



POST OPERATIVE PAIN –VAS SCORE, ANALGESIA REQUIREMENT, LENGTH OF HOSPITAL STAY AND FOLLOW UP IN OPEN AND LAPAROSCOPIC NEPHRECTOMY.

Dr. Nadeem Rashid Department of Surgery, Government Medical College, Anantnag.

Dr. Sadaf Ali* Department of Biochemistry, Government Medical College, Srinagar.
*Corresponding Author

ABSTRACT

This was a prospective study conducted in order to evaluate and compare pain scores through visual analogue scale, length of hospital stay and follow up in patients of benign renal disease and early renal malignancy. This study was conducted in the Department of Surgery, Batra Hospital and Medical Research centre, New Delhi. For the purpose of this study, a total number of 80 patients participated willingly after giving written informed consent. Out of these 40 were operated through open route and 40 patients underwent laparoscopic nephrectomy. Patients were grouped based on their route of surgery into open and laparoscopic groups. The comparison between them was made in relation to need for analgesia, hospital stay and convalescence. Follow up was done at 1 week, 4 weeks, 3 months and every six months so as to look for any delayed complications, chronic pain and recurrence in case of malignant disease. Female patients in the reproductive age group were more common in patients operated by laparoscopic route while as males were more common in open nephrectomy group. Laparoscopic group had lesser pain scores but on statistical analysis there were no significant differences between the two groups. Mean hospital stay was (6.3 ± 1.34) days in open group while as (4.2 ± 1.22) days in the laparoscopic group. This study demonstrated that acute post operative pain scores were not different statistically between the two groups. Mean length of hospital stay was more in open group as compared to laparoscopic group. The cost of surgery was more in the laparoscopic group in comparison to open nephrectomy group. However, due to brief hospital stay, lesser morbidity, shorter convalescence and overall costs laparoscopic method was more useful in comparison with open route nephrectomy.

KEYWORDS : Open nephrectomy, Laparoscopic nephrectomy, early stage renal cell carcinoma, analgesia.

INTRODUCTION:

Laparoscopic nephrectomy is the standard of care for nephrectomy in most developed countries including India.^{1,3,5} This technique shows technical feasibility, lesser pain, rapid recovery and shorter hospital stay.^{1,10} Open nephrectomy was performed earlier but ever since the advent of laparoscopic procedure it has become the procedure of choice for surgeons.^{1,8,9} There are various types of laparoscopic approaches for nephrectomy. These are retroperitoneal approach, retroperitoneal approach and hand assisted technique. Retroperitoneal laparoscopic procedure is high-quality and includes more rapid assay to renal hilum that results in good vascular control and relatively easier dissection in obese individuals.⁷ This technique also decreases intra-peritoneal irritation and prevents development of urinary fistulas and other post operative infections. However, retroperitoneal approach leads to a steeper learning curve which is a disadvantage to this technique.^{2,3} This also increases the rate of complication, need for analgesics, requirement of medication, length of hospital stay and more time to resume to normal activity after surgery and is therefore, similar to that of transperitoneal route.^{4,5} Transperitoneal approach is a very well-known approach with easily identifiable anatomy and a much larger working space. These advantages over weigh the longer reported operative times and possible bowel injury during mobilization. Morbid obesity is a challenge to the surgeon and the chances of complications and conversion to open are more in this group.⁷ Xanthogranulomatous pyelonephritis,⁶ renal tuberculosis are associated with adhesions with concomitantly increased complications and conversion rates.

Laparoscopic nephrectomy is undoubtedly much better over open nephrectomy with progressive technical improvement. This is certainly the standard of care and may be offered to every patient with benign renal disease and early stage renal malignancy scheduled for elective nephrectomy. Hand assisted technique attempts to bridge the gap between laparoscopic and open surgery. This technique allows the hand to assist with dissection, retraction, extraction and quick control of bleeding. This is good for patients who have dense adhesions but it requires longer incision and is relatively costlier.

MATERIALS AND METHODS:

Study design: The present study was a prospective study, conducted in the Department of Urology (Surgery), Batra Hospital and Medical Research Centre, New Delhi. The main aim of this study was to compare the outcome following open and transperitoneal laparoscopic nephrectomy at a single centre.

Patient selection: A total number of 80 patients were selected for the purpose of this study. A written informed consent was taken from all patients that participated for the purpose of this study. Out of these 40 patients underwent laparoscopic nephrectomy and 40 were operated through open route. The comparison was made in relation to pain, need for analgesia, hospital stay and convalescence. Follow up was done at 1 week, 4 weeks, 3 months and every six months so as to look for any delayed complications, chronic pain and recurrence in case of malignant disease.

Statistical analysis of the data: Data was collected and managed using Microsoft Excel. Unpaired students t-test was used to determine the significance between two independent groups among continuous variables. For qualitative data chi square test was used to see the significant difference in proportion between two groups. A p value of <0.05 was considered as significant.

RESULTS AND DISCUSSION:

Table 1: Post operative pain –VAS Score and analgesia requirement

	Open group (n=40)	Lap group (n=40)	p value
VAS Score (mean) Day 1	5.92	5.34	0.682
VAS Score (mean) Day 2	4.21	3.78	0.543
VAS Score (mean) Day 3	2.01	1.86	0.437
Diclofenac used, mg Inj + po (mean)	175	105	0.283
Chronic pain at 6 months	2	1	0.548

There was no statistically significant difference between the post operative pain scores although laparoscopic group had lesser pain score. However, statistically the results were not significant as shown in Table 1 of the results.

