Research Article

Outcome of Same Admission Laparoscopic Cholecystectomy for Acute Cholecystitis in A District Hospital

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Abstract |

Back ground. The treatment of acute cholecystitis has been extensively discussed in the literature. It has evolved through various stages of conservative management to surgical management from open to laparoscopic cholecystectomy and from delayed to early laparoscopic cholecystectomy.

Objective: To measure the outcome of same admission laparoscopic cholecystectomy for acute cholecystitis in terms its feasibility and safety in a district hospital.

Methods: Total 300 patients (male & female) of acute cholecystitis excluding those patients with choledocholithiasis, upper abdominal surgery, and cardiopulmonary disease were underwent same hospital admission laparoscopic cholecystectomy in District Hospital Gujranwala from August 2015 to August 2018. Four ports technique for Laparoscopic cholecystectomy was used. The collected data included age, sex, diagnosis, and operative time, conversion to open cholecystectomy, operative complications and post-operative stay.

Result: laparoscopic cholecystectomy was performed in 300 patients. P value < 0.05 was considered statistically significant and appropriate statistical tests of significance were applied. out of these 285(95%) and 15 (5%) patients were converted to open cholecystectomy because of troublesome dissection in Callot's triangle, perforated gall bladder, bile duct injury and di cult to control bleeding in operative area. Mean laparoscopic surgery time was 1.4 hours. There were minor wound infection in all converted cases but none in cases of laparoscopic cases with postoperative stay in the range of 1-3 days. There was no mortality in this study

Conclusion: Same admission laparoscopic cholecystectomy was found safe and feasible in acute cholecystitis in peripheral district hospital by surgeons who have reasonable previous experience of elective laparoscopic cholecystectomy and should be their first choice for acute cholecystitis

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Introduction

Gallstones is a common human surgical disease a ecting both sexes. one of sequel of Gallstones is acute inflammation categorized as acute cholecystitis. The treatment of acute cholecystitis has been extensively discussed in the literature. It has evolved through various stages over the last so many years. These stages of emergence of treatment were initially conservative management, then delayed open cholecystectomy, then delayed laparoscopic cholecystectomy. Available data suggests that cholecystectomy is

the final treatment for acute cholecystitis, however its timing depends on degree of a severity of acute cholecystitis in each patient and the expertise of operating surgeon. In September 1992, laparoscopic cholecystectomy was declared as the treatment of choice for cholelitiasis in a health conference held in Bethesda and it is now one of the most commonly performed procedures in general surgery.[1] However, the timing of laparoscopic cholecystectomy for acute cholecystitis is still under controversy. Previously Delayed laparoscopic cholecystectomy for acute cholecystitis was mainly performed after resolution of acute inflammation in nearly all cases of acute cholecystitis but subsequently various studies conducted on the safety and e ectiveness of early laparoscopic cholecystectomy for Acute cholecystitis accepted the advantages of early approach in these cases .Now early laparoscopic cholecystectomy is gaining increased acceptance and although the laparoscopic cholecystectomy within 72 hour of acute cholecystitis is the recent trend across the world but still the rate of early laparoscopic cholecystectomy is low.[2]

In countries like Pakistan, where government hospitals are overworked, Imran Javed[3] advised to take some steps to increase turnover of patients having acute cholecystitis and cost e ectiveness of its surgical treatment and gave recommendations for early cholecystectomy in acute cholecystitis. In this context A. J. Sutton[4] suggested taking step of doing emergency laparoscopic cholecystectomy for acute cholecystitis to be Cost-e ective. Accepting this advice Sajid[5] preferred Early laparoscopic cholecystectomy within 72 hours for acute cholecystitis and recommended it to be adopted by others in similar set up, but Serti[6] mentioned early cholecystectomy even within 7 days of admission with acute calculous cholecystitis to be safe and feasible.

