ORIGINAL RESEARCH PAPER

Volume-8 | Issue-6 | June-2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

COMPARISON OF EARLY VERSUS DELAYED LAPAROSCOPIC CHOLECYSYTECTOMY FOR ACUTE CALCULUS CHOLECYSTITIS.

General Surgery

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ABSTRACT

100 patients were randomly divided into early laparoscopic cholecystectomy (group A, within 72 hours) and delayed laparoscopic cholecystectomy (group B, after 6-8 weeks). Both groups were compared on basis of operative time, conversion rate, post operative morbidities, and duration of treatment and hospital stay.69% were female patients and 31% were male patients. The mean operative time was calculated to be 55.4±11.8 minutes in group A and 51.3±9.5 minutes in group B. The rate of conversions was found to be 12% in group A and 8 % in group B and the mean hospital stay was 5.04±1.43 days in the early group and 13.56±2.18 days in the delayed group. Delayed laparoscopic cholecystectomy does not hold significant advantages over early laparoscopic cholecystectomy in terms of operative time, post operative complications and early laparoscopic cholecystectomy is safe and cost friendly and requires shorter hospital stay without increasing morbidity and mortality to the patients.

KEYWORDS

laparoscopic , cholecystectomy

INTRODUCTION

Cholecystitis is defined as inflammation of the gallbladder[1]. It occurs most commonly because of obstruction of the cystic duct from cholelithiasis(gall stones).

Ninety percent of cases involve stones in the gallbladder (ie, calculous cholecystitis), with the other 10% of cases representing acalculous cholecystitis which is associated with biliary stasis, including debilitation, major surgery, severe trauma, sepsis, long-term total parenteral nutrition (TPN), and prolonged fasting.[2]

Risk factors for gallstones include female sex, increasing age, pregnancy, oral contraceptives, obesity, diabetes mellitus, ethnicity (Native North American), rapid weight loss.[3,4]

The most common presenting symptom of acute cholecystitis is upper abdominal pain. It is episodic, occurs after eating fatty foods, leads to nausea and/or vomiting[4]. Two approaches are available for the treatment of acute cholecystitis; the first approach is early [5-8] laparoscopic cholecystectomy (LC) (within 72 hours of presentation) The second approach is conservative treatment which is successful in about 90% of the cases and then delayed cholecystectomy is performed in the second hospital admission after an interval of 6–12 weeks [9].

In the presence of acute inflammation, LC becomes more challenging and difficult because of edema, exudate, adhesions with adjoining structures, distension of gallbladder, friability of tissues, unclear and distorted ductal and vascular anatomy [10], hypervascularity, congestion, and dissemination of infection.

With the advent of LC, the benefits of early surgery have been the subject of some contention [12]. Initial reports suggest early LC for acute cholecystitis is associated with increased complication rates, prolonged operation time, and increased conversion rates (5%–35%) [5. 13-15]. As a consequence, initial conservative management with subsequent delayed or elective LC became accepted practice [10,14,15].

Delayed cholecystectomy potentially increases the chance of further gallstone-related complications [7] during the waiting interval and thus additional hospital admission. Recent evaluation has indicated early LC to be safe option in acute cholecystitis, although conversion to open cholecystectomy rates may be higher [11-13,16-18].

The aim of the present study is to compare the intraoperative and postoperative outcomes, and cost of early versus delayed laparoscopic cholecystectomy for acute cholecystitis.

MATERIAL AND METHODS

1. This comparative randomized prospective study was carried out in the Department Of Surgery in patients attending OPD and Emergency Department in SAROJINI NAIDU MEDICAL COLLEGE, AGRA.

All case were taken from JANUARY 2017 TO JANUARY 2018 including follow up of 1 month. Patient age<18 years with concomitant cholelithiasis and choledocolithiasis , Gall stone pancreatitis, cholecysto-enteric fistula on USG, any history of Coagulopathies or any Previous upper abdominal surgery were excluded from the study. Acute cholecystitis diagnosis was based on a combination of clinical and radiological criteria which include clinical features like acute upper abdominal pain, fever more than 37.5 C, right subcostal tenderness; positive Murphy sign; leukocytosis more than 10,500/mm3, thickened (GB thickness >4mm), edematous and distended gallbladder; presence of gallstones; and pericholecystic fluid collection on ultrasound.

In the early group, laparoscopic cholecystectomy was performed within 72 hours of admission, whereas in the delayed group, it was done after 6-8 weeks. Detail history taking & through clinical examination were done. Investigations including Complete blood count , ESR , S. amylase, S. lipase, Urine routine, microscopy and culture/ sensitivity, Bleeding and clotting time, Prothrombin time, INR, Renal and liver function tests, Blood sugar, Blood grouping and Rh compatability, Serum electrolytes, Serum calcium, HIV & HBsAg & anti HCV antibody, Ultra sound abdomen and pelvis, CT abdomen if and when required were done.After obtaining informed consent, 100 patients were divided into 2 groups including 50 patients in each group by randomization.Laparoscopic cholecystectomy operations were performed by competent trainees under the supervision of a consultant. The patients were operated by the conventional 4-port laparoscopic technique. When required, a conversion to open surgery was performed through a right subcostal incision.

All Cases were compared Pre-operatively on the basis of Age, Sex, total leucocyte count, gall bladder thickness, pericholecystic fluid collection, number of calculi (single/multiple), gall bladder contracted or distended. Intra-operatively on the basis of presence of adhesions, inflammation, Conversion rate to open procedure, Operative time, Blood loss, Requirement for drain placement, CBD/ Bowel injury and Gall bladder perforation marked by spillage of bile and calculi intra-peritoneally and post operatively on the basis of Pain analyzed by VAS (visual analog scale) for 48 hours, Hospital stay in days, Cost of treatment, port site infection, port site hernia, drain related complications such as post-operative biliary collection in drain, prolonged drain in situ.

