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Original Article

Retrospective Study of Cholecystectomy Performed in Rural Medical College in India

M D Gaikwad[1], Amer Patel[2], Kamran Khan[2]

[1]Associate Professor, Department of General Surgery, Jamia Islamia Ishaatul Uloom's Indian Institute of Medical Science and Research Medical College, Jalna, Maharashtra, India, [2]3rd yr PG Student, Department of Surgery, Indian Institute of Medical Science and Research, Warudi, Jalna, Maharashtra, India.

Abstract

Background: Gall stones are common in Indian population. Cholecystectomy has become the universal standard for the treatment of cholecystitis and cholelithesis. We conducted this study to find out method of cholecystectomy in a developing countries like ours. In a rural area where patients usually present late, one, or other complications of cholelithesis before surgery.

Materials and Methods: Patients operated for gall stone between January 2017 and December 2019 were retrospectively analyzed in-term and demographic profile, clinical presentation, post-operative pain and analgesic requirement, and post-operative hospital stay and complications.

Results: Open cholecystectomy (OC) was performed in 110 patients between January 2017 and December 2019. All OC performed between the age 20 and 60 year age. 2/3rd (67%) were female. The mean operating time was 70.50 min. Comparable to laparoscopic cholecystectomy (LC) in Group B. Post-operative pain slightly more in Group A than Group B. Oral feeds time taken in Group A is 12 h comparable to Group B. Over all complications rate was comparable between Group A and Group B. No death in any group.

Conclusion: In this study, analysis emphasized OC can be safely performed in all patients with cholelithesis. Coming early or late with or without complications. May be from low socioeconomic group or rural areas. Here, (IIMS and R medical college) treatment is free and post-operative minimum minor complications. Hence, patients acceptability for OC is 100% in laparoscopic era (LC).

Key words: Open cholecystectomy, Laparoscopic cholecystectomy, Retrospective study

INTRODUCTION

Gall stone disease is a common health problem. The management of symptomatic gall stone disease was improved by the introduction of laparoscopic cholecystectomy (LC).[1] Nowadays, LC is considered the gold standard for the treatment of symptomatic gallbladder stones and has replaced the traditional open cholecystectomy (OC).[2,3] The laparoscopic technique has many advantages over the open approach such as decrease in post-operative pain, reduction of postoperative complications, shorter hospitalization with earlier mobility and return to normal work activity, and better cosmotic results. The duration of LC has continuously decreased as a result of increasing the learning curve of surgeons.[4]

In spite of these advantages, OC still has a place in the laparoscopic surgery era.[5,6] OC is principally preserved for the challenging cases in which laparoscopy fails.[5] Most OCs are performed as a result of conversion from LC.[7] Conversion rates for LC vary widely, with a reported range of 2–15% in the previous series, mostly due to bleeding and unclear anatomy.[5,8,9] Conversion is not be a complication, but it represents a valuable choice to avoid an additional risk.[10] Risk factors of conversion to OC included old age, male sex, obesity, acute cholecystitis, previous upper abdominal surgery, the presence of diabetes and high glycosylated hemoglobin levels, and a less experienced surgeon.[11]

OC is still indicated from the start in selected cases without any laparoscopic trials. Some indications for open operation include suspected or confirmed gall- bladder cancer

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Corresponding Author: Dr. M D Gaikwad, Department of General Surgery, Jamia Islamia Ishaatul Uloom's Indian Institute of Medical Science and Research Medical College, Jalna, Maharashtra, India.

preoperatively or intraoperatively anticipating the possibility of a portal lymph node dissection, as well as an en bloc resection of the gallbladder, a portion of the liver, and perhaps a segment of the bile duct.[12-15] The older patients with comorbidities are more susceptible for OC from the start.[16] In patients with bleeding disorders and portal hypertension, potential bleeding may be difficult to control laparoscopically, and an open approach may be mandatory.[14]

Although LC has been proven to be safe in all trimesters of pregnancy, an open operation should be considered, especially in the third trimester, since laparoscopic port placement and insufflation may be difficult. Consequently, OC is generally necessary during the late stages of pregnancy, if the operation cannot be delayed until after delivery of the baby.[15] An open operation is also necessary in Type II Mirizzi syndrome (cholecystobiliary fistula) and gallstone ileus.[16]

Few studies in the literature have reported the role of OC in the management of gallbladder stones in the laparoscopic era. Hence, the aim of this retrospective study is to study safety and efficacy of OC in patients of cholelithiasis by comparing with results of LC in terms of use of post-operative analgesia, operative time, post-operative hospital stay, morbidity, mortality, and factors responsible for conversion.

