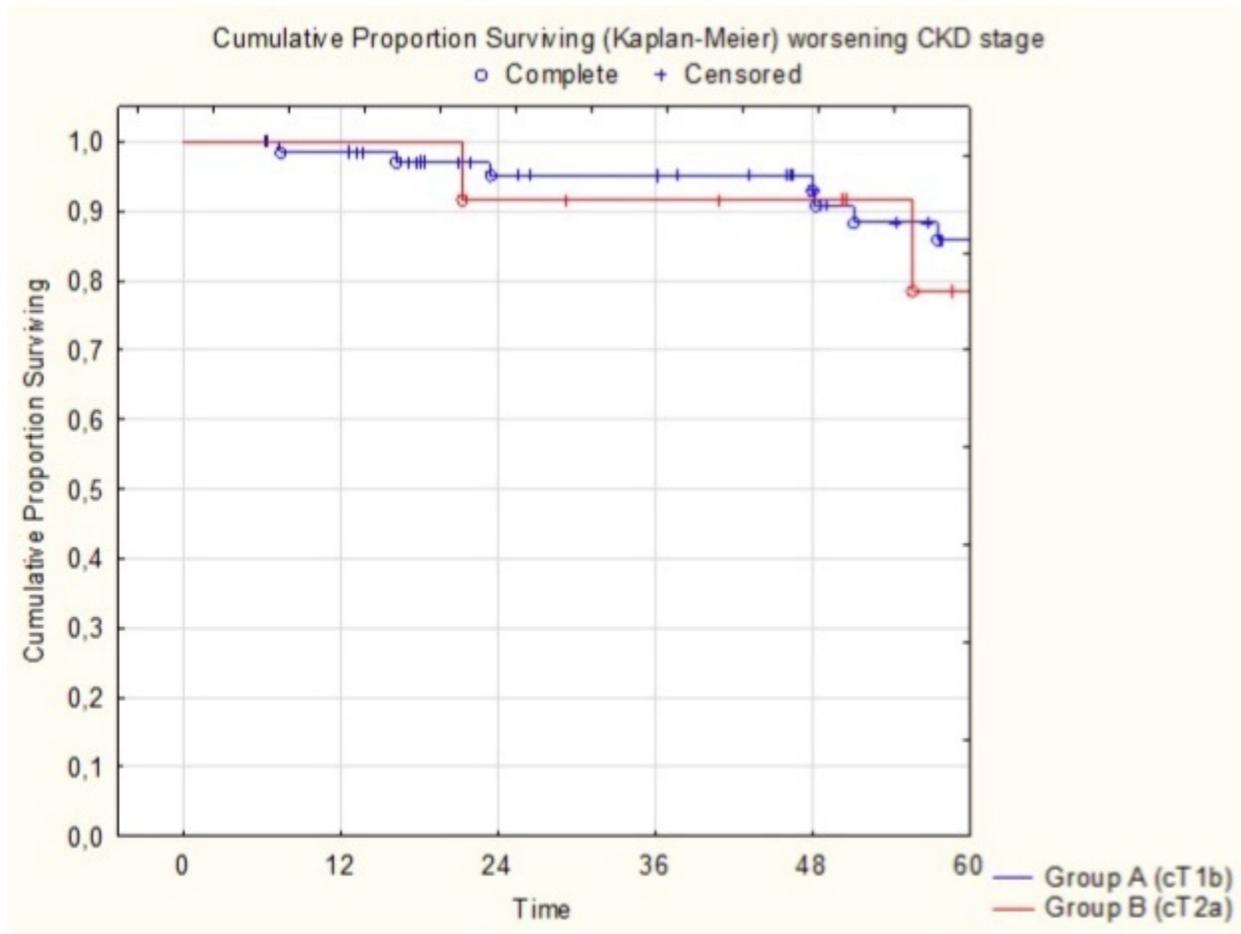
Materials & Methods:

We extracted from our database data of patients who underwent minimally invasive PN between 06/2008 and 06/2018 for cT1b (Group A) and cT2a (Group B) renal masses. Demographics, perioperative (size and PADUA score of the tumor, solitary kidney, operative time - OT, estimated blood loss - EBL, ischemia time, intra and postoperative complications - graded by Clavien) and functional data (serum creatinine - SCr and estimated glomerular filtration rate - eGFR, collected before surgery, at discharge, 3-6-12 months post intervention and then annually) were analysed. The eGFR drop and the worsening of renal function, expressed as a fall from a higher Chronic Kidney Disease class (CKD) to a lower one, were evaluated. Kaplan-Meier Survival Analysis (KMSA) was built to compare functional outcomes and multivariate analysis was performed to evaluate independent predictors of eGFR drop.

Results:

234 patients were considered; The mean tumor size was 57.1+13.1 mm, with a median PADUA score of 9 (IQR 7-12). 12 patients (5.1%) had solitary kidney. The mean preoperative SCr and eGFR were 1.04+0.55 and 81.6+23.6. Intraoperative complications rate was 2.9% (7/234) while postoperative one was 19.6% (Clavien > 3 complications in 6 patients only - 2.6%). The median follow-up was 36 (IQR 20-63) months. 188 patients were cT1b and 46 cT2a. No differences were found between the groups except for age (61.7+12.3 vs 56.2+13.6 yrs, p=0.02) and tumor size (51+7 vs 79+7 mm, p<0.01). KMSA for 5-year CDK class worsening were 87% and 79% for cT1b and cT2a respectively (p=0.74). At multivariate

analysis the solitary kidney, the diabetes and the PADUA score resulted to be independent predictors of eGFR drop ($p=0.01$, $p=0.04$, $p=0.04$).



Conclusions:

This study suggested that an organ-sparing approach can be offered even in case of cT2a renal masses safely. The host factors (diabetes and solitary kidney), together with PADUA score, shown a primary role in the postoperative functional impairment, independently from the lesion size.