

Robotic-Assisted Laparoscopic Partial Nephrectomy (RaLPN): The Road to Zero Ischemia

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Objective:

Every minute counts in reducing ischemic time in RaLPN. We aim to review outcomes with advancement of clamping techniques from hilar clamping(HC) to parenchymal clamping(PC) and selective arterial clamping(SC).

Patients & Methods:

Between 1/2009-6/2014, 36 patients underwent RaLPN using HC(23) since 1/2009, PC(6) since 11/2012 or SC(7) since 9/2012. Patients' characteristics, pre-operative tumor status, intra-operative parameters and post-operative outcomes were analyzed.

Results:

The mean age of patients was 59. There were no difference in tumor complexity (median PADUA score=8) among groups. The mean ischemic time were 37, 20 and zero minutes in HC, PC and SC respectively, with significant reduction in mean operation duration (355 vs. 230 vs. 281 minutes, $p=0.006$). Three patients in HC required conversion to open approach with none in other groups. We observed a trend of reducing intra-operative blood loss (213 vs. 142 vs. 186ml, $p=0.627$), with one patient in HC requiring blood transfusion post-operatively. There were no difference in complication rate ($p=0.55$) or serum creatinine change immediate post-operatively ($p=0.18$) among groups. RCC were diagnosed in 75% of patients and two in HC had positive surgical margins.

Conclusion:

Advancing clamping techniques(SC and PC) in RaLPN have better outcomes in terms of ischemic time, operation duration and blood loss.