

A study on post-surgical outcomes among patients admitted for open cholecystectomy with and without drain

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Abstract

Background: Cholecystectomy is the removal of gall bladder and is mainly performed for symptomatic gall stones. Drainage in open cholecystectomy is a matter of considerable debate.

Aims & Objectives: To compare post-surgical complications among patients of open cholecystectomy with and without drain.

Material& Method: A prospective study was conducted in tertiary care centre of western region among 100 patients of chronic calculous cholecystitis. The patients were randomly equally divided into two groups. A written informed consent was obtained from all patients. Data analysis was done using appropriate software.

Observation: The mean age of patient in with drain group was 43.52 ± 13.871 years and without drain group was 47.62 ± 13.260 years. The highest incidence was in 5th decade. Wound infection was noted in 5 (10%) patients on with drain and 2 (4%) patients without drain group. The mean hospital stay in drain group was 7.64 ± 1.17 days and patients without drain group was

5.5 ± 1.61 days. None of patients experience chronic abdominal pain after 6 months duration.

Conclusion: This study concluded that there is no difference in post-operative wound infection and chronic abdominal pain in with and without drain group. Therefore, in patients undergoing elective open cholecystectomy keeping drain can be avoided as it does not provide any additional advantages.

Keyword: Chronic Cholecystitis, Cholecystectomy, Chronic Abdominal Pain, VAS Scale, Sub Hepatic Collection.

Introduction

The prevalence of gallstone varies widely in different parts of the world.¹ In India its prevalence was estimated to be 4%. An epidemiological study restricted to rail worker showed that north Indians have 7 times higher occurrence as compared to south Indian peoples.² Gall stones are composed mainly cholesterol, bilirubin and calcium salts, with smaller amount of protein and other materials.³ Cholecystectomy is the removal of gall bladder and is mainly performed for symptomatic gall stones.⁴ The patients mainly complaint

of intermittent pain below right ribcage, pain might be radiate to the back and to the shoulder blades. Nausea, with or without vomiting, dyspepsia might be present. These attacks may be separated by weeks, months or even years. Once a true attack occurs, subsequent attacks are much more likely.⁵⁻⁶ There were some invasive and non-invasive treatment available for gall stones.⁷ Cholecystectomy is the commonest operation of biliary tract and second most common operative procedure performed today.⁸ The whole gall bladder is removed not because it contains stone, but because it forms them.⁹ Studies suggest that delaying elective cholecystectomy until repeated episodes of pain occur results in a minimal decrease in life expectancy.¹⁰⁻¹¹ Although cholecystectomy is currently preferred over open cholecystectomy for elective cholecystectomy, reports of randomised control trials comparing the choice of cholecystectomy (either open or laparoscopic) are still being conducted.¹²⁻¹³ Cholecystectomy without drainage was introduced in Germany in 1913 as stated by Spivek and referred to as Ideal cholecystectomy.¹⁴ Prophylactic cholecystectomy can also be recommended in specific groups or certain conditions.¹⁵⁻¹⁶ Various studies conducted in different part of world were mentioned that drains increase the harm to patient without providing any additional benefits for the patients undergoing open cholecystectomy. It can easily be avoided in open cholecystectomy.^{4, 17-20} Open cholecystectomy is commonly performed in this institute. Drainage in open cholecystectomy is a matter of considerable debate. Surgeons use drains primarily to prevent subhepatic abscess or biliary peritonitis from undrained bile leaks. Whereas critics of drain condemn the use of drain as it increases the wound and chest infection. Studies have shown that usage of drain in

open cholecystectomy is not free of complication like wound infection, drain fever, biliary peritonitis and subhepatic abscess. With this back ground this study was conducted to compare benefits and harms of open cholecystectomy with and without drain.

