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Risk factor analysis of postoperative complications in laparoscopic partial nephrectomy.

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Source

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Abstract

PURPOSE:

We evaluate our experience with laparoscopic partial nephrectomy to determine risk factors for postoperative complications.

MATERIALS AND METHODS:

A prospectively maintained database of 507 laparoscopic partial nephrectomy procedures since September 1999 was retrospectively analyzed with emphasis on postoperative complications. Severity of complications was graded using a 5-tiered scale based on National Cancer Institute Common Toxicity Criteria Version 2.0 reporting criteria. Complication rates were compared between 1999 to 2002 and 2003 to 2006. Multivariate analysis of baseline and perioperative variables was performed to identify risk factors associated with postoperative complications for the 2 eras.

RESULTS:

After 507 laparoscopic partial nephrectomy procedures 93 patients (19.7%) had 107 complications, including 49 urological (9.7%) and 58 nonurological (11.4%). Of the complications, 20.6% were grade I, 45% were grade II, 30% were grade III, 4.7% were grade IV and none were grade V. On multivariate analysis, presence of a solitary kidney (1999 to 2002 $p = 0.0115$, 2003 to 2006 $p = 0.0045$), increased warm ischemia time (1999 to 2002 $p = 0.0399$, 2003 to 2006 $p = 0.0066$) and increased estimated blood loss (1999 to 2002 $p = 0.0224$, 2003 to 2006 $p = 0.0293$) were significant predictors of overall postoperative complications for the 2 eras. Compared to the 1999 to 2002 era, the 2003 to 2006 era witnessed a dramatic increase in number of total laparoscopic partial nephrectomy procedures (100% increase) and complex tumors (132% increase), yet overall ($p = 0.001$), urological ($p = 0.03$) and nonurological ($p = 0.02$) complications decreased significantly.

CONCLUSIONS:

Prolonged warm ischemia, increased intraoperative blood loss and solitary kidney status increase the likelihood of postoperative complications after laparoscopic partial nephrectomy. With experience the incidence of complications has decreased significantly despite a significant increase in tumor and procedural complexity.

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