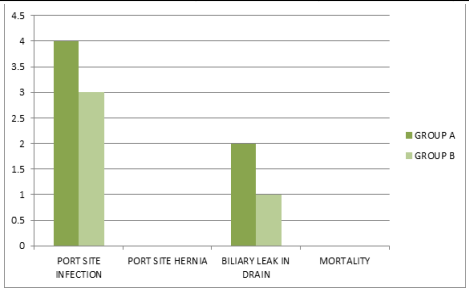
RESULT

On the basis of Age and Sex, both the groups were comparatively similar ruling out any demographic bias. Hematologically, the leucocyte count in Group A was comparatively slightly higher than the other group but significantly indifferent. The average intra-operative blood loss in patients of group A was 66.1±12.5 ml and in Group B was 57.5±10.26 ml which was also statistically insignificant. Both the groups had comparable conversion rate 12% and 8%. The main

parameters where significant difference was noted amongst the two groups were total duration of hospital stay and the resultant cost of treatment. The incidence of intra and post-operative complications were also found to be comparable in our study.

Table 1: Comparison of basis of intra-operative complications and post-operative outcomes in both groups

Group	Group A	Group B	p value
Intra-operative Mean blood loss(Mean+SD)	66.1+12.5 ml	57.5+10.26 ml	0.15
Conversion rate	6/50(12%)	4/50(8%)	0.17
Hospital stay in days (Mean+SD)	5.04+1.43	13.56+2.18	0.01
Post-operative Port site infection	4	3	0.6
Port site hernia	Nil	Nil	-
Biliary leak in drain	2	1	0.46
Mortality	Nil	Nil	-



DISCUSSION

The results of current study show that statistical differences existed in duration of hospital stay between both groups but not in operating time, perioperative difficulties and postoperative complications. This study demonstrated that early cholecystectomy is a safe treatment strategy in patients with acute cholecystitis with comparatively less hospital stay and overall cost.

The average length of hospital stay between two groups was significantly different in this study ($p<0.05$). Khan et al. have reported the mean hospital stay for patients with early surgery group as 10.7 days and 18.2 days in patients with delayed surgery group.[19] The mean duration of postoperative stay was 10.6 days in patients having acute cholecystitis in the series conducted by Chau et al[20]. Ghani et al also mentioned short duration of hospital stay in immediate cholecystectomy group [21]. J haider et al [22] also mentions the same. Hence, average length of hospital stay in our study is comparable to results of these studies which is approximately 5.04 days in group A and 13.56 days in group B. However, mean operating time between two groups was not significant in the present study. This is in contrast to the study conducted by Lo and associates [6]. They encountered longer operative time in patients with early as compared to delayed cholecystectomy. The main argument against early cholecystectomy was the fear of having bile duct injuries as a consequence of technical difficulties due to edematous and inflamed tissues obscuring the anatomy in Calot's triangle.

Kum et al highlighted this fact in their study [23] with the growing experience and knowledge of disease process, early intervention became favorable. This is attributable to edema that provides a plane of cleavage making cholecystectomy less difficult in acute stage, as mentioned by Catani et al in their series [24]. On the contrary, in the prospective study of 402 patients conducted by Norrby et al, no differences were observed in postoperative complications of early and delayed cholecystectomy patients [25]. Similarly, Kolla et al found no significant differences in postoperative complications of early and delayed cholecystectomy patients [24] which is also comparable to the results of this study. On critical analysis of literature [6, 59] it is evident that none of the surgical techniques (early and delayed cholecystectomy) are free of morbidity. Although, these studies show slight variations in the type of complications after both procedures, their frequencies of occurrence are minimal as compared to size of study population. Norrby et al, in their case study of 402 patients, found noticeable hemorrhage in early cholecystectomy group [59]. In contrast, Lo et al encountered hemorrhage in a single patient in the delayed cholecystectomy group[6] They also observed more intra-abdominal collection, bile leak and jaundice in the same group [6]This study reveals slight increase in occurrence of postoperative complications in early cholecystectomy group.

Delayed cholecystectomy has been associated with recurrent attacks of symptoms during waiting periods of scheduled surgery. Lo et al [6] encountered 10-15% of patients having recurrent attacks in their study. In our study, none of the patient turned up with recurrent bouts of same symptoms in interval cholecystectomy group.

Our conversion rates of 12% and 8% in group A and group B contrast favorably with those stated in the literature which range from 4-30%[9, 46, 50]. Most recent studies have failed to prove an increase in conversion rate when laparoscopic cholecystectomy is done during the index admission compared to interval laparoscopic cholecystectomy[25].

Bile duct injury is the most feared complication during cholecystectomy and can be fatal [26]. Corrective surgery for bile duct injury has a high morbidity rate and is not without mortality [26, 27]; quality of life can be poor even 3 years after corrective surgery [28]. Cholecystitis has been considered as a risk factor for bile duct injury [29] Observational studies have suggested a larger number of bile duct injuries [30] with early surgery, but in our study, no cases of bile duct injury were reported.

CONCLUSIONS

Delayed laparoscopic cholecystectomy does not hold significant advantages over early laparoscopic cholecystectomy and early laparoscopic cholecystectomy is safe, cost friendly and requires shorter hospital stay without increasing morbidity and mortality to the patients.

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