

ENDOUROLOGY & LAPAROSCOPY

Meta-Analysis of the Complications of Laparoscopic Renal Surgery: Comparison of Procedures and Techniques

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Purpose: We performed a meta-analysis of the literature to define the current expectations of complications during laparoscopic renal surgery.

Materials and Methods: References were searched in the MEDLINE database from 1995 to 2004 using the terms complications and laparoscopic nephrectomy. Inclusion criteria were any series with greater than 20 cases, patient age older than 16 years and any complications listed for certain procedures, including laparoscopic radical nephrectomy, HA laparoscopic radical nephrectomy, LPN, HALPN, laparoscopic donor nephrectomy, HA laparoscopic donor nephrectomy, laparoscopic simple nephrectomy, laparoscopic nephroureterectomy and retroperitoneal laparoscopic nephrectomy. A data extraction form was created to categorize major or minor complications. A 5 member panel adhered to the strict criteria and extracted data from articles that met inclusion criteria. Data were entered into a spreadsheet and a meta-analysis was performed.

Results: Initial review identified 73 of 405 references that were acceptable for retrieval and data extraction, of which 56 met inclusion criteria. The overall major and minor complication rates of laparoscopic renal surgery were 9.5% and 1.9%, respectively. There was a significant difference between the major complication rates of LPN and HALPN (21.0% vs 3.3%, $p < 0.05$).

Conclusions: Our results show that patients who undergo laparoscopic renal surgery may have an overall major complication rate of 9.5%. The highest major complication rate is associated with technically challenging LPN (21%). There appears to be a significantly higher wound complication rate associated with HA surgery in comparison to that of standard laparoscopy (1.9% vs 0.2%, $p < 0.05$).

Editorial Comment

Since the first laparoscopic nephrectomy was performed and documented by Clayman and colleagues, the array of procedures using the laparoscopic approach has evolved. The development of new laparoscopic instruments and technology allowed laparoscopic surgeons to apply the same surgical principles as in open surgery. The authors demonstrated that laparoscopic renal surgery is safe and reproducible. Moreover, laparoscopic partial nephrectomy remains a complex procedure including ablative and reconstructive steps but the aid of hand assist devices may decrease the rate of complications for this particular procedure. Conversely, the hand assisted surgeries compared to pure laparoscopic procedures had higher incidence of wound related complications. In conclusion, the laparoscopic approach for kidney surgery should be considered a “winner” in terms of surgical technique allowing patients to benefit from it for over a decade and half.

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Intermediate Results of Laparoscopic Cryoablation in 59 Patients at the Medical College of Wisconsin

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Purpose: We report our experience with LC for small renal tumors.

Materials and Methods: Patients who underwent LC at our institution between February 2000 and September 2004 were included in the study. A retrospective chart review was done for perioperative and postoperative parameters as well as clinical outcomes.

Results: A total of 65 LCs were performed in 59 patients during the period reviewed. Overall 81 renal tumors were cryoablated. Median patient age was 62 years. Median tumor size was 2.5 cm. Median operative time was 190 minutes. Median estimated blood loss was 50 ml. Median hospital stay was 2 days. Conversion to open surgery occurred in 2 patients. Nephrectomy for bleeding occurred in 1 patient. Median followup was 26.8 months. Two recurrences were identified after LC.

Conclusions: LC is an alternative modality to laparoscopic partial nephrectomy or open partial nephrectomy for small renal tumors. Tumor recurrence rates in the studies published to date are comparable to those of partial nephrectomy, although longer followup is needed.

Editorial Comment

Laparoscopic cryoablation of small renal tumors is still in development. The new cryo probes have increased the efficiency of cytotoxic effects to treat the renal lesions and decreased the rate of complications. So far, the technology has demonstrated to be efficient to treat renal tumors. The authors concluded that laparoscopic cryoablation is a potential alternative modality to laparoscopic partial nephrectomy or open partial nephrectomy for small renal tumors but the cryoablation technique requires a basic skill set in laparoscopic surgery, which makes this technique appealing for less experienced laparoscopic surgeons. Moreover, laparoscopic cryoablation may be associated with decreased risks of bleeding and urine leakage in comparison to laparoscopic partial nephrectomy. Future comparative studies are needed to fully validate this technique but initial reports of oncological control are encouraging.

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IMAGING

Radiation Dose Associated with Unenhanced CT for Suspected Renal Colic: Impact of Repetitive Studies

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