

An Observational Study to Compare Interval Cholecystectomy And Early Cholecystectomy Among Patients Of Acute Cholecystitis At A Tertiary Care Centre In Bihar

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Abstract

Introduction: Cholecystectomy is the treatment of choice for patients with acute cholecystitis. If the surgery is performed within 2-3 days of presentation of patient with symptoms of acute inflammation, it is called as early cholecystectomy. With this background, this study was planned and conducted to generate evidences by comparing outcomes of patients undergoing interval and early cholecystectomy at a tertiary medical college of Bihar. **Methodology:** An observational prospective study was conducted by Department of General surgery, Madhubani Medical College & Hospital, Bihar, India. Prior clearance was obtained from the Institutional Ethics Committee. All patients presenting with features suggestive of acute cholecystitis in surgical OPD or emergency during the study duration of 12 months from January 2021 to December 2021 were considered for inclusion in the study. **Result:** Out of 100 patients were recruited for the study, 50 cases in each group. Group 2 patients were investigated afresh for the subsequent operative intervention. The mean age of the patients was 46.1 ± 9.3 years and 49.3 ± 12.4 years in groups 1 and 2, respectively. There was a female predominance observed in both the groups. Wound infection was noted in 10% patients of group 1 and 12% patients of group 2. Biliary leak was found in 19% patients of group 1 and 23% patients of group 2. Mean hospital stay was 8.2 ± 2.2 days and 10.2 ± 5.4 days in group 1 and 2, respectively. **Conclusion:** So early surgery is found to be more economical than delayed surgery in acute cholecystitis if the diagnosis could be confirmed in proper time.

Key Words: Interval Cholecystectomy, Early Cholecystectomy, Acute Cholecystitis

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Introduction

Cholecystectomy is the treatment of choice for patients with acute cholecystitis. If the surgery is performed within 2-3 days of presentation of patient with symptoms of acute inflammation, it is called as early cholecystectomy. This is preferred over interval or delayed cholecystectomy that is usually performed when the acute phase of inflammation subsides and the procedure, that usually takes 6 to 10 weeks after initial medical therapy. Nearly one-fourth of the patients reports back with failed initial medical therapy, the next line of treatment for such patients is surgery during the initial admission or before the end of the planned cooling-off period[1].

In this context, laparoscopic cholecystectomy is the gold standard for the treatment of the cholelithiasis. It is the most common laparoscopic surgery performed across the globe[2]. Many of the previous researchers have advocated early surgery for the treatment with remarkably low mortality and morbidity[3]. Contrary there are surgeons who prefer to wait for the acute phase to subside before jumping to the conclusion[4]. Laparoscopic cholecystectomy is avoided for acute cholecystitis due to concerns about the potential hazards of complications, especially common bile duct injury and a high conversion rate to open cholecystectomy[5].

Elective laparoscopic cholecystectomy has become the gold standard for treatment of symptomatic gallstones[6]. However, in the early days, acute cholecystitis was a contraindication of laparoscopic cholecystectomy, and patients with acute cholecystitis were managed conservatively and discharged for re-admission in order to have

elective surgery performed for the definitive treatment[7, 8].

Then, randomized controlled trials and meta-analyses had shown the benefits of early surgery (within the acute admission period, which is 24 to 72 hours) compared with delayed cholecystectomy with respect to hospital stay and costs, with no significant difference in morbidity and mortality[9, 10]. Thus, in the late 1980s early surgery for acute cholecystitis had gained popularity. The updated Tokyo Guidelines announced in 2013 by the Japanese Society of Hepato-Biliary-Pancreatic Surgery suggested that early laparoscopic cholecystectomy is the first-line treatment in patients with mild acute cholecystitis, whereas in patients with moderate acute cholecystitis, delayed/elective laparoscopic cholecystectomy after initial medical treatment with antimicrobial agent is the first-line treatment[11].

With this background, this study was planned and conducted to generate evidences by comparing outcomes of patients undergoing interval and early cholecystectomy at a tertiary medical college of Bihar.

