ORIGINAL ARTICLE

A Comparative Study of Laparoscopic Vs open Cholecystectomy at Ghurki Trust Teaching Hospital, Lahore

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ABSTRACT

This study is planned to compare the merits and demerits between laparoscopic cholecystectomy and open cholecystectomy.

Methodology: This study was carried out in the department of Surgery at Ghurki Trust Teaching Hospital, Lahore. A total of 50 patients with both sexes were included who presented with the diagnosis of cholelithiasis on the basis of USG and were divided into two groups i.e. 25 patients had laparoscopic cholecystectomy and 25 with open cholecystectomy.

Inclusion Criteria: Both sexes of age 12 – 65 years with diagnosis of cholelithiasis on USG were included in the study.

Exclusion Criteria: All patients with Obesity (Grade II and III), history of previous upper abdominal operation, empyema, peritonitis, CBD stones, obstructive jaundice, cholangitis, pancreatitis, Pregnancy, cirrhosis and renal failure were excluded from the study.

Results: Laparoscopic cholecystectomy and open cholecystectomy both provide safe and effective treatment for most patients with gallstones. Laparoscopic cholecystectomy requires the additional skill of a trained surgeon and its safe performance seems to be related to proper training and experience. Operating time in laparoscopic cholecystectomy is longer than open cholecystectomy. Injectable analgesia requirement is more in open cholecystectomy. Laparoscopic cholecystectomy is probably better than open cholecystectomy in terms of improved post op recovery. There is significant reduction in the incidence of post op pulmonary complications with laparoscopic cholecystectomy as compared to open cholecystectomy, wound related complications are also much less in laparoscopic cholecystectomy. There is no incidence of bile duct injury in both open cholecystectomy and laparoscopic cholecystectomy.

Conclusion: Laparoscopic cholecystectomy is the procedure of choice for patients with symptomatic gallstones in many centers even in Pakistan.

Key words: Laparoscopic cholecystectomy, gall stones.

INTRODUCTION

For centuries the open cholecystectomy has been the gold standard for symptomatic gall stones till 1986 when laparoscopic cholecystectomy was first introduced in France by DuBois et al.[1] and since its introduction has generated much excitement and enthusiasm among general surgeons. Laparoscopic cholecystectomy has introduced a new era in general surgery and era of minimal access surgery [2,3].

Laparoscopic surgery is intended to minimize the trauma of access without compromising exposure of the operative field. This new procedure has been widely accepted and adopted by surgical community and has become the new gold standard. It has been shown that in experienced hands the procedure decrease post operative pain, reduces hospital stay, and reduces the recovery period without increase in morbidity or mortality rates [4,5,6.]

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METHODOLOGY

This study was carried out in the department of Surgery at Ghurki Trust Teaching Hospital, Lahore. A total of 50 patients with both sexes were included who presented with the diagnosis of cholelithiasis on the basis of USG. 50 patients were divided into two groups i.e. 25 patients had laparoscopic cholecystectomy and 25 with open cholecystectomy. Both sexes of age 12–65 years with diagnosis of cholelithiasis on USG were included in the study. All patients with Obesity (Grade II and III), history of previous upper abdominal operation, empyema, peritonitis, CBD stones, obstructive jaundice, cholangitis, pancreatitis, Pregnancy, cirrhosis and renal failure were excluded from the study.

Those patients fulfilling the selection criteria were given a case number, and a separate file was opened for each patient. Proforma was filled after a thorough history, complete pre-operative examination and investigation.

Operative Procedure: Laparoscopic cholecystectomy was performed by introducing pneumo-peritoneum usually through 10 mm sub-umbilical incision initially with a Verres needle but later a blunt technique of trocar introduction. Cholecystecomy was then performed using two additional upper abdominal ports with extraction of gall bladder through the epigastric incision in most of the cases. Metal clips were applied across the cystic duct and cystic artery before division and dissection was effected by diathermy. Skin was closed with usual standard technique. Open cholecystectomy was performed using a right sub costal (Kockers incision). Usually muscle cutting technique was applied; cystic artery and duct were ligated with absorbable sutures. Wound was closed with usual standard technique.

Both of the procedures were performed by trained consultant surgeon. Operating time was noted in both the procedures, detailed operative notes were recorded. Patients were studied at 1st post-operative day of surgery using a visual analogue pain scale (VAS). A 20 cm scale, was shown and patient asked to mark a point related to his or her current pain level having been advised that the bottom represented 'no pain' and the top 'worst imaginable pain'.

Post-operative analgesia was given. Total number of doses of analgesics was recorded. A simple linear analogue was used for the subjective measurement of pain. The pain was also analyzed by the rate of administration of injectable analgesia. Pot-operative injectable antibiotic was given and record was kept. Following parameters were studied; operating time, pain score, hospital stay, return to work and post operative complications.

RESULTS

A total of 50 patients were selected for the study, and cholecystectomies were performed by trained and experienced surgeons in Ghurki Trust Teaching Hospital, Lahore. Twenty five (25) patients were operated by laparoscopic and 25 were operated by open cholecystectomy. Regarding sex and age distribution, 24 female (96%) patients and one male (4%) were operated by laparoscopic cholecystectomy and 23 female (92%) and 2 male (8%) patients were operated by open cholecystectomy. Mean age was 40.2 years for laparoscopic cholecystectomy and 41.2 years for open cholecystectomy.

Post operative pain was experienced by patients of both groups with variable intensity according to visual analogue scale (VAS) which was more in open cholecystectomy than laparoscopic cholecystectomy. Mean VAS for laparoscopic cholecystectomy was 7.75 and for open cholecystectomy (Table 3).