MATERIALS AND METHODS

This study was a retrospective type of observational study included 110 patients with gall stones and gall bladder related disease who were admitted in Gen Surgery in IIMSR and NOOR Hospital between January 2017 and December 2019 for OC. In our institute only OC done due to lack of resources, LC cases taken from other studies. Among them patients who matched with our inclusion criteria (mentioned below) were selected for our study and those having any of the exclusion criteria were rejected. Incomplete and missed data were also removed from analysis. The study population was then divided into two groups, that is, Group A and Group B. Patients subjected to OC were grouped in Group A and those subjected to LC were in Group B. By this above mentioned method, we selected 110 patients taken for OC and for LC compared with other studies.

Inclusion Criteria

The following criteria were included in the study:

- Acute cholecystitis
- Chronic cholecystitis
- Cholelithiasis
- Gangrenous gall bladder
- Mucocoele and empyema of gall bladder.

Exclusion Criteria

The following criteria were excluded from the study:

- Choledocholithiasis
- Carcinoma of gall bladder
- Perforated gall bladder
- Uncontrolled coagulopathy and end stage liver disease.

Data collected for our study population were age, gender, duration of surgery, intra and post-operative complications, post-operative pain and analgesic use, and duration of hospital stay.

Statistical Analysis

All statistical analyses will be performed using IBM SPSS v.20 software. $P < 0.5$ will be considered statistically significant. The Shapiro–Wilk test is used to assess normality of data. Numerical data are presented as means and standard deviations or as medians with ranges. Chi-square test and Mann–Whitney U test are used when appropriate.

RESULTS

The mean age of study population was 41.00 ± 11.00 years with a range of 20 years–80 years, median age being 40 years. Mean age of Group A was 40.50 ± 11.25, ranged from 20 years to 80 years, median 40 years. According to other studies, while mean age of Group B was 42.02 ± 11.67 years with a range between 22 years and 72 years, median 40 years.

Age

Open cholecystectomy Group A

Age	No of points	Percentage
20–40	60	54.54
41–60	46	41.82
more 60	04	3.64
Total	110	100

Laparoscopic cholecystectomy Group B (different studies[17])

Age	No of points (Bhar *et al.*) (%)	No of points (Ranjan *et al.*)
20–40	43 (53.75)	11 (18.33)
41–60	28 (35)	41 (68.33)
More 60	9 (11.25)	08 (13.33)
Total	80	60

In Group A, 60 (54.54%) patients were in age group of (20–40) years, 46 patients (38.18%) in (41–60) years group while 4 (3.62%) of them were above 60 years according to different studies. In Group B, 43 cases (53.75%) were in the first group, that is, 20–40 years, 28 patients (35%) in 41–60 years Group, and 9 (11.25%)

were above 9 years[17] 12R. Another study shows 11.48 and 8, respectively, with age.

Gender

Group A		
	Group A	Percentage
Male	36	32.72
Female	74	67.27
Total	110	100

Group B different studies			
Group B different Studies	Male (%)	Female (%)	Total patient
Bhar *et al*.	24 (30)	56 (70)	80
Shukla *et al*.	11 (22)	39 (78)	50

Among the study population, Group A contains 36 (32.72%) were male and 74 (67.27%) female and in Group B taken from different studies, it was 24 (30%) male and 56 (70%) female[17] 12R. In another study shows 11 male (22%) patient and 39 female (78%)14.

Duration of Surgery

Group A (OC)	
Mean duration of surgery	70.50 min

Group B (LC) different studies	Mean duration of surgery
Karim *et al*.	46.27
Bhar *et al*.	70.25
Shukla *et al*.	52.32
Karim *et al*.	103.98
Ranjan *et al*.	72.50

The mean duration of surgery in Group B was (69.06). No statistically differences between Group A (70.50) and Group B (69.06)

The mean duration of surgery for Group A was 70.50 min. For B group taken from different studies 46.27, 70.25, 52.32, 103.98, and 72.50 min. 20r, 12r, 14, 17, and 13.

Intra and Post-operative Complications

	Group A	Different studies Laparoscopic Group B			
Complications	Open	Ranjan *et al*.	Bhar *et al*.	Shukla *et al*.	Karim *et al*.
Intraoperative bleeding	1	2	3	0	1
Bile duct injury	0	1	1	0	2
Wound dehiscence	0	0	0	0	0
Wound infection	0	5	2	0	3
Abdominal infection	0	0	0	0	0
Post-operative ileus	1	3	2	0	3
Pulmonary problems	1	2	1	0	2
Cardiac problems	0	0	0	0	0
Death	0	0	0	0	0

In above table, we can see that post-operative complication is more in Group B compared to that in Group A which is statistically significant. Laparoscopic surgery depends on experience also in Shukla *et al*. There is no any complication.

