

A Comparative Study of Operative And Post Poperation Results In Early And Delayed Cholecystectomy In A Tertiary Level Hospital.

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Abstract

Introduction: Acute cholecystitis patients present quite often in the surgery department of tertiary level hospitals. The symptoms are mostly due to acute inflammation of gallbladder, mainly because of gall bladder stones. The usual symptoms are upper abdominal pain, vomiting, nausea, tenderness (at epigastric and right upper abdomen), and fever. Acute cholecystitis has been treated by cholecystectomy. The method of cholecystectomy has evolved in the last few centuries from Open to Lap chole and from delayed (elective) to early cholecystectomy. The first successful open cholecystectomy was performed by a German surgeon Carl Langen buch in 1882.¹ Cholecystectomy in acute stage of the disease was performed by an English surgeon Walton in 1923. The introduction of laparoscopic cholecystectomy by Erich Muhe on September 1985 revolutionized the management of patients with symptomatic gallstone disease.²

Materials and Methods: This is a prospective study conducted at The Department of Surgery, M. G. M. Medical College Hospital, Jamshedpur, Jharkhand, India from August 2017 to July 2019, and Medini Rai Medical College (formerly known as Palamu Medical College) Hospital, Palamu, Jharkhand, India from August 2019 to July 2020. A total of 50 cases were selected from cases coming to our institutes for treatment of acute cholecystitis. Early lap chole/open cholecystectomy was performed in 25 patients within a week of onset of symptoms. Late cholecystectomy was done in the other 25 patients, at least 6 weeks after symptoms had subsided.

Results: The findings of two groups were noted for age, sex, and clinical and laboratory results, as well as intraoperative and post-operative complexity. The female: male ratio in early cases was 17:8 patients and in delayed cases it was 18:7 patients. Among the early group 10 patients [40%] underwent laparoscopic cholecystectomy and 15 patients [60%] underwent open cholecystectomy. In the delayed group 9 patients [36%] underwent laparoscopic cholecystectomy and 16 patients [64%] underwent open cholecystectomy.

Conclusion: It was observed that, Early cholecystectomy is safe in defining the anatomy and dissection of Calot's triangle and prevention of bile duct injury. In comparison with the delayed group, the duration of surgery, the hospital stay, and the rate of wound infection, are significantly less in the early group. It was also found that the rate of medical treatment failure and biliary peritonitis was significantly low in early cholecystectomy.

Key Words: Acute cholecystitis, DC, gallbladder

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I. Introduction

Acute cholecystitis patients present quite often in the surgery department of tertiary level hospitals. The symptoms are mostly due to acute inflammation of gallbladder, mainly due to gall bladder stones. The usual symptoms are upper abdominal pain, vomiting, nausea, tenderness (at epigastric and right upper abdomen), and fever. Acute cholecystitis has been treated by cholecystectomy. The method of cholecystectomy has evolved in the last few centuries from Open to Lap. And from delayed (elective) to early cholecystectomy. The first successful open cholecystectomy was performed by a German surgeon Carl Langen buch in 1882.¹ Cholecystectomy in acute stage of the disease was performed by an English surgeon Walton in 1923. The introduction of laparoscopic cholecystectomy by Erich Muhe on September 1985 revolutionized the management of patients with symptomatic gallstone disease.²

In the last few decades, it has been established that laparoscopic cholecystectomy is superior to open cholecystectomy for patients with acute cholecystitis. But the timing of operative intervention is still debated. Two options are available - early cholecystectomy and elective or delayed cholecystectomy. Early cholecystectomy, while variably defined throughout the surgical literature, usually refers to cholecystectomy

performed on the initial admission within 24 hours to 7 days from the onset of symptoms. Johansson et al (2003), Papi et al (2004), Strasberg et al (2008) and Gurusamy et al (2009) in their study consider early cholecystectomy within 7 days of onset of symptoms.³⁻⁶

Other current literature suggests that early laparoscopic cholecystectomy for acute cholecystitis should be performed within 72 hours from the onset of symptoms, defining a rigid 72 hours boundary.⁷⁻⁹ In elective or delayed cholecystectomy, acute inflammation is allowed to settle down for 6-8 weeks prior to the surgical intervention.^{3,4}

Early cholecystectomy has a major advantage of definitive treatment during the same hospital admission. It avoids the problem of failed conservative treatment. Early Cholecystectomy also prevents complication like empyema, gangrene, and perforation. The 2013 Tokyo Guidelines and the Society of American Gastrointestinal and Endoscopic Surgeon (SAGES) guidelines suggest early laparoscopic cholecystectomy within 24-72 hours of diagnosis for patients with acute cholecystitis.¹⁰

The present study is undertaken to compare the effectiveness of early lap/open over delayed (late) lap/open cholecystectomy in acute cholecystitis. The safety, intra-operative complexity, and postoperative morbidity, as well as duration of stay in hospital were compared. At the same time the ease and difficulty for the operating surgeon was ascertained.

II. Materials And Methods

This is a prospective study conducted at The Department of Surgery, M. G. M. Medical College Hospital, Jamshedpur, Jharkhand, India from August 2017 to July 2019, and Medini Rai Medical College (formerly known as Palamu Medical College) Hospital, Palamu, Jharkhand, India from August 2019 to July 2020. Total fifty (50) patients of acute cholecystitis were selected from those coming to our hospitals for treatment of acute cholecystitis. Half of these patients (25) with acute cholecystitis were treated with early lap/open cholecystectomy within 7 days of onset of symptoms, and the other half (25) were treated with interval cholecystectomy at least 6 weeks after they were symptoms free. All the patients were thoroughly examined clinically, and all the required investigation was done, including USG whole abdomen.

