

DURATION OF SURGERY OF LAPAROSCOPIC NEPHRECTOMY -AN INITIAL EXPERIENCE IN IGMC, SHIMLA

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Abstract

Background: Laparoscopic nephrectomy has been established as the standard of care for the management of benign non-functioning kidneys and has gained worldwide popularity over the past decade.

Methods- This study was conducted in the Department of General surgery, Indira Gandhi medical college, Shimla on 20 selected patients of benign non functional kidney admitted for elective Laparoscopic Nephrectomy between July 2018 to June 2019

Results: In this study, the mean operating time in success full laparoscopic nephrectomies was 103.7 ± 20.6 min in lap converted to open it was 165.7 ± 26.99 min and in hand-assisted tame taken was 150 min which is statically not significant with p value =0.1317.

Conclusion: The mean time taken for completion of laparoscopic nephrectomy in first 4 cases was 105 min and in next 4 cases was 108 min and in last 4 cases it was 97 min there was definitive learning curve as in last 4 cases operating time was less as compared to initial cases but operating time also depends on other factors like in hydronephrotic kidney due to well maintained plane dissection take less time ,but in pyonephrotic kidney ,tubercular kidney,previously intervention like PCN, there were dense adhesion resulting in more time for dissection.

Keywords: Laparoscopy, Nephrectomy, Duration of surgery

Introduction

Laparoscopic urology has rapidly evolved since the mid-1990s through advances in video technology and instrumentation design and is currently a useful alternative to treat complex surgical diseases encompassing ablative as well as reconstructive urology. In 1990, Clayman et al performed the first laparoscopic nephrectomy for a 3 cm renal mass in an elderly patient. This accomplishment represents one of the milestones in minimally invasive surgery because it provided the solution for removing a large solid organ without the need for an incision.¹

Since this report, many institutions have verified the utility of laparoscopic approach to address the diseases of the kidney. Laparoscopic nephrectomy has proven to be beneficial as compared to open surgery in terms of lesser post operative pain, a shorter hospital stay, reduced convalescence, and a more rapid return to full activity.^{2,3}

Material and method

Study period: This study was conducted in the Department of General surgery, Indira Gandhi medical college, Shimla on 20 selected patients of benign non functional kidney admitted for elective Laparoscopic Nephrectomy between July 2018 to June 2019

Study design: observational

Method of Collection of Data:

Patients diagnosed with non functioning kidney were assessed clinically, hematologically & radiologically and were taken up for laparoscopic nephrectomy. Various parameters were studied intra operatively and findings were reported as per performa attached.

The following patients were included in the study

Patient of all age groups and of both sex with non functioning kidney due to

- Stone disease
- PUJ narrowing
- Renal tuberculosis
- Chronic pyelonephritis

The Patients with following conditions were excluded

- A prior abdominal surgery with the formation of intra-abdominal adhesions
- Morbid obesity
- Uncorrected coagulopathy
- Untreated infection and hypovolemic shock

- Severe cardiac or pulmonary disease
- With Pregnancy
- With Malignancy
- With Uncontrolled diabetes and uncontrolled hypertension

Results

Time taken for completion of surgery was counted from the insertion of Hasson's trocar up to the closure of the last port. The maximum time taken was 150 min and the minimum time taken was 75

In this study, the mean operating time in success full laparoscopic nephrectomies was 103.7 ± 20.6 min in lap converted to open it was $165.7 +26.99$ min and in hand-assisted time taken was 150 min which is statically not significant with p value =0.1317.

The mean time taken for completion of laparoscopic nephrectomy in first 4 cases was 105 min and in next 4 cases was 108 min and in last 4 cases it was 97 min there was definitive learning curve as in last 4 cases operating time was less as compared to initial cases but operating time also depends on other factors.

Table 1: Duration of surgery

Surgery	Mean operating time	
Lap	103.7 ± 20.6 min	p=0.1317
Hand-assisted	150.0 ± 000	
lap completed by open	$165.7+26.99$	

Table 2: mean operating time in each 4 cases

No of cases	Meantime in minutes for the Laparoscopic group	Mean of all
1 st four cases	105	121 ± 7.77
2 nd four cases	108	
3 rd four	97	

Discussion

The maximum time taken was 150 min and the minimum time taken was 75 min. The mean operating time taken for completion of the procedure in the present study was 103 ± 20.6 min, in successful Lap Nephrectomy.

Time taken by Kerbel et al⁴ was 355 min and Gill et al⁵ observed 168 min & 145 min was observed by Parra et al⁶ and 90 min by Fonara, et al. (2003)⁷, Zaidi Z et al⁸. observed that the mean operating time was 140 ± 51.1 min

In the study, Shekarriz B et al.⁹ inflammatory and benign groups mean blood loss and mean operative time was 284 ± 126 and 226 ± 62 minutes

As far as operating time, is considered the published literature is evident that it takes a longer time to perform laparoscopic nephrectomy as in the first four laparoscopic

nephrectomies mean operating time was 105 min and in the next four cases it was 108 min and in last four cases, it was 97 min. It was concluded that there was definitive learning curve involved and operative time was more in initial cases. Time taken for surgery also depends on the condition of the kidney during surgery and previous intervention. In hydronephrotic kidney, there were preserved perirenal planes and fewer adhesions as compared to end-stage nephrolithiasis and in pyonephrotic kidneys, which took maximum time.

In patients with previous surgery and intervention, it took more time for surgery due to dense adhesion. In patients having PCN there were dense adhesions and in DJ stenting patients, as there were periuretric adhesions. Time taken in laparoscopic group was statically significant having P-value .0001 but the time taken was more in lap converted to open because of laparoscopic assessment and initial dissection done by laparoscopy.

Conclusion

The mean time taken for completion of laparoscopic nephrectomy in first 4 cases was 105 min and in next 4 cases was 108 min and in last 4 cases it was 97 min there was definitive learning curve as in last 4 cases operating time was less as compared to initial cases but operating time also depends on other factors like in hydronephrotic kidney due to well maintained plane dissection take less time ,but in pyonephrotic kidney ,tubercular kidney,previously intervention like PCN, there were dense adhesion resulting in more time for dissection.

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