



ORIGINAL ARTICLE

Initial experience of laparoscopic nephrectomy for nonfunctioning kidney in Recep Tayyip Erdogan Hospital, Muzaffargarh.

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ABSTRACT... Objective: To determine the outcome of initial experience of laparoscopic nephrectomy for non-functioning kidney. **Study Design:** Retrospective study. **Setting:** Department of Urology, Recep Tayyip Erdogan Hospital in Muzaffargarh. **Period:** March 2017 to March 2021. **Material & Methods:** A total of 40 patients who underwent laparoscopic nephrectomy were included in accordance with the inclusion criteria. Age, gender, operation site, length of surgery, rate of conversion, problems following surgery, and length of hospital stay following surgery were noted in the study. Using SPSS 21.0, the data were analyzed and presented as mean, S.D., and percentages. **Results:** There were 27(67.5%) female patients and 13 (32.5%) male patients. Mean age was 35.40 (S.D = 11.01) years. Non-functional kidney due to stone disease including renal and ureteric stone were 26 (65%), PUJO 9(22.5%), and atrophic kidney 5 (12.5%). 29 (72.5%) had nephrectomy on right side and 11 (27.5%) had left side. 2 (5%) patients had wound infection and blood transfusion in 4 (10%). Mean operative time was 123.77 (S. D= 22.08) minutes. Conversion to open surgery was in only 1 (3%) patient. Mean hospital stay was 3.15 (S.D = 0.94) days. **Conclusion:** It is concluded from this study that laparoscopic nephrectomy is safe and modern technique with early mobilization and low complications.

Key words: Laparoscopic, Non-functional Kidney, Nephrectomy, Outcomes.

INTRODUCTION

Since the middle of the 1990s, laparoscopic urology has developed quickly thanks to improvements in video technology and equipment design, and it is now a helpful alternative to treat complex surgical disorders that include both ablative and reconstructive urology.

One of the most frequent procedures carried out by urologists is the nephrectomy.^{1,2} In order to treat benign and malignant diseases, this method is used.²

Chronic pyelonephritis, pelviureteric (PV) junction blockage, Hypertension (Reno Vascular), Renal T.B (tuberculosis) and pyelonephritis (emphysematous, xanthogranulomatous) are benign conditions. the conditions may lead to the non- functioning kidneys.^{2,3} Nephrectomy can be carried out using an open or laparoscopic

technique.⁴ The old methods involve a significant skin incision that cuts through muscle to remove it, but in the past ten years, minimally invasive surgery has emerged as the cutting edge of surgical innovation.⁵⁻⁸ For a renal tumour, Clayman conducted the first transperitoneal laparoscopic nephrectomy in 1990.⁹

Simple nephrectomy can be performed laparoscopically using either the retroperitoneal or transperitoneal techniques. The most popular way to perform laparoscopic surgery is via the transperitoneal route because it offers a perfect working area and makes orientation easier by offering easily recognizable anatomic landmarks.

In comparison to open surgery, laparoscopic nephrectomy has shown advantages in terms of less postoperative discomfort, a shorter hospital stays, shorter convalescence, and a quicker

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return to full activity.^{2,10,11}

MATERIAL & METHODS

This retrospective study was conducted at Department of Urology, Recep Tayyip Erdogan Hospital, Muzaffargarh, March 2017 to March 2021 after approval from ethical committee (107/PHY/DCKMC). A total of 40 patients of both genders with ages 13 to 65 years were included in this study. Age less than 13 years, tumour, uncorrected coagulopathy, active UTI, severe cardiopulmonary diseases were excluded from this study. All patients had undergone laparoscopic nephrectomy through transperitoneal approach under general anesthesia. Preoperative imaging included ultrasound kidney ureter bladder, CT KUB, Isotope scan Diethylene Triamine Penta acetic acid (DTPA) renal scan, Preop and postop hemoglobin level. Outcomes such as operative time, conversion rate, need for blood transfusion, postoperative complications and postoperative hospital stay were recorded.

All patients undergo the treatment under general anesthesia using the transperitoneal technique, and intravenous antibiotics are frequently given. The patient was positioned in the traditional lateral kidney position following bladder catheterization. For the majority of patients, we employed the Veress needle approach for initial port insertion; however, in a small number of patients, we used the Hasson technique.

The umbilicus was positioned superiorly and pararectally with a 10-mm trocar. A third 5mm trocar was positioned close to the middle of the spinoumbilical line on the right side and 5mm midclavicular line subcostal on the left side. A second 10mm trocar was positioned in the midclavicular line subcostal on the right side and 10mm spinoumbilical line on the left side. Using the fourth epigastric 5-mm port and an Allis clamp to hold the lateral abdominal wall, the liver was raised to the right.

The colon was reflected medially, and the kidney was apparent. The ureter could be observed and examined in detail. A Prolene 2/0 straight needle was used to make an abdominal incision, create

a window below the ureter, cross from there, and then be pulled back from the same entry point to pull the ureter. The breakdown was funny. The renal artery and vein were divided, and each was clipped with a pair of double hem-o-lok clips. The kidney's lateral and superior attachments were likewise split, and the ureter was clipped and divided. The prolene suture was removed, and the specimen was then put into the specimen retrieval bag. The specimen was pulled out of the 10 mm port by enlarging the incision.

RESULTS

This study started in 2017 in a hospital of southern Punjab which initially established for flooded area. This hospital had single consultant with limited resources. It took four years to include 40 patients in study. Forty patients included in study according to inclusion criteria. Demographic data revealed male and female in our study were 32.5% and 67.5%, respectively.