Patients between the age group 20 to 60 were included in the study. Those patients with any other comorbidity (cardiovascular or pulmonary) along with cholecystitis and patients on medication like chemotherapy or immunosuppressive drugs were excluded from this study. Patients with Choledocholithiasis were also not included in this study. The patients were selected on random basis.

The patients were diagnosed of acute cholecystitis based on clinical examination, and findings of acute right upper quadrant pain and tenderness, fever and raised total count (> 12000). Ultrasonographic report of thickened, edematous and distended gall bladder, positive sonographic murphy's sign, presence of gallstones (suggested by acoustic shadow) and fluid collection were other criteria used for diagnosis of acute cholecystitis in this study.

III. Results

In this study among early group there were 68% female population in early group and 72% female population in late group. Among male population 32% belonged to early group and 28% belonged to late group. In our study the Female to male ratio in the total patients was 70%: 30% (7:3). This is comparable with other studies as per literature.

Laparoscopic vs Open Cholecystectomy	Early	Delayed	Total
Laparoscopic Count n (%)	10 (40%)	9 (36%)	19 (38%)
Open Count n (%)	15 (60%)	16 (64%)	31 (62%)
Total Count n (%)	25 (100%)	25 (100%)	50 (100%)

Table 1: Treatment Groups

Among the early group 10 [40%] underwent laparoscopic cholecystectomy and 15 [60%] underwent open cholecystectomy. In the delayed group 9 [36%] underwent laparoscopic cholecystectomy and 16 [64%] underwent open cholecystectomy.

In both the Early and Delayed group 40 % had difficulty in identifying Calot's triangle.

As for as bile duct injury (bile leak) is concerned, it was insignificant in this study. Abdominal drain was given in all cases.

Wound Infection in post-operative period: Post-operative wound infections were 4 patients (16 %) in the early group and 3 patients (12%) in the late group. The post opn. wound infection was treated by appropriate antibiotics and dressing. All patients in the study were discharged from hospital after successful treatment.

Laparoscopic vs Open Cholecystectomy	Groups		Total
	Early	Delayed	
No Count n (%)	21(84%)	22 (88%)	43(86%)
Yes Count n (%)	4(16%)	3 (12%)	7 (14%)
Total Count n (%)	25 (100%)	25 (100%)	50 (100%)

Table 3: Postop Wound Infection.

Hospital Stay:

The hospital stay in both the groups was comparable. Early cholecystectomies had a shorter stay, in comparisons to patients who had elective cholecystectomy.

IV. Discussion

Though, present study was very small in size, it brought out significant observations. It is generally believed that initial conservative treatment followed by elective laparoscopic or open cholecystectomy (the old teaching) is no truer. In this study, it was observed that early cholecystectomy had certain advantages over delayed cholecystectomy. The hospital stay was significantly less in early group in comparisons to delayed group. It was shorter by 4-5 days. The difficulty in defining the anatomy of Calot’s triangle was similar in both groups. Inflammation associated with acute cholecystitis creates an edematous plane around the gallbladder. This is helpful in facilitating dissection around Calot’s triangle and its surroundings. Similarly, waiting for the inflammation to settle down allows ease in dissection of Calot’s triangle. But, sometimes the maturation of the surrounding inflammation may result in organization of the adhesions, leading to scarring and contraction in fact makes the dissection more difficult in late cholecystectomy. In our experience, the ease of operating and magnitude of the complication was same in both groups, and it could be reduced with the increasing experience of the surgeon.

The procedural predicament in laparoscopic cholecystostomy is mostly due to operative findings in early surgery. The gall bladder is distended, edematous and may contain infected bile. Hence, the gall bladder may require to be decompressed first for better grasping and retraction. This facilitates good exposure of Calot’s triangle. One of the most common serious complications of Cholecystectomy is bile duct injury. This may be fatal. Reoperation is indicated in these cases.⁸ Missing to identify the common bile duct during surgery, and confusing it with the cystic duct is the most common cause of bile duct injury. Bile duct injury is probably the most important issue in a comparison of both early and delayed groups.⁹ It is prudent to identify the CBD injury during operation and repair before proceeding further. In our study, drain was given in all cases of difficult dissection and suspected of CBD injury. Subhepatic drain was recommended in 45% of the early group patients and 60% of the delayed group patients. Laparoscopic dissection was more difficult in the delayed cases, due to the increase in dense adhesions around the gallbladder after initial conservative treatment and was found to be the main reason for intra-operative difficulty in identifying the Calot’s triangle and bile duct injury.¹⁰

V. Conclusion

In early cholecystectomy, the hospital stay, post-operative morbidity, is undoubtedly lesser. In our study we found that cholecystectomy is possible and at same time safe in cases of acute cholecystitis. It is advantageous in terms of dissection of Calot’s triangle and bile duct injury. The rate of conversion to open cholecystectomy and post-operative morbidity are not higher than in delayed surgery. The duration of surgery is nonetheless significantly shorter in early cholecystectomy, and at the same time reduces the rate of medical treatment failure. The rate of wound infection is all the same less in early cholecystectomy, as compared to the late group. We are of the opinion that, early laparoscopic cholecystectomy by an experienced surgeon is a fair option for treatment of acute cholecystitis. It offers convenience and advantage in reducing the intra operative complications, post-operative morbidity, and prevents biliary peritonitis. A shorter hospital stay and less work day loss is added benefit. Other significant observation in our study was, that acute cholecystitis is more common in females. Early cholecystectomy with proper planning and case selection is economical for the patients of acute cholecystitis.

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