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Initial experience of robotic assisted retroperitoneoscopic partial nephrectomy

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Introduction & Objectives: Nephron sparing partial nephrectomy has become the gold standard for renal masses smaller than 4 cm and should be favored in renal masses up to 7 cm. With the increasing availability of the da Vinci surgical system, robotic assisted laparoscopic partial nephrectomy (RALPN) is being increasingly utilized for the management of small renal masses. Although most cases of RALPN are still performed via a transperitoneal (TP) approach, the retroperitoneal (RP) technique is gaining popularity especially for the treatment of posteriorly located renal masses. The RP technique has been shown to result in earlier return of bowel function and reduced operative time compared to the TP approach. It provides an easy access to the renal hilum and posterior surface of the kidney without the need for bowel mobilization thereby minimizing the risk for bowel injury. The objective of this study was to report the initial experience and to assess the outcome of the first cases of robotic assisted retroperitoneoscopic partial nephrectomy at our institution.
Material & Methods: Between May 2013 and March 2014 we performed the first 13 RP RALPN cases at our institution using a previously described technique. All cases were performed by two robotic surgeons who had extensive experience with TP RALPN.
Results: All patients had a posteriorly located renal mass. The mean patient age was 64 years, the mean R.E.N.A.L nephrometry score was 6.3. Mean operative time (OT) including docking time was 166 min and warm ischemia time (WIT) was 16 min. Mean estimated blood loss (EBL) was 136 ml and positive margin rate (PMR) was 0%. Three patients suffered a complication that required further intervention. Two of them experienced a postoperative hemorrhage due to pseudoaneurysms and required embolization; one patient had a urine leak. All three subjects who experienced a complication had nephrometry scores between 7 and 10; one of them received therapeutic anticoagulation because of atrial fibrillation.
Conclusions: This limited data of an initial series shows that RP RALPN represents an excellent alternative to the TP approach for nephron sparing surgery. Surgeons trained with TP RALPN can switch to RP RALPN and achieve excellent results regarding WIT, PMR, EBL and OT. The absence of distinct anatomic landmarks and a smaller working space in comparison to the TP access can be challenging and careful patient selection is important when transferring from the TP to the RP approach in order to avoid complications. These early results encouraged us to apply the RP technique to posteriorly and laterally located renal masses and hold on to TP RALPN for anteriorly located renal masses.