Methodology

An observational prospective study was conducted by Department of General surgery, Madhubani Medical College & Hospital, Bihar, India. Prior clearance was obtained from the Institutional Ethics Committee. All patients presenting with features suggestive of acute cholecystitis in surgical OPD or emergency during the study duration of 12 months from January 2021 to October 2021 were considered for inclusion in the study. Few diagnosed patients with cholelithiasis were approached. The diagnosis was based on the presence of two of the following four features: abdominal pain characteristic of acute cholecystitis, positive Murphy's sign, total leucocyte count $>10,000/\text{ul}$, and ultrasonographic evidence of acute calculous cholecystitis. Patients with ultra-sonographic findings of common bile duct calculi/pancreatitis/gall bladder perforation/gall bladder

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gangrene/gall bladder abscess or with other associated abdominal pathology were excluded from the study. Patients with any previous abdominal surgery, septic shock, pregnancy/breast-feeding mothers or any significant systemic disease were also excluded. Duly signed written consent forms were obtained from each participant after selection for the study.

During the study period, every alternate patient of acute cholecystitis was selected for early definitive cholecystectomy at the time of admission (Group 1). Rest patients were managed on a conservative regime and discharged thereafter to be readmitted for elective cholecystectomy (Group 2) after 4-6 weeks. In this way, a total of 100 patients were recruited for the study, 50 cases in each group. Group 2 patients were investigated afresh for the subsequent operative intervention.

All patients were subjected to detailed history including, chief complaints, history of present and past illness, personal history, family history, treatment and drug history. Then detailed physical examination like general survey, abdominal examination, other systemic examinations were carried out. The selected patients

underwent baseline investigations. Most patients with uncomplicated acute cholecystitis had leucocytosis. Liver function tests including total serum bilirubin, liver enzymes, and total protein.

Follow-up

Post-operative complications and total duration of hospitalization were recorded. All patients were keenly followed up in surgical OPD. Though some patients had irregular follow up but majority are seen after 2 weeks, 6 weeks, then 6 months.

Statistical analysis

Data was analyzed using SPSS version 20. Descriptive statistics was performed and results have been depicted in forms of tables and figures.

Results

The mean age of the patients was 46.1 ± 9.3 years and 49.3 ± 12.4 years in groups 1 and 2, respectively. There was a female predominance observed in both the groups.

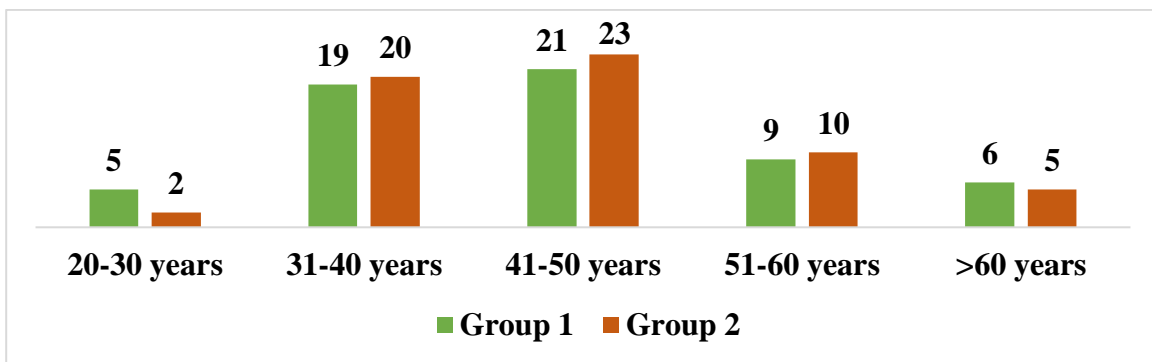


Fig 1: Column showing distribution of study participants according to various age categories