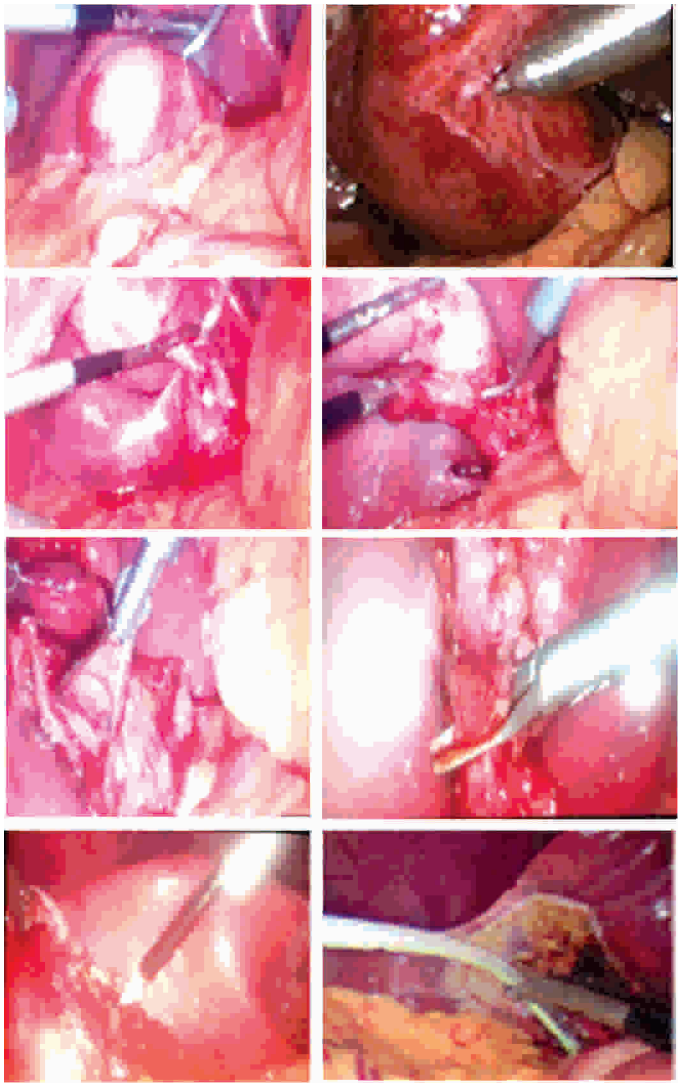
Although the facility of laparoscopic surgery is available in most of peripheral hospital in Pakistan but even qualified surgeons are still practicing delayed cholecystectomy after resolution of acute stage in district hospitals. It is the need of time that with Technical maturation and advances in laparoscopic instrumentation surgeon working in these peripheral hospitals should upgrade their laparoscopic skills raising the question whether early cholecystectomy for acute cholecystitis is feasible and safe in district hospital so this interventional experimental study was conducted to measure outcome of same hospital admission laparoscopic cholecystectomy for acute cholecystitis in terms of its feasibility and safety in a District Hospital of Gujranwala.

Material & method

This interventional experimental study (quasi experimental) was conducted at department of surgery, Gujranwala medical college, District Hospital Gujranwala. Out of the patients, who came in emergency / outpatient department of the hospital with upper abdominal pain from August 2015 to August 2018, three hundred (300) were diagnosed as having acute calculous cholecystitis on the basis of abdominal pain with fever >101oF, white blood cell count $>12 \times 10^9$/L, and Ultrasound findings of acute calculous cholecystitis of grade one in nature and were included in the study. While patients having[(1)] Acute Acalculous cholecystitis[2] Obstructive jaundice,[3] associated pancreatitis,[4] Other co-morbid diseases were excluded from the study. The main operational definitions were feasibility and safety of the same admission laparoscopic cholecystectomy in district hospital in terms of total operation time, per operative complications, the number of cases for successful completion of procedure, number of cases for conversion to open cholecystectomy, post-operative complications and the results were compared with results given in various studies in literature.

Patients' age and sex were recorded. Laparoscopic cholecystectomy was carried out by same group of surgeons with suitable intravenous antibiotics cover used pre and post operatively. All the patients underwent four ports techniques (two 10 mm ports for sub umbilical site and epigastric site while two 5 mm ports both on right side one in anterior axillary line and one in subcostal mid clavicular line). An initial Needle decompression of the gallbladder was performed whenever necessary. The dissection was started at Calot's triangle and assisted with hydro dissection. Operative cholangiogram was not performed due to its non-availability in our setup. The cystic duct and artery was clipped. After dissecting the gallbladder from the liver, a drainage tube was placed in gall bladder fossa. The gallbladder was delivered through the epigastric port site. Conversion to open cholecystectomy was made via a right subcostal

incision with sound clinical judgment of di culty in proceeding further. Removed gallbladder specimens were routinely sent for histological confirmation of acute inflammation.



Steps of Laparoscopic Cholecystectomy

Patients' operative time, per operative complications like Bile duct injury, visceral injury, excessive bleeding, switch rate, and postoperative complications, duration of postoperative hospital stay and

Mortality were recorded. Ethical permission for the study was obtained from ethical review board of the hospital.

Data Analysis

The collected data was analyzed by SPSS Statistics v.2o. Proportions were described for categorical variables while P value was obtained with Chi-square test for categorical variables and Mann-Whitney U test for continuous variables. Continuous variables were used for multivariate analysis. Variables with a P value of < 0.05 were considered statistically significant. A linear regression was used to analyses risk factors for conversion to open cholecystectomy at 0.05 significance level.

Results

Laparoscopic cholecystectomy was performed in all three hundred (300) patients. There were 50 males and 250 females with a mean age of 43 years. Successful completion of laparoscopic cholecystectomy was achieved in 285 patients. There were 15(5%) Conversion rate from laparoscopy to open cholecystectomy as determined by multivariate analysis, while analysis of the factors associated for conversion to open cholecystectomy revealed it due to uncertain anatomy and di cult dissection in region of callot's triangle[9], gangrenous or perforated gallbladder[3] and per operative excessive bleeding[3] (OR 0.19; 95% CI p:0. 016). The mean surgical time was 84.3 minutes (60–120 minutes) which was not statistically significant between early and delayed approach while per operative complications were minor bile leak from liver bed in 6 cases (2%) and major bile duct injury in 3 cases (1%), three (1%) major vessel injuries with significant blood loss. Minor wound infection was present in 12 (4%) cases of conversion in nature with mean post- surgical duration of 1.5 days (1–3 days) which was not statistically significant. There was no mortality and no drop out case in this study

Table 1: *Operative Complications*

Complications	Number (%)
Bile leak from liver bed	6 (2%)
Common bile duct injury	3 (1%)
Major Bleeding	3 (1%)
Conversion rate	15 (5%)
Wound infection	12(4%)
Hospital stay	1-3 days

Discussion

This study found encouraging results with same hospital admission laparoscopic cholecystectomy for Acute Cholecystitis in our District hospital Gujranwala and found it feasible and safe.

