

Imperative versus elective purely off-clamp minimally-invasive partial nephrectomy: results of a single-centre experience (MP57-15)

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INTRODUCTION AND OBJECTIVES

- In the imperative setting, partial nephrectomy is usually associated to worse functional outcomes and a greater risk of complications.
- The aim of this study is to compare perioperative and functional outcomes between patients who underwent minimally-invasive purely off-clamp partial nephrectomy (ocMIPN) for an imperative (I) or elective (E) indication at a single high-volume centre.

METHODS

- From July 2004 to October 2018, we analyzed perioperative, oncologic and functional outcomes of 701 patients who underwent ocMIPN, 242 with I and 459 with E indications, respectively. Data were retrieved from our prospectively-maintained partial nephrectomy dataset.
- Categorical and continuous variables were reported as frequencies or mean \pm SD and compared with χ^2 and Student t tests, respectively. Kaplan-Meier analysis was performed to compare recurrence-free survival (RFS) and overall survival (OS) between groups. For all statistical analyses, a two-sided $p < 0.05$ was considered significant.

RESULTS

- Out of 242 I-ocMIPN patients, 76 were solitary kidneys, 132 had impaired preoperative renal function, 5 had horseshoes kidneys and 29 had bilateral renal tumors.
- I-ocMIPN patients had significantly lower baseline eGFR ($p < 0.001$), and a trend towards a significantly higher ASA score ($p = 0.06$), lower tumor size ($p = 0.08$) and higher length of hospital stay (4.7 vs 4, $p < 0.001$). All other baseline data were comparable (all $p > 0.19$, Table 1). Positive surgical margins rate ($p = 0.59$), conversion to open surgery or radical nephrectomy ($p = 1$), complication rates according to Clavien-Dindo ($p = 0.472$) were comparable between groups.
- At a median follow-up of 21 months (IQR 7-49), last eGFR (79.6 vs 56.1, $p < 0.0001$), and newly onset CKD-3b (1.9% vs 15.6%, $p < 0.001$) and CKD-4,5 stages (1.1 vs 6.7%, $p < 0.001$) were significantly higher in I-ocMIPN cohorts. (Tab.1) OS and RFS were comparable between groups (Fig. 1).

CONCLUSIONS

Although associated to a longer hospital stay, and to an increased rate of significant renal function deterioration, the oncologic outcomes of I-ocMIPN are comparable to those expected in the elective setting.

TABLE 1. PREOPERATIVE, PATHOLOGIC AND FUNCTIONAL OUTCOMES

Variable	GROUP A Imperative (n=242)	GROUP B Elective (n=459)	P value
Age (yrs)	60.2 (SD 12.7)	59.7 (SD 12)	0.66
Gender			
Female	95 (39.3%)	295 (65.7%)	0.19
Male	147 (60.7%)	154 (34.3%)	
ASA score			
1-2	110 (65.9%)	249 (73.9%)	0.06
3-4	57 (34.1%)	88 (26.1%)	
Tumor size (cm)	4 (SD 2.63)	4.3 (SD 2.26)	0.08
RENAL	7.98 (SD 2.48)	7.93 (SD 1.92)	0.87
LOS (days)	4.7 (SD 2.3)	4 (SD 1.16)	< 0.001
Primary Tumor Stage			
pT1a	107 (54%)	178 (48.8%)	< 0.001
pT1b	43 (21.7%)	132 (36.2%)	
pT2a	6 (3%)	23 (6.3%)	
pT2b	16 (8.1%)	9 (2.5%)	
pT3a	26 (13.1%)	23 (6.3%)	
Preoperative eGFR (mL/min/1.73 m ²)	55.3 (SD 16.2)	85.9 (SD 22.7)	< 0.001
Preoperative CKD stage			
1	8 (3.5%)	153 (34.1%)	< 0.001
2	41 (18.1%)	252 (56.1%)	
3a	131 (58%)	32 (7.1%)	
3b	37 (16.4%)	7 (1.6%)	
4	9 (4%)	5 (1.1%)	
Hystology Subtype			
Clear Cell	149 (62.1%)	283 (64.5%)	< 0.001
Chromophobe	11 (4.6%)	35 (8%)	
Other Benign	34 (14.2%)	98 (14.4%)	
Others Malignant	3 (1.2%)	8 (1.8%)	
Papillary Type (I-II)	36 (15%)	50 (11.4%)	
Positive Surgical Margins (PSM)	5 (2.1%)	7 (1.6%)	0.591
Postoperative eGFR (mL/min/1.73 m ²)	52.6 (SD 18.8)	74.5 (SD 25.6)	< 0.001
Last eGFR (mL/min/1.73 m ²)	56.1 (SD 21.2)	79.6 (SD 24)	< 0.001
Delta eGFR (mL/min/1.73 m ²)	-2.64 (SD 26.4)	-13 (SD 21)	< 0.001
Last control CKD			
1	15 (6.7%)	107 (29.6%)	< 0.001
2	57 (25.3%)	198 (54.7%)	
3a	79 (35.1%)	40 (11%)	
3b	54 (24%)	10 (2.8%)	
4	17 (7.6%)	6 (1.7%)	
5	3 (1.3%)	1 (0.3%)	
Newly onset CKD 3b	35 (15.6%)	7 (1.9%)	< 0.001
Newly onset CKD 4-5	15 (6.7%)	4 (1.1%)	< 0.001
Perioperative Complications	29 (12.2%)	46 (10.2%)	
Clavien I	10	13	0.472
Clavien II	19	26	
Clavien III	0	6	
Clavien V	0	1	

* All categorical variables were reported as n (%).
** For continuous variables mean value \pm standard deviation (SD) was estimated.

FIG. 1 K-M ANALYSIS SHOWING OS AND RFS FOR I-ocMIPN vs E-ocMIPN