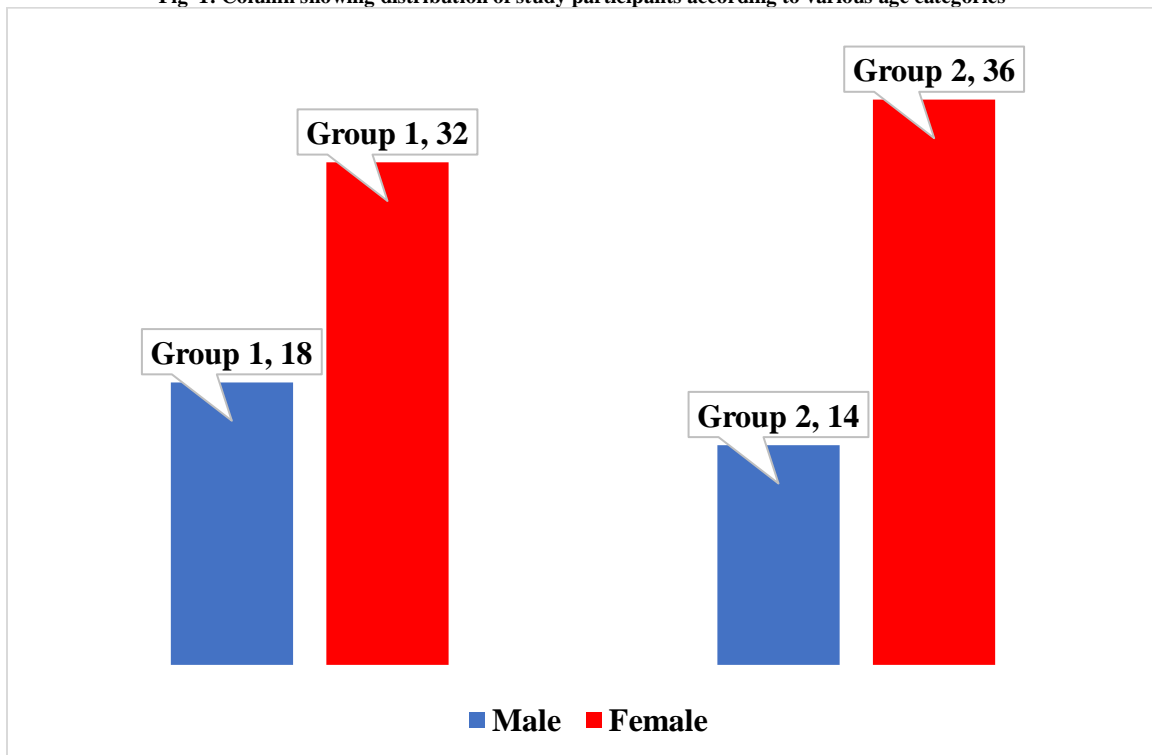


Fig 2: Column showing gender distribution of cases from both the study groups

Laparoscopic cholecystectomy was done in all the 50 cases of Group 1 but in 7 cases it had to be converted to open cholecystectomy due to tight adhesion in the Calot's triangle and empyema formation in 2 cases and gall bladder (GB) wall thickening, omentum adherence to GB and empyema formation in the other. In Group 2, laparoscopic cholecystectomy was done in all the 50 cases but in 9 cases it had to be converted to open cholecystectomy due to GB wall thickening, omentum adherence, mucocoele formation in five cases, empyema formation in one case, Intrahepatic gall bladder in one case and cholecysto-duodenal fistula in two cases for which open cholecystectomy along with Graham's patch repair was done.

On follow-up visits, patients of both the groups were reviewed and any post-operative complication was noted. Wound infection was noted in 10% patients of group 1 and 12% patients of group 2. Biliary leak was found in 19% patients of group 1 and 23% patients of group 2. Mean hospital stay was 8.2 ± 2.2 days and 10.2 ± 5.4 days in group 1 and 2, respectively.

Discussion

The incidence of complication in group 1 and 2 was 22% and 29%, respectively. According to previous researchers, the complication rates are either near to this or even more than this current study [12, 13] but at the same time some have reported lesser incidence of complication [14, 15]. Norrby et al demonstrated that the average time spent in hospital during non-operative stay was 7.2 days [15]. In their studies, the mean post-operative stay was 6.6 days, it was shorter in the early surgery group. The total hospital stay in early surgery group was 9.1 days and that of delayed surgery group was 15.5 days. In another study by Addison et al, found that the number of days between operation and discharge to be approximately the same (elective 12.8, early 13.6) [16]. This agrees with the work of other who claim that there is no increase in the number of days from operation to discharge in the early group compared with the delayed group and the former therefore is more cost-effective. In comparison to above studies, our study showed that the total hospital stay in early group was 8.2 ± 2.2 days and in elective group was 10.2 ± 5.4 days which is statistically significant with p value of <0.05 . The longer stay of elective group in our study might be attributed to the intraoperative difficult fibrotic adhesions at the Calot's triangle leading to high incidence of biliary leak in this group as more time was required to manage this. In our study, there were 19 biliary leaks in Group II and 23 in Group I.

Conclusion

Undoubtedly, the definitive treatment of acute cholecystitis has been cholecystectomy since long. There are different school of thoughts regarding the timing of the surgery/ According to some, patients should be treated non-operatively, allowing resolution of the acute inflammation followed by elective cholecystectomy approximately within 4-6 weeks later. Others claimed that operation should be done as soon as diagnosis is made. It has been seen that there was less wastage of working days in comparison to delayed surgery, as many patients could not be admitted in due time for planned surgery and they had to come to out-patients department many times before admission. So early surgery is found to be more economical than delayed surgery in acute cholecystitis if the diagnosis could be confirmed in proper time.

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