Table 1: Demographic variables

Variables	Laparoscopic cholecystectomy	Open cholecystectomy
No. of patients	25	25
Male:Female ratio	1:24	1:11
Mean age(yr)	40.24+2.6	41.26+2.8

Table 2: Operation time

Procedure	Operation time(min)							
	30	40	50	60	70	80	90	100
Laparoscopic cholecystectomy (Mean66.87+ 13.9)	0	2	2	4	6	6	3	2
Open cholecystectomy (Mean44.72+ 11.04)	2	6	7	7	3	0	0	0

Statistical Analysis: p<0.01 (HS)

Table 3: Pain score

Procedure	Pain Score					
	4	6	8	10	12	14
Laparoscopic cholecystectomy (Mean7.75)	0	2	2	4	6	6
Open cholecystectomy (Mean10.64)	2	6	7	7	3	0

Statistical Analysis: p<0.05 (S)

Table 4: Post-op hospital stay

	No. of days				
	2	3	4	5	6
Laparoscopic cholecystectomy (Mean=2.31)	17	6	2	0	0
Open cholecystectomy (Mean=3.12)	6	13	5	0	1

Statistical Analysis: p<0.01 (HS)

Post operative hospital stay was less for laparoscopic cholecystectomy with a mean of 2.31 days (±0.65) ranging from 2-6 days compared with open cholecystectomy in which it was 3.12 days (±0.9) ranging from 2-6 days (Table 4).The patients after laparoscopic cholecystectomy resumed their normal work after a mean of 2.25 weeks (±0.81) as

compared to 3.15 weeks (±0.70) in case of open cholecystectomy (Table 5).

Table 5: Time to return to normal work (weeks)

	No. of weeks				
	1	**2**	**3**	**4**	**5**
Laparoscopic cholecystectomy (Mean=2.31)	4	12	9	0	0
Open cholecystectomy (Mean=3.12)	0	2	12	4	7

Statistical Analysis: $p<0.05$ (S)

Table 6: Complications

Complications	**Laparoscopic cholecystectomy**	**Open cholecystectomy**
Injury to CBD	00	00
Haemorrhage	01(4%)	00
Bile leak	02(8%)	00
Wound infection	01(4%)	02(8%)
Pulmonary complication	00	02(8%)

DISCUSSION

The mean operating time for Laparoscopic cholecystectomy was 66.8±13.9 minutes, and for open cholecystectomy was 44.7±11.04 minutes which is a significant difference. In this study, operating time for previous cases was longer than later cases. This study supports the learning curve for Laparoscopic cholecystectomy[7, 8]

In this study, both Laparoscopic cholecystectomy and open cholecystectomy were done by senior expert surgeons and who had already done more than 100-150 Laparoscopic cholecystectomy and open cholecystectomy reason being the fewer incidences of complications as compared to other studies. Various workers have also observed that experienced surgeon can perform Laparoscopic surgery without added risk[9,10.]

Post operative pain was assessed with VAS (Visual Analogue Scale)[11]. Pain course was experienced by patients of both groups with variable intensity, higher in open cholecystectomy (10.64) as compared to Laparoscopic cholecystectomy (7.75)($P<0.05$, Mann Whiteney U-test). This difference in result is comparable with McGinn et al, [12] who reported higher score in open cholecystectomy (22.8) than Laparoscopic cholecystectomy (15.7) on the basis of McGinn pain score. Tate et al.[13] reported VAS higher in open cholecystectomy (4.6) than Laparoscopic cholecystectomy (3.6).

McGinn et al[12] showed 02 days post operative hospital stay in Laparoscopic cholecystectomy and in open cholecystectomy,it was 3 days. Seenu and Mishra[14] showed post operative hospital stay of 2.6 days in open cholecystectomy.

In open cholecystectomy, mean time to resume normal work is slightly longer than Laparoscopic cholecystectomy that is 2.25 weeks (±0.07) in open cholecystectomy as compared to 3.15 weeks (±0.81) in Laparoscopic cholecystectomy. In a study by McGinn et al.[12], time to resume normal work is 1.5 weeks in Laparoscopic cholecystectomy and 6.0 weeks in open cholecystectomy whereas Barkun et al.[2] showed 1.7 weeks for Laparoscopic cholecystectomy and 2.8 weeks for open cholecystectomy.

The finding of the study suggests delayed return to normal activities than Western Literature. There are several possible explanations for the delay in return to work. The first is a lack of effective communication and second explanation is the general perception that removal of gall bladder by whatever means, remains a major operation and that the length of post operative convalescence should be appropriate to this.[14]

In this study, there was no incidence of bile duct injury in both groups Laparoscopic cholecystectomy and open cholecystectomy, which is comparable to McGinn et al.[12] Two patients (8%) in this series who are operated by laparoscopic cholecystectomy presented bile stained drainage from the peritoneal drain for 2 days, whereas there was no such event in open cholecystectomy. Minor leak was there in both cases and it was stopped spontaneously without requirement of any surgical intervention. Drain was kept for 4 days after operation in both cases. There were no symptoms and signs of biliary collection which was confirmed with the help of USG. This study is comparable to Dent et al[7.] Chest infection was common in open cholecystectomy which was in 2 patients (8%) as compared to nil in laparoscopic cholecystectomy.

CONCLUSION

Laparoscopic cholecystectomy and open cholecystectomy both provide safe and effective treatment for most patients with gallstones. Laparoscopic cholecystectomy requires the additional skill of a trained surgeon and its safe performance seems to be related to proper training and experience. Laparoscopic cholecystectomy is the procedure of choice for patients with symptomatic gallstones in many centers even in Pakistan.

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