



## Laposcopic Radical Nephrectomy for Management of Renal Tumors

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### Abstract

**Background:** *Laposcopic radical nephrectomy is the treatment of choice for small renal tumors, when a kidney cannot be saved due extensive involvement and when tumor size is large.*

**Aim and Objective:** *To assess the feasibility of management of renal tumours through laposcopic approach.*

**Methods:** *In this prospective study 27 consecutive subjects were operated by a single surgeon using laproscope and were followed for the outcome.*

**Results:** *Ten (37%) had right sided lesion where as 17 (73%) were having left sided lesion of kidney. The drain was removed in < 3 days in 22 (81%) of the patients and in 3-5 days in 5 (19%) patients. In our study all of patients i.e. 27 (100%) were discharged within 4 days after surgery. None of the patients had blood loss or adjacent organ injury. All the subjects recovered fully without any major complication.*

**Conclusion:** *In experienced hands the laposcopic radical nephrectomy seems to be feasible and convenient with less cost involvement.*

**Keywords:** *Nephrectomy, Renal Tumours, laposcopic approach.*

### Introduction

Multiple strategies are available for management of renal tumors including radical nephrectomy (RN), partial nephrectomy (PN), thermal ablation (TA), and active surveillance (AS) for localized disease<sup>[1]</sup>. For locally advanced cases, 45 to 70 percent of patients with venous tumor thrombus can be cured with nephrectomy and thrombectomy. Thrombus extending into the IVC below the main hepatic veins can be readily managed with isolation of the involved

vasculature and removal of the tumor thrombus. Thrombus extending above the main hepatic veins requires more extensive dissection, venovenous bypass, or cardiopulmonary bypass and circulatory arrest. For large tumors with radiographic suspicion of invasion into adjacent structures (T4), complete excision with en bloc resection of the involved structures provides the only chance of cure<sup>[2]</sup>. Bulky lymphadenopathy carries a poor prognosis similar to metastatic disease, although surgical resection should be

considered if feasible and if appropriate given careful assessment of disease burden and patient age, comorbidities. High-quality preoperative imaging (CT or MRI) should be obtained in proximity to the anticipated surgery to plan for and achieve intraoperative success. Although locally advanced RCC is still primarily a surgical disease, adjuvant systemic therapy trials should be encouraged and, in select patients, neoadjuvant approaches may be considered. Radical nephrectomy (RN) represents gross overtreatment for most small lesions, however, for larger renal tumors (clinical stages T1b and T2) which have increased oncologic potential and which have already replaced a substantial portion of the parenchyma, the radical nephrectomy becomes the choice of treatment especially when there is normal contralateral kidney. Laparoscopic RN is now established as a less morbid alternative to open surgery in the management of low to moderate volume (10 to 12 cm or smaller), localized RCCs with no local invasion, limited or no venous involvement, and manageable lymphadenopathy. Open approaches have several disadvantages like longer hospital stay, surgical site infections, damage to nearby viscera, more post op analgesia requirement, longer recovery.

### Aims and Objectives

To assess the feasibility of management of renal tumours through laparoscopic approach.

### Material and Methods

This prospective clinical study was conducted for the management of renal tumours using laparoscopic radical nephrectomy procedures in the patients who reported to Postgraduate Department of General Surgery, GMC Srinagar, J&K India. During one and a half year study 27 underwent laparoscopic radical nephrectomy. The patient were taken for the surgery after proper clinical workup which included tests like USG abdomen and pelvis, CECT chest, abdomen and pelvis, CT urography, X-ray chest, MRI and PET scan. The participants were followed for 4 weeks for any complication after the procedure. The data

was collected on a self designed proforma which included brief demographic and clinical details. The participants was selected based on following criteria.

### Inclusion Criteria

1. Any age group and Gender
2. Patients presenting with renal tumours with stage T3a and lower.
3. Patients requiring radical nephrectomy including Cytoreductive nephrectomy and Palliative nephrectomy

### Exclusion Criteria

1. Tumor stage T3b or higher
2. Bulky nodal disease
3. General contraindication for laparoscopy
4. Pregnancy

**Data Analysis:** Data was entered in Microsoft Excel and analysed using SPSS version 20.0.

**Ethical Clearance:** The ethical clearance was sought from Institutional Ethical Committee (IEC) GMC Srinagar, before the start of the study.

### Results

**Table 1:** Age and Gender Distribution of Study Participants

	Age	No. of Patients	Percentage
<b>Age in Years</b> (Mean±SD = 60.08± 13.44)	<40	6	22
	41-50	7	25
	51-60	9	34
	>60	5	19
<b>Gender</b>	Male	10	37
	Females	17	73

In our study patients aged between 16-70 years were enrolled in which 9 patients (34%) belonged to 51-60 years age group, 7 (25%) patients were aged 41-50 years, 6 (22%) patients belonged to age group of  $\leq 40$  years while as only 5(19%) patients aged  $>60$  years. The mean age in our study patients was  $60.08 \pm 13.44$  years. Youngest patient operated was 16 years of age, and the eldest patient operated was 75 year. In our study, male to female ratio was 1:1.7.

