



EARLY VERSUS DELAYED LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS:- AN OBSERVATIONAL STUDY

Surgery

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ABSTRACT

Background- The Laparoscopic surgery has opened a new era in the field of surgery. It is accepted as gold standard in the treatment of Acute Cholecystitis. In daily ward duties at our hospital, we encounter a number of cases of acute cholecystitis. The present study is an attempt to compare the early versus delayed laparoscopic cholecystectomy in acute cholecystitis patients.

Aim Of The Study- To compare the intra and post operative complications and duration of hospital stay in early and delayed Laparoscopic Cholecystectomy done for Acute Cholecystitis.

Method- A comparative prospective study conducted in department of general and laparoscopic surgery vimsar ,burla from December 2018 - November 2020, in which 200 patients were taken ,out of which 100 were under gone early Laparoscopic Cholecystectomy and rest 100 were undergone delayed Laparoscopic Cholecystectomy.

Discussion- In early group mean duration of surgery was 127.30 min and in delayed 91.5min. In early cholecystectomy the ease of surgery was found in 88% cases. Post operative complication like wound and respiratory infection was 18% cases and in delayed in 6% cases. Mean duration of hospital stay in early Cholecystectomy was 3 days and in delayed was 5 days..

Conclusion- Early laparoscopic Cholecystectomy is better than delayed laparoscopic Cholecystectomy .

KEYWORDS

Acute Cholecystitis, Early Laparoscopic Cholecystectomy, Delayed Laparoscopic Cholecystectomy, Conversion Rate

INTRODUCTION

- The Laparoscopic surgery has opened a new era in the field of surgery. It is accepted as gold standard in the treatment of Acute Cholecystitis .
- Early Laparoscopic Cholecystectomy performed within 72 hours of onset of disease while delayed Laparoscopic Cholecystectomy performed after 6-8 weeks.
- Initially surgeons were hesitant to do laparoscopic Cholecystectomy in early cases for fear of injury to calot's triangle due to inflammation and edema leading to difficulty in identification of important structure. Safety of procedure is enhanced with dissection technique of creating open window of dissection, the flag movement, and retrograde dissection technique.
- Injury to the common bile duct has decreased with experience but the incidence of lost gall stone has been still unchanged.

In daily ward duties at our hospital, we encounter a number of cases of acute cholecystitis. The present study is an attempt to compare the early versus delayed laparoscopic cholecystectomy in acute cholecystitis patients

AIMS AND OBJECTIVES

Primary Objectives

To compare the intra operative and post operative complications and duration of hospital stay in early and delayed laparoscopic cholecystectomy in acute cholecystitis.

Secondary Objectives

- To evaluate safety and feasibility of early and delayed laparoscopic cholecystectomy.
- To know the conversion rate to open surgery.

MATERIALS AND METHODS

- Place of study-** Dept. of Gen. Surgery, Veer Surendra Sai Institute of Medical Sciences and Research, Burla, Odisha.
- Period of study-** December 2018-November 2020
- Study design-** Hospital based Observational Prospective study
- Study variable-** Age (in years)
Sex (m/f)
Operation time (in hours)
Intra-operative complications

post-operative complications
Conversion rates (in percentage)
Duration of hospital stay (in days)

Study Population-

The present study regarding early and delayed laparoscopic cholecystectomy in acute cholecystitis was undertaken in the Department of Surgery, VSSMCH, Burla Odisha over a period of two years from December 2018 to November 2020.

Inclusion Criteria

Patient admitted to Department of Surgery VIMSAR with acute Cholecystitis with or without gall stone.

Cases are taken irrespective of age and sex.

Exclusion Criteria

Contracted gall bladder with variable wall thickness >5 mm (suspected Carcinoma Gallbladder)

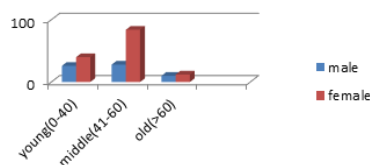
Patient with ischemic heart disease, chronic renal failure, Diabetes mellitus, pregnancy.

Patients with CBD stone, pancreatitis, previous abdominal surgery and anomalies in extra hepatic biliary duct. Such patients were kept out of study as these conditions may itself be responsible for post operative morbidity and mortality.

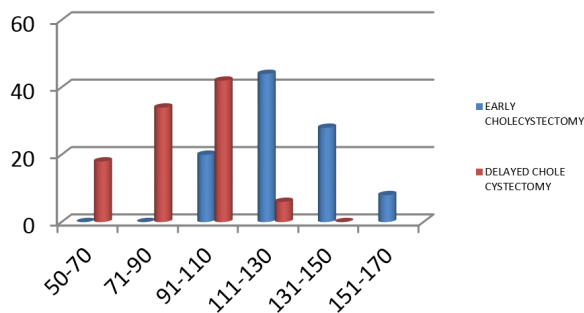
After exclusion of patients with above mentioned conditions, the rest of patients were undertaken for study.

OBSERVATION AND RESULTS

Total 200 patients including 116 females and 64 males are studied who were admitted to Department of General Surgery, VIMSAR, Burla from December 2018 to November 2020.