The suitable and safe timing of surgery for patients having acute cholecystitis has been a topic of

discussion in the past and still it is researched at places. Previously these patients were routinely managed non-operatively with the objective of settling down the inflammation initially and then doing elective cholecystectomy later on usually after six weeks either with open or laparoscopic technique depending upon the hospital facilities and surgeon expertise. We started this study with belief in quoting by other researchers that laparoscopic cholecystectomy is the gold standard for the management gallbladder stones. Most of Previous studies compared early laparoscopic cholecystectomy with delayed laparoscopic cholecystectomy for acute cholecystitis in terms of quality of life, cost-e ectiveness, and safety[7] in most of centers, but still major concerns are its timing, safety and feasibility particularly at smaller peripheral public hospitals.

As our district hospital is a medium sized hospital with less trained laparoscopic surgeons, our study we focused on measuring the outcome of same hospital admission laparoscopic cholecystectomy for acute cholecystitis in terms of its feasibility and safety at our setup. In this regard we have not done laparoscopic cholecystectomy for our acute cholecystitis within first 24 h of admission and found it e ective in all of our cases in a sense that this time was spent in getting necessary investigations and excluding patients with other comorbid conditions however we followed 72 h time frame for our case in anticipation to avoid increasing di culty with formation of adhesions in gall bladder area and found this safe strategy. In our study there were fifty males n=50 (17%) and two fifty females n=250 (83 %) showing the increasing proportion of male patient with acute cholecystitis due to gall stones this increased trend for male patients which was also documented by Vaibhav[8] this may be due to increasing trend of weight reduction and use of anti-cholesterol treat-ment by these patients.

Our total surgical time was 84.3 minutes (60–120) this was more in first two years and reduced time in last 12 months this is quite comparable to others[9,10] which also had increased operative time for their early laparoscopic cholecystectomies but in our study we were able to reduce it by at least 20 minutes possibly due to increase confidence, practice and gaining more skills. We were successful in completing in two eighty five (95%) with no untoward e ects while fifteen cases (5%) were converted to open cholecystectomy. The reasons for conversion in our study were uncertain anatomy and di cult dissection in region of callot's triangle,[9] gangrenous or perforated gallbladder[3] and bleeding[3] as com-pared to study by Petra Maria[11] where it was more in their Male patients, High age, and patients with diabetes and high C-Reactive Protein level. This di erence is may be because of more selective inclusion of cases according to preset criterion. This conversion was initially a slightly higher but in last 1oo cases only one patient was converted to open cholecystectomy this was mainly due to purchase of new instrumentation and gaining more technical mastery has made it possible for us to execute safe laparoscopic cholecystectomy. We had minor bile leaks from liver bed in six cases (2%) which were managed successfully with insertion of drainage tube in sub hepatic area for 1-2 days while we had three cases (1 %) of major bile duct injury among which two were of clips applied to common bile duct and one was a minor cut into common bile duct in region of cystic duct, both injuries were managed success-fully without untoward e ects with conversion to open by removal of clips and "T" tube insertion this is quite di erent from Peter[12] where there was no Bile duct injury with early laparoscopic cholecystectomy for their patients with acute cholecystitis. Regarding post-operative complications we faced minor wound infection and all these cases were of converted in nature which were managed successfully with repeated dressing and suitable wound care while we had hospital stay in the range of 1 to 3 days which was matching with other studies[13] so it was not statistically significant. There was no Mortality (0 %) in the present study as compared to others[14] which reported it to be 0.7–1.1% in his study

Our experience of managing gallstone disease with laparoscopic cholecystectomy during the same admission shows that this approach provides better, safer, and more cost-e ective patient care. In our study we have adopted the approach of withholding our surgery in first 24 hours for more strict evaluation for inclusion or exclusion of our cases.

We think that surgeons who are doing delayed laparoscopic cholecystectomy for acute cholecystitis should perform Laparoscopic cholecystectomy during the same hospital admission, within 72 hours

after onset of symptoms in next available elective list to get benefit of 24 -72 h after hospital admission and we support Ainul Hadi[1)] in taking initiatives to take this step to increase turnover of our patients with repeated hospital visits and decreasing burden on our waiting list for elective cholecystectomy

Conclusion

Same admission Laparoscopic cholecystectomy for acute cholecystitis is feasible and safe at peripheral district hospital with very low per operative complications, very low conversion rate, short post-operative hospital stay and no mortality.

Ethical Approval: Given
Conflict of Interest: None
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