**Table 2:** Side of Kidney Involvement in Study Participants

Side	No. of Patients	Percentage
Right sided lesions	10	37
Left sided lesions	17	73

**Table 2** shows the laterality of renal tumors in our study participants. Ten (37%) had right sided lesion where as 17 (73%) were having left sided lesion of kidney.

**Table 3:** Post-operation Outcome among Study Participants

		Number	Percent
<b>Blood Transfusion</b>	<b>Required</b>	0	0
	<b>Not required</b>	27	100
<b>Duration of Drain Placement</b>	<b>&lt;3 Days</b>	22	81
	<b>3-5 Days</b>	5	19
<b>Hospital Stay</b>	<b>≤4 Days</b>	27	100
	<b>&gt;4 Days</b>	0	0
<b>Major Complication</b>	<b>Yes</b>	0	0
	<b>No</b>	27	100

In our study, none of the patient needed blood transfusion. The drain was removed in < 3 days in 22 (81%) of the patients, 3-5 days in 5(19%) patients. In our study, all of patients i.e. 27 (100%) were discharged within 4 days after surgery. In our study, none of the patients had blood loss or adjacent organ injury.

### Discussion

In our study, participants between 16-70 years were enrolled in which 9 (34%) belonged to 51-60 years age group, 7 (25%) patients aged 41-50 years, 6 (22%) patients belonged to age group of ≤40 years while as only 5 (19%) patients aged >60 years. The mean age in our study patients was 60.08 ± 13.44 years. Youngest patient operated was 16 years of age, and the eldest patient operated was 75 year.

**Bitkin A. et al (2019)** evaluated the results of laparoscopic nephrectomy cases performed in patients with locally advanced renal cell carcinoma<sup>[3]</sup>. Between July 2015 and December 2018, 14 patients underwent laparoscopic nephrectomy for locally advanced renal tumor. The duration of operation, blood loss, duration of

hospital stay, perioperative complications and follow-up time were evaluated. The mean age of the patients was 56.8 (33-78) years. Similar results were observed in a study done by **Ganpule AP et al (2008)** in which mean age was 52.96 (22-80) years<sup>[4]</sup>. **Ganpule AP et al (2008)** compared laparoscopic radical nephrectomy (LRN) with open radical nephrectomy (ORN) in T1-T3 renal lesions. The records of 65 patients who underwent LRN between January 2002 and December 2006 were entered prospectively. The two groups were comparable in terms of age, body mass index (BMI) and tumor size. LRN was compared with ORN in terms of operative room time, blood loss, complications, analgesic requirement, hospital stay and start of oral intake. The oncologic efficacy was evaluated in stages T1 and T2 in terms of cancer-free and overall survival<sup>[4]</sup>.

In our study right to left ratio was 1:1.7. Our results are comparable with the study made by of **Bitkin A. et al (2019)** wherein right to left ratio was 1:1.3<sup>[3]</sup>. He evaluated the results of laparoscopic nephrectomy cases performed in patients with locally advanced renal cell carcinoma. Between July 2015 and December 2018, 14 patients underwent laparoscopic nephrectomy for locally advanced renal tumor. Similar results were observed in a study done by **Ganpule AP et al (2008)** in which right to left ratio was 1:1.1. **Ganpule AP et al (2008)** compared laparoscopic radical nephrectomy (LRN) with open radical nephrectomy (ORN) in T1-T3 renal lesions. The records of 65 patients who underwent LRN between January 2002 and December 2006 were entered prospectively. The two groups were comparable in terms of age, body mass index (BMI) and tumor size. LRN was compared with ORN in terms of operative room time, blood loss, complications, analgesic requirement, hospital stay and start of oral intake. The oncologic efficacy was evaluated in stages T1 and T2 in terms of cancer-free and overall survival<sup>[4]</sup>.

### Conclusion

Laparoscopic radical nephrectomy offers the benefits of all minimally invasive procedures-less

blood loss, less post op analgesia requirement, short hospital stay, early recovery, early return to activity and is found to be oncologically safe with no significant morbidity.

### References

1. Pierorazio PM, Johnson MH, Patel HD, Sozio SM, Sharma R, Iyoha E et. al. Management of Renal Masses and Localized Renal Cancer: Systematic Review and Meta-Analysis. J Urol. 2016 Oct; 196(4): 989–999. doi: 10.1016/j.juro.2016.04.081
2. Diaconescu M, Burada F, Mirea CS, Moraru E, Ciorbagiu MC, Obleaga CV and Vilcea ID. T4 Colon Cancer - Current Management. Curr Health Sci J. 2018 Jan-Mar; 44(1): 5–13. DOI: 10.12865/CHSJ.44.01.01
3. Bitkin A, İrkilata L. Laparoscopic Radical Nephrectomy in Patients with Locally Advanced Renal Cell Carcinoma: Initial Experience. Int Arch Urol Complic. 2019; 5(1):5:053. doi.org/10.23937/2469-5742/1510053.
4. Ganpule AP, Sharma R, Thimmegowda M, Veeramani M, Desai MR. Laparoscopic radical nephrectomy versus open radical nephrectomy in T1-T3 renal tumors: An outcome analysis. Indian J Urol 2008;24:39-43.