Laparoendoscopic single-site radical nephrectomy for renal cancer: technique and surgical outcomes.

Francesco Greco, Domenico Veneziano, Felix Kawan, Nasreldin Mohammed, M Raschid Hoda, Paolo Fornara

Department of Urology and Kidney Transplantation

“Martin-Luther-University”, Halle/Saale

Corresponding author:

Dr. Francesco Greco

Department of Urology and Kidney Transplantation

Martin-Luther-University

Ernst-Grube-Strasse 40

06120 Halle/Saale, Germany

E-Mail: francesco_greco@ymail.com
Abstract

Background: Laparoendoscopic single-site (LESS) surgery has been developed in attempt to further reduce the morbidity and scarring associated with surgical intervention.

To describe the technique and report the surgical outcomes of LESS radical nephrectomy (LESS-RN) in the treatment of renal cell carcinoma.

Material and Methods: LESS-RN was performed in 33 patients with renal tumors. The indications to perform a LESS-RN were represented by T2 renal tumors or lower without evidence of lymphadenopathy or renal vein involvement.

The Endocone (Karl Storz, Tuttingen, Germany) was inserted through a transumbilical incision. A combination of standard laparoscopic instruments and bent grasper and scissors was used. The sequence of steps of LESS-RN was comparable to standard laparoscopic radical nephrectomy. One laparoscopic surgeon (F.G.), with an experience of > 200 conventional laparoscopic radical nephrectomy, performed all procedures.

Both medical and surgical complications occurring at any time after surgery were captured including the inpatient stay as well as in the outpatient setting. They were classified as early (onset: <30d), intermediate (onset: 31–90d), or late (onset: >90 d) complications, depending on the date of onset.

All complications were recorded with a grade assigned according to the modified Dindo-Clavien classification

Results: The mean operative time was 143.7±24.3 min, with a mean estimated blood loss of 122.3±34.1 ml and a mean hospital stay resulted to be 3.8±0.8. The mean length of skin incision was 4.1±0.6 cm and all patients were discharged from hospital with minimal discomfort. The definitive pathologic results revealed a renal cell carcinoma in all cases with a stage distribution of four T1a, 27 T1b and 2 T2. Four complications were recorded: 1 early, 2 intermediate and 1 late, for a mean complication rate of 12.1%. All patients were very
satisfied with the appearance of the scars and at a median follow-up period of 13.2±3.9 months, all patients were alive without evidence of tumor recurrence or port-site metastasis.

**Discussion:** Actually many institutions have made a safe stepwise transition from standard laparoscopy to LESS for select indications. However, LESS has not replaced standard laparoscopy even at high-volume institutions performing the technique.

In our experience, the Endocone port was used for all procedures. LESS-RN was feasible and safe with the latter combination, with a mean complication rate of 12.1%, which is comparable to that reported in the literature. To note that the use of one additional trocar was applied in 27.3% of cases in the present series and one might argue that this represents a major bias. In general, we embrace the concept that patient safety comes first (“do not harm”). According to current terminology [13, 27-29], the use of an extra 2-3 mm trocar is still considered as LESS.

**Conclusions:** LESS is a safe and feasible surgical procedure for radical nephrectomy (RN) in the treatment of renal cell carcinoma, with excellent cosmetic results.