Table 2: Length of Hospital stay in days

Hospital stay	Open	Laparo	p value
Mean	6.3 ± 1.3	4.2 ± 1.22	0.0001
Range	6-9	5-9	

Mean hospital stay was (6.3 ± 1.34) days in open group while as (4.2 ± 1.22) days in the laparoscopic group as shown in Table 2. The cost of surgery was more in the laparoscopic group due to use of Trocars, Harmonic Ace, Hem-o-lok and LT clips etc. However, due to briefer hospital stay, lesser morbidity and shorter convalescence overall costs associated overweighed the advantages of laparoscopic approach.

Table 3: Follow up, recurrence and patient satisfaction

	Open group (n= 40)	Lap group (n= 40)	p value
Follow up (months)			
Mean	8.3	7.5	0.059
Range	1-28	1-30	
Last in follow up	-	-	
Recurrence (in cases of RCC)	1/8 (12.5%)	1/5 (20%)	
Patient satisfaction score	7.0	8.9	0.256

The follow up was more in patients undergoing nephrectomy for malignancy. A total of five patients underwent laparoscopic nephrectomy for RCC and had a mean follow up of 19 months. Mean follow up of the patients in the open group was 8.3 months and in laparoscopic group it was 7.5 months. In this study patients who underwent laparoscopic surgery scored better on the satisfaction score than the open nephrectomy (satisfaction score of 8.9 vs 7) though the difference was not statistically significant as shown in Table 3 of results.

We evaluated post operative pain intensity and the incidence of chronic pain in patients with benign renal disease and early stage renal malignancy. All the patients were strictly followed up after the surgery. Post operative pain scores were found to be similar between the two groups; although laparoscopic had lesser pain but statistically the results were not significant. The highest pain score was found in day 1 in open group. Cost factor needs to be addressed with respect to laparoscopic nephrectomy due to the disposable nature of trocars and Hem-o-lok clips needed for the pedicle control. However, due to lesser morbidity, briefer hospital stay and shorter convalescence overall costs associated are expected to be less.

CONCLUSION:

In conclusion this study demonstrated that acute post operative pain scores were not statistically different between the two groups. Patients undergoing laparoscopic or open nephrectomy carried equal risk for development of chronic pain. The laparoscopic nephrectomy has gained wide acceptance and should be considered the standard of care for the treatment of benign non functioning kidneys and early renal cancers. This is mainly due to lower post operative pain, early resumption of orals, early ambulation, reduced hospital stay and advantages in terms of lesser blood loss and better cosmesis. This also decreases morbidity in obese patients and has lesser post operative complications. However, it should be considered as an advanced laparoscopic procedure and should be performed after adequate training in the basic laparoscopic procedures. Thus, our study concludes that laparoscopic nephrectomy for benign and early stage renal malignancy is superior to open nephrectomy.

REFERENCES:

1. Hemal AK, Kumar A, Kumar R, Seth A, Wadhwa P, Gupta NP (2007). Laparoscopic versus open radical nephrectomy for large renal tumours: A long term prospective comparison, J Urol, 177:862-6

2. Modi PR, Kadam GV, Dodia S, Jain R, Patel R, Devra A (2005). Laparoscopic retroperitoneal nephrectomy: overcoming the learning curves. Indian J Urol, 21:102-105.

3. Gupta NP, Gautam G. (2005) Laparoscopic nephrectomy for benign non functioning kidneys. J Min access Surg; 1:149-154.

4. Mc Dougall EM, Clayman RV (1996). Laparoscopic nephrectomy for benign disease: comparison of the transperitoneal and retroperitoneal approaches. J Endourol, 10(1):45-9.

5. Desai MM et al. (2005). Prospective randomised comparison of transperitoneal versus retroperitoneal laparoscopic radical nephrectomy. J Urol, 173(1):38-41.

6. Vanderbrink BA, Ost MC, Rastinehad A, Anderson A, Badlani GH, Smith AD, Levine MA, Lee BR (2007). Laparoscopic versus open radical nephrectomy or xanthogranulomatous pyelonephritis: Contemporary outcome analysis. J Endo Urol; 21(1):65-70.

7. Anast JW, Stroller ML, Meng MV, Master VA, Mitchell JA, Basett WW, Kane CJ (2004). Differences in complications and outcomes for obese patients undergoing laparoscopic radical, partial or simple nephrectomy. J Urol; 172:2287-91.

8. Steinberg AP, Finelli A, Desai MM, Abreu SC, Ramani AP, Spaliviero M, et al(2004), editors. Laparoscopic radical nephrectomy for large (greater than 7cm, T2) renal tumours. J Urol.; 172-6.

9. Gill IS, Clayman RV, Albaladejo DM, Aso Y, Chiu AW, Das S, Donovan JF, Fuchs GJ, Gaur DD, Go H, Gomella LG, Grune MT, Harewood LM et al (1998). Retroperitoneal and pelvic extraperitoneal laparoscopy: an international perspective. Urology, 52(4):566-71.

10. Eraky I, el-Kappany HA, Ghoneim MA (1995). Laparoscopic nephrectomy: Mansoura experience with 106 cases. Br J Urol; 75(3):271-5.