A Zero Ischemia Technique in Laparoscopic/Robotic Partial Nephrectomy

Introduction and Objective: Partial nephrectomy has been considered as the standard treatment for renal tumors smaller than 4 cm in technically-feasible cases. During laparoscopic partial nephrectomy (LPN) or robotic partial nephrectomy (RPN), the main worry for the surgeon is warm ischemia time. We made this warm ischemia time zero using pharmacologically-induced hypotensive anaesthesia without using hilar clamping.
Material and Methods: We used this technique in 2 patients; one underwent LPN and the other RPN. Mean age of the patients was 46 years. For close monitoring arterial and central venous lines were placed. During resection of the tumor, controlled pharmacologically hypotension was induced using inhaled isoflurane (1.5-2.5%) and intravenous nitroglycerin (50-100µg/min), with dosages increased until mean arterial pressure (MAP) of 70-80 mmHg. Subsequent intravenous bolus doses of nitroglycerin (50–100 µg) were administered to maintain MAP at the appropriate levels. Once tumor excision was complete and renorrhaphy began, isoflurane and nitroglycerin doses were decreased to restore blood pressure to baseline levels.
Results: The mean duration for hypertensive anaesthesia was 8 min. The operative time for LPN was 90 min and console time for RPN was 60 min. The mean blood loss was 450ml. Both the patients were discharged on post op day 3. Histopathology revealed papillary carcinoma in one patient and clear cell in 2nd patient. Margins were negative in both the patients.
Conclusion: The described technique of 'zero ischemia' laparoscopic and robotic partial nephrectomy has resulted in favourable initial results. Further experience and follow-up is necessary before general adoption of this novel technique.

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