Age and Sex Distribution



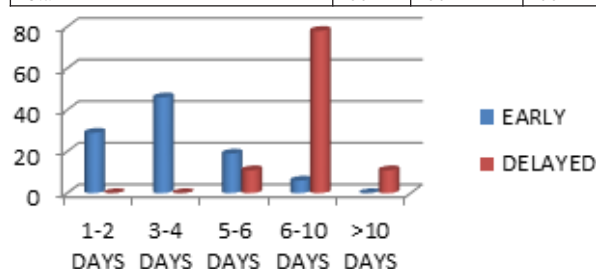
Duration of Surgery (in min)

Ease At Dissection

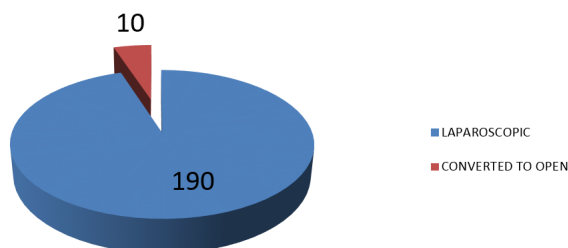
Method	Early	Delayed	Total
Retrograde	84	68	160
Fundus/Partial Cholecystectomy	16	32	40
Total	100	100	200

Post-operative Complications

Post-operative complications	Early	Delayed	Total
Absent	86	95	181
Present	14	5	19
Total	100	100	200



Total Duration Of Hospital Stay

**Method of Cholecystectomy**

Most (56%) patients were recorded in middle age group (40-60 years). The mean age of male was 46.62 years and that of female was 44.45 years. The youngest female was 25 years old and youngest male was 24 years old. The oldest female was 65 years and oldest male was 76 years old.

Risk factors for acute cholecystitis in our study were low fibre diet (64%), obesity (32%), haemolytic disease (13%) and high socioeconomic status (12%). In our study 69.8% females were multiparous and 32.7% females were on oral contraceptive pills.

Clinical features of patients of acute cholecystitis were pain (100%), vomiting (71%), fever (36%) and jaundice (18%). On abdominal examination, these patients had Murphy's sign (67%), Boas's sign (19%) and gall bladder was palpable in 20% of cases.

In our study, 40% patients were anaemic and 52% patients had leukocytosis. Sickling test was positive in 13% cases. There was hyperbilirubinemia in 31% patients and hypercholesterolemia in 16% patients.

On ultrasound of abdomen, it found thickened gall bladder wall (100%), multiple stones (52%), solitary stone (28%), two stones (20%) and pericholecystic collection (16%).

DISCUSSION

The mean duration of surgery in early group is 124.77 min and in delayed group is 90.76 min. The duration of surgery in patient who underwent early cholecystectomy was more compared to patients who underwent delayed cholecystectomy and it is statistically significantly value <0.001 . A case controlled study by Poole GH and Yellapus (2000)², revealed that duration of early cholecystectomy was more than delayed one.

In our study surgeons doing early cholecystectomy found themselves at least most of the time as the gall bladder, the cystic duct and the cystic artery were edematous and hence identified and dissected easily in 84 (84%) cases. Only in 16 cases, there was inflammatory oedema, where the surgeons had to approach by 'fundus first' method. In delayed surgery group the Calot's triangle could be dissected with ease in 76 (76%) cases but in rest 24 (24%) cases, due to dense fibrosis partial cholecystectomy and fundus first method was done. Surgeons were more at ease while dissecting during early cholecystectomy. The p value of ease at dissection is 0.001 which is <0.05 , so it is statistically significant.

AvinashSupe et al (1996)⁹, Vander Linden (1981)⁵, Addison NV et al (1988)⁸, showed that dissection was easy in early cholecystectomy. This is because the oedema of gall bladder provided a plane of cleavage for dissection.

There was no major intra-operative technical complications like injury to bile duct, hepatic artery, portal vein or bowel in early cholecystectomy surgery group which is similar to study of Ozkardes AB¹⁴, Tokac M. Et al (2014)¹.

Post-operative complications like wound and respiratory infections were more in patients who underwent early cholecystectomy that is in 14 (14%) cases and in delayed cholecystectomy it is in 5 (5%) cases. The p value of post operative complication is 0.008 which is <0.05 so it is statistically significant. Many authors have noticed more post-operative complications in early cholecystectomy for acute cholecystitis like Noguchi Y et al (2005)⁵ and Francisco JJ, Jesus PP et al (2009)⁴, Ozkardes AB¹⁴, Tokac M et al (2014)¹ and this is the only disadvantage in early surgery group but these complications are not that much serious that emergency surgery should not be taken up.

Mean duration of hospital stay in early cholecystectomy group was 3.52 days and in delayed cholecystectomy group was 8.30 days. Hospital stay was significantly higher in delayed surgery group compared to early surgery group. The p value of total duration of hospital stay is <0.001 which is statistically significant.