Duration of Analgesia Use (days) and Hospital Stay

The mean duration of analgesic use after operation was much more in Group A (3.36 days) compared to that in Group B (1.47 days) and this was found to be statistically significant.

The mean duration of post-operative hospital stay was much higher in Group A (3.34 days) compared to that in Group B (2.54 days) and which was found to be statistically significant.

DISCUSSION

Until quite recently, standard OC still was considered the treatment of choice for symptomatic gallstone disease. Mortality rates have declined to between 0% and 1% in most recent reports and in an elective setting, the rate of major complications is approximately 4.5%.[6-8] Despite these favorable data for OC, LC has become a popular and common method for removing the gallbladder in all Western countries. A shorter stay in hospital, faster recovery, less postoperative pain, and smaller scar are major advantages.

At the department of surgery at the Noor Hospital and IIMS and R Medical College, Warudi Jalna, for acute cholecystitis with cholelithiasis is by treating early OC and for elective also OC. Although LC for acute cholecystitis is feasible safe and beneficial in terms of shorter hospital stay compared with delayed LC.

There are studies which show natural history of incidentally discovered gallstone is not only benign but even when they do develop complications; it is usually preceded by at least one episode of biliary pain and longer the stones remain asymptomatic, the less likely that complications will occur. In about 30% patients who have had pain do not have further episode of pain; thus for persons with asymptomatic gallstone, the natural history is so benign that not recommended.[1,7,12] However, our experience with long standing cases of cholelithiasis is different and more often than not they present with one or other complications preoperatively and pose difficulty in surgery. LC changed the view of surgeons and the patients toward the asymtomatic gallstone. The wide spread use of LC a significant change has been observed possibly due to the attitude of surgeons to relax the induction of surgery, including for asymptomatic gallstone, resulting in an increase in cholecystectomies worldwide. LC in young patients with uncomplicated asymptomatic gallstone is safe with greater patient acceptance and this approach in early

	Group A (mean)	Group B (mean) Different studies				
		Bhar *et al.*	Karim *et al.*	Ranjan *et al.*	Shukla *et al.*	Karim *et al.*
Duration of Analgesic Use (Days)	3.36	1.52	2.00	1.80	0.56	1.50
Hospital stay (days)	3.34	2.36	2.56	3.60	1.18	3.00

age eliminates the need for problematic surgery at a later date when a patient is older with associated disease or with complications.[7,10] The chance of slipping on to the CBD is high and complications such as obstructive jaundice, cholangitis, and pancreatitis likely.[2,4,7] Conversion rate in LC ranges from 3% to 4% in well trained hand.

The frequency of bile duct injury is 0.1–0.2% for OC and 0.3–0.6% for LC. In our study, bile duct injury is nil comparable groups Ranjan *et al.*, Bhar *et al.*, and Karim *et al.* Bile duct injury was present (11 and 2) the majority patients coming from rural area, low socioeconomic group, coming late and ready for any type surgery. In this institute IIMS and R Medical College and Noor Hospital, free treatment is given (free surgery, bed charges, and free food). So no financial burden to the patient for surgery and hospital stay. Most important thing about the OC patients is negligible post-operative complications. All surgeries performed by senior surgeons. No mortality. Patient tolerance is good.

The findings in the present study showed that though LC is a viable, less complicated, more effective, and more satisfactory procedure that shortens the hospital stay and assures, early return to work. However, the usefulness of LC in a variable profile of patients' needs to be evaluated. In OC, no variable profile needed, no exclusion criteria. All patients can undergo OC; here, hospital stay is significantly longer and early return to work.

CONCLUSION

In the study, analysis emphasize OC can be safely performed in all patients with cholecystitis and cholelithisis coming early or late with or without complications. May be from low socio-economic group or rural areas. Here, (IIMS and R Medical College) treatment is free and post-operative minor complication. Hence, patients acceptability for OC is 100%. As per other comparable LC study groups, difficult LC is relatively common in India. There is need to stick to maximum time limit in difficult cases to avoid complications due to surgery or prolonged anesthesia. During study period, operation time for LC has shown a tendency to become shorter and conversion rate has shown a decreasing trend probably due to better planning and experience.

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