Methodology

A prospective comparative study was conducted in tertiary care centre located in western region with primary diagnosis of chronic calculous cholecystitis and who undergo elective open cholecystectomy will be taken for this prospective study. The study duration was one from 1st July 2017 and 30th June 2018. All cases coming with chronic calculous cholecystitis undergoing elective open cholecystectomy were included in study. Sample size of study was 100. Patients with acute cholecystitis, acalculous cholecystitis, calculus cholecystitis associated with complication like pyocoele, obstructive jaundice etc, Gall bladder polyps and carcinoma and cholecystectomy with CBD exploration were excluded from study. The patients fulfilling the inclusion and exclusion criteria were included in study after obtaining informed consent. All patients were undergone through detailed history, thorough clinical examination and USG abdomen, the diagnosis of chronic calculous cholecystitis was made. These patients were subjected to the required preoperative investigations, after ensuring fitness for surgery, elective open cholecystectomy was performed. Patients then divided into with or without drain group based random number table, here number was taken as there IPD number. Each case was then analysed with respect to post-operative complication like wound infection, biliary peritonitis, subhepatic collection/abscess, post-operative pain and hospital stay. Each patient will be followed up in the OPD after 1 month, 6 months and 12

months with regard to chronic abdominal pain. A pretested semi-structured questionnaire was used to collect relevant information (patient data, clinical findings, lab investigations, follow up events etc.) from all the selected patients. Confidentiality is maintained at each and every step. The objective and goals of the study were fully explained to patient and an informed consent was obtained. This study was approved from institutional ethical committee. All information was entered and tabulated in Microsoft office excel. Descriptive statistical analysis was employed to describe data for frequencies, percentage, ratios, range and mean value with one standard deviation. Analysis was done with help of SPSS software version 16. Statistical analysis was performed using the chi square test or student t test as applicable. Statistical significance was defined if the p value was less than 0.05.

Result

The study was conducted from July 2017 and June 2018 in tertiary care centre located in western region. All patients with primary diagnosis of chronic calculous cholecystitis were subjected to open cholecystectomy and were alternatively divided into drain and without drain group. The most affected age group of cholecystitis is 41 – 50 years with 35 (35%) cases followed by 31-40 years, with 23 cases (23%). The youngest patient in this study was 17 years and oldest age 78 years. 76 patients were female out of which 37 were from with drain and 39 patients in without drain group. 13 patients in drain group were male and 11 male patients in without drain group. After surgery all patients were undergone through post-operative complication assessment. VAS scale is used for post-operative pain assessment. In with drain group, 26 (52%) patients were in G3 category while in without

drain group 26 (52%) patients in G2 group. The difference in each group was statistically significant. In drain group, 5 patients have post-operative wound infection while in without drain group only 2 patients had wound infections. Post-operative sub hepatic fluid collection was less in without drain group as compare to with drain group. In with drain group, on 3rd day mean fluid collection was 46.90±11.948 ml which was reduce to 19.50±6.94 ml on 7th day. In without drain group, on 3rd day Mean fluid collection was 37.7±9.594 ml which reduced to 12.60±6.869 ml on 7th day. The difference between these two group was statistically significant. The mean hospital stay in with drain group was 7.64±1.174 day which was higher than without drain group where mean hospital stay was 5.5±1.619 days. (p value= <0.001) Chronic abdominal pain after a period of 1 month was complained by 11 (22%) in drain group and 4 (8%) in without drain group. There was noted no difference between two group. After 6 months duration none of patients in both groups complained for chronic abdominal pain.

Discussion

The prevalence of cholecystitis varies widely in different parts of world. In India it was estimated to be around 4%. The present study was conducted on 100 patients with 50 patients in each group in patients with chronic calculous cholecystitis who subjected for open cholecystectomy. In this study, 35% patients were belonging to 41-50 years age group while 31% patients belong to more than 50 years age group. The youngest patient was 18 years old while oldest patient was 92 years old. There was an increased incidence in 4th and 5th decade with maximum incidence in the 5th decade. Similar incidence was seen in various other studies.²¹⁻
²²This study had 76% female patients and 24% male patients with almost equal distribution in both groups.