Ohta M, Iwashita Y, Yada K, et al (2012)⁶ also showed that there was less duration of hospital stay in different group of early Cholecystectomy group. Condills N et al (2008)⁷ found shorter duration of total hospital stay in early cholecystectomy study group. In early laparoscopic Cholecystectomy, conversion rate from laparoscopic surgery to open surgery was 3% and in delayed laparoscopic Cholecystectomy, conversion rate from laparoscopic surgery to open surgery was 7%. Catarci M, Papi C et al (2007)¹⁰ showed the results of a randomised controlled trial comprising early laparoscopic cholecystectomy (ELC) after admission with delayed laparoscopic cholecystectomy (DLC) that performing the surgery early was superior in terms of a lower conversion rate to open surgery and shorter total hospital stay.

Yamashita Y, Takada T, Kawarada Y, et al (2007)¹¹ and Gourgietis S, Dimopoulos N et al (2007)¹² in their controlled trial found less duration of hospital stay in early cholecystectomy group. Vander Linden W, Edlund G (1981)¹³, in their controlled trial found that early cholecystectomy leads to more rapid recovery and less time is required in hospital stay. A case controlled study by Poole GH and Yellapus (2000)² also revealed the same result.

No mortality was recorded in our study, but mortality of various range are reported by various authors in the range of 5-10% particularly in patients above 65 years.

On comparing the results of early cholecystectomy and delayed cholecystectomy group, it was found that the duration of surgery in patients of early cholecystectomy was more compared to patients of delayed Cholecystectomy, surgeons were more at ease while

dissecting during early Cholecystectomy, post-operative complications were more in patients who underwent early cholecystectomy as compared to patients of delayed Cholecystectomy.

CONCLUSION

Both early and delayed laparoscopic cholecystectomy is possible and safe in the treatment of acute cholecystitis. However early laparoscopic cholecystectomy is associated with a longer operating time and more post operative complications but it offers definitive treatment during the same hospital admission and avoids problem of failed conservative management. Furthermore, reduction in the total hospital stay is associated with major economic benefit to both the patients and health care system with early laparoscopic cholecystectomy. So we conclude that early laparoscopic cholecystectomy should be performed for patients with acute cholecystitis.

REFERENCES

1. Patric G. Jackson, Biliary System, Sabiston, Text book of surgery, 19thEdn. 2012, 1476-1514.
2. Bobs JS, Case of lithotomy of gall bladder. Trans. Indian. Est. of Medical Soc. 18:68, 1868.
3. Den Hoed, P.T., Boelhouwer R.U., Veen, H.F., Hop, W.C. and Bruining H.A. (1998). Infections and bacteriological data after laparoscopic and open gall bladder surgery. J. Hosp. Infect. May; 39 (1) 27-37.
4. Papi C.; Catarci M., D'Ambrosio L., Gill L.; Koch M., Grassi GB, Capurso L. Timing of cholecystectomy for acute calculouscholecystitis: a meta-analysis. Am J Gastroenterol, 2004 Jan; 99 (1): 147-56.
5. Vander Linden W et al: Early versus delayed operation for acute cholecystitis, A controlled clinical trail; Am. J. Surg. 1970; 7:13.
6. Norby S., Herlin P. et al: Early or delayed cholecystectomy in acute cholecystitis? A clinical trail: Bt. Jr. Surg. 70: 163-165, 2004.
7. Deepak D, Manish et. al; Gall stone disease and its correlation among patients attending teaching hospital North India. Ifmpc: vol-18,189-193. 2019.
8. Omar S. Khattab; Outcome of Laparoscopic Cholecystectomy in acute and chronic cholecystitis; Fac Med Baghdad 2010; 52 (3), 2010.
9. Shireen A.A Ramzanali et al; Comparison of Operative Time and Length of Hospital Stay in Laparoscopic Cholecystectomy in Acute verses Chronic Cholecystitis; J Ayub Med Coll Abbottabad 2015; 27 (1): 102-4.
10. Ahmad I: Cholecystectomy in acute cholecystitis, JPMaj Pak. Mad. Assoc. 42 (5): 112-5, 1992.
11. Saber A, Hokkam E.N.; Operative Outcome and Patient satisfaction in Early and Delayed Laparoscopic Cholecystectomy for Acute Cholecystitis.;Hindawi pub House, 162643 (2014),Aug 2014. Website: <http://dx.doi.org/10.1155/2014/162643>.
12. Jamil M, Niyaz K, Ch TH, Ali A, Saeed S; Laparoscopic Cholecystectomy for acute Cholecystitis: Early verses Delayed; Rawal Med Jou, 2(39),199-202, Apr-Jun 2014.
13. Lennert KA et al: Therapy of acute cholecystitis-importance of early operation. Langenbecks Arch Chir Suppl IL VerhDtschGesChir: 1210-1, 2003.
14. Ozkrdes AB, Tokac M., Dumlu EG, Bozkurt B, Ciftci AB, Yetisir F., Kilic, M: Early versus delayed laparoscopic cholecystectomy for acute cholecystitis: a perspective randomized study; 2014 Jan-Feb; 99 (1): 56-61. Doi : 10.9738/INTSURG-D-13-00068.