Mean age was 35.40 (S. D= 11.02) years. Causes of non-functional kidney were as; Stone disease was the most common cause of nephrectomy, 22 (55%) with renal stone and 4 (10%) with ureteric stone. It was followed by PUJ obstruction 9 (22.5%), and atrophic kidney 5 (12.50%). 29 (72%) patients had right side and 11 (28%) patients had left side nephrectomy (Figure-1).

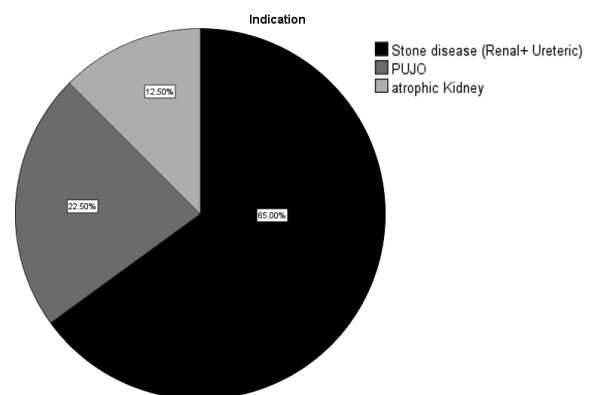


Figure-1. Showing the indications of nephrectomy

All patients underwent isotope renal scan, 19 (47%) had less than 5% function, 20 % had 5 to 10% and remaining had less 15% of functioning kidney. Urine culture and sensitivity was positive in 11 (27.5%).

Outcomes of the study tabulated in Table-I. Mean operative time was 123.77 (S.D = 22.08) minutes. Mean length of hospital stay was 3.15 (S.D = 0.94) days. Mean preoperative hemoglobin was 12.56 (S.D = 0.97) mg/dl while mean postoperative hemoglobin was 11.21 (S.D = 1.05) mg/dl. 4 (10%) patients needed blood transfusion due to hemoglobin drop. 1 (3%) patient needed conversion from laparoscopic to open nephrectomy. 2 (5%) patients had wound infection. No mortality was recorded.

Clinical Outcome	No. (%) of Patients or Mean	S.D
Length of hospital stay	3.15 days	±0.94
Operative time	123.77 minutes	±22.08
Complications		
Blood transfusion	4 (10%)	
Wound Infection	2 (5%)	
Conversion to open surgery	1 (2.5%)	
Mortality	0	

Table-I. Clinical outcome of study

DISCUSSION

With advancement in new era laparoscopic nephrectomy is the choice of treatment for the non-functioning kidney. This technique has advantage over the open nephrectomy with short hospital stay with better cosmetic outcome. A transperitoneal laparoscopic nephrectomy done by Clayman et al. in 1991 represented the true scientific advance.^{7,12,13,10-13} By Clayman and Gill, the fundamental surgical procedure for laparoscopic nephrectomy has been thoroughly documented.^{3,14,15}

Our analysis revealed that more cases included the right side, with a frequency of 29 (72.5%) cases, compared to 11 (27.5%) cases where the left side was involved. These findings were consistent with prior studies in that the right side was more frequently observed than the left.^{1,13}

In our study, there were 13 men and 27 women patients, or 67.5 percent of the total (32.5 percent). Regarding the results of laparoscopic nephrectomy, studies by Khan MM et al and Piyush Singhanian et al reported that there were

more male patients than female patients in both studies.^{16,17} However, in the study by Farooq M et al, the majority of patients were females, with 56 percent being female and 44 percent being male.¹

In our study most common cause of nonfunctioning kidney was stone disease 22% followed by PUJO 22.50% which is almost similar to other studies but in our study 12.50% patient had small kidney and 10 % had grossly hydronephrotic kidney due to distal ureteric stone which is different from other studies.^{1,16} A study by Naresh et al reported PUJ obstruction was the most common etiology of nephrectomy¹⁹. In our patient we have not done bowel preparation, but study done by Piyush Singhanian et al done bowel preparation.¹⁶

With a standard deviation of 22.08 minutes, the mean operating duration in our study was 123.77 minutes. The mean operating time in Phillips et al study's was 150 min (130-180) 20. The operation time in a different study by Eraky et al. and Farooq M et al. was 186 min. and 170 min.⁹

The average hospital stay in our study was 3.15 days, with a 0.94-day standard deviation. In many studies, the average hospital stay was 4 days, 16 hours, however in the study by Eraky et al., the average hospital stay was 2.9 days.¹⁸

In our study 1 patient was converted to open due to previous history of surgery which is similar to study conducted by Farooq M et al, but 6 patient were converted to 6 by Piyush Singhanian et al.¹⁶

In our study 4 (10%) patients needed blood transfusion. One (2%) patient had wound infection. No mortality found. These results were similar to many other studies in which patients treated with laparoscopic nephrectomy.

CONCLUSION

Laparoscopic nephrectomy is regarded as a risk-free, highly efficient, and largely complication-free method of treatment. This procedure is the gold standard for nephrectomy since it has low morbidity and great benefits in terms of less postoperative discomfort, a shorter hospital stay,



quick recovery, and improved cosmetics.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Mazhar Ali	Conceived designed & analysis.	
2	Afia Khalid	Editing, Data collectio, Writing.	
3	Kumail Sajjad	Final approval, Review.	