Similar sex preponderance in the favour of women were noted by other studies.²³⁻²⁴ The VAS scale was used for post-operative pain assessment, here gradings are grade0 almost pain free, grade1 slight pain, grade2 average pain, grade3 More than average pain, grade4 Moderate pain, grade5 severe pain. In with drain group, 26 (52%) patients were in G3 category and 18 (36%) patients in G4 category while in without drain group 26 (52%) patients in G2 group and 9 (18%) patients were in G3 category. Other studies were also concluded that patients in drain group have more more pain as compared to without drain group.^{24,25} In the present study 2(4%) patients in without drain group and 5 (10%) patients in drain group. Similar to this study, other studies also concluded that incidence of infection was more in drain group as compare to without drain group.¹⁸⁻¹⁹ In with drain group, on 3rd day mean sub hepatic fluid collection was 46.90±11.948 ml which was reduce to 19.50±6.94 ml on 7th day. In without drain group, on 3rd day Mean fluid collection was 37.7±9.594 ml which reduced to 12.60±6.869 ml on 7th day. The difference between these two group was statistically significant. In study done by Deepak GU³ et al, mean sub hepatic collection was noted in with drain group on 3rd day was 36.60±15.3 ml and on 7th day was 22.67±11.3ml. Mean subhepatic fluid collection in patients without drain on 3rd day was 25±9.5 ml and on 7th day 12.16±8.7 ml. that means other studies also concluded with drain group had more fluid collection as compared to without drain group. In the present study, post-operative hospital stay in drain group was 7.64 day while in without drain group it was 5.5 days. Mean hospital stay was higher in drain group in other studies done in various parts of world.^{15,18-20} Chronic abdominal pain is continuing for long time after surgical interventions. In drain group, 11 (22%)

patients complained about pain at 1 month as compared to 4(8%) patients in without drain group. This pain was resolved in all patients at 6 months follow up time. Apart from all affords made by authors, there were some limitation in the study. As the number of cases are less and duration of study is quite short a full statistical evaluation cannot be made. This study concluded that the incidence of chronic calculous cholecystitis is highest in 5th decade and is more common among females. Patients in without drain group have lesser post-operative pain, lesser sub hepatic collection and shorter hospital stay. There is no difference as far as post-operative wound infection and chronic abdominal pain is concerned. Therefore, in patients undergoing elective open cholecystectomy keeping drain can be avoided as it does not provide any additional advantages.

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Legend Tables

Table 1: Showing demographic characteristics of patients

		With drain group	Without drain group	Total	P value
Age group	<20 years	3	1	4	0.552
	21-30 years	5	2	7	
	31-40 years	10	13	23	
	41-50 years	19	16	35	
	51-60 years	9	11	20	
	61-70 years	3	3	6	
	>70 years	1	4	5	
	Total	50	50	100	
	Mean Age	43.52±13.871	47.62±13.260	45.57±13.657	0.643
Sex	Female	37	39	76	0.640
	Male	13	11	24	
Region	Urban	26	23	49	0.533
	Rural	24	27	51	

Table 2: - Showing post-operative complications of patients among both group.

Post-operative Complication		With drain group	Without drain group	Total	P value
Pain	G1	2	11	13	<0.001
	G2	4	26	30	
	G3	26	9	35	
	G4	18	4	22	
Wound infection	Present	5	2	7	0.240
	Absent	45	48	93	
Sub hepatic collection (ml)	3 rd Day	46.90±11.948	37.70±9.594		<0.001
	7 th Day	19.50±6.94	12.60±6.869		<0.001
Hospital Stay (days)		7.64±1.174	5.5±4.619		<0.001
Follow up (Chronic abdominal pain) 1 months	Present	11	04	15	0.050
	Absent	39	46	85	
Follow up (Chronic abdominal pain) 6 months	Absent	50	50	100	-
Follow up (Chronic abdominal pain) 12 months	Absent	29	30	59	0.839
	Loss to follow up	21	20	41	