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Comparative study of Open Cholecystectomy with and without Drain

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Abstract :

Objectives: 1) To compare post operative abdominal complications like wound infection, biliary peritonitis, subhepatic collection/abscess associated with open cholecystectomy with and without drain.

2) To compare post operative pain and hospital stay in open cholecystectomy with and without drain.

Materials and Methods : Patients admitted to Chigateri general hospital and Bapuji hospital attached to J.J.M.medical college, Davangere with primary diagnosis of chronic calculous cholecystitis and who undergo elective open cholecystectomy were taken for this prospective study over a period of 2 years.

Results: Patients in drain group had more post operative pain, subhepatic collection and longer hospital stay. There was no difference noted in post operative wound infection and chronic abdominal pain.

Conclusion: Drainage in cholecystectomy is associated with more complications than those without drain. Therefore drains increase harm to the patient without providing any additional benefits for the patients undergoing uncomplicated elective open cholecystectomy.

Key Words: Cholecystectomy, cholelithiasis, drain.

Introduction:

Cholecystectomy is the removal of gall bladder and is mainly performed for symptomatic gall stones[1]. Cholecystectomy is the commonest operation of the biliary tract and second most common operative procedure performed today. Although laparoscopic cholecystectomy is currently preferred over open cholecystectomy, reports of randomised control trials comparing the choice of cholecystectomy (either open or laparoscopic) are still being conducted[2].

Drainage in open cholecystectomy is a matter of considerable debate. Surgeons use drains primarily to prevent subhepatic abscess or biliary peritonitis from an undrained bile leak, 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 complications like wound infection, drain fever, biliary peritonitis and subhepatic abscess. The present study intends to compare benefits and harms of open cholecystectomy with and without drain.

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Materials and Methods

The patients admitted to Chigateri general hospital and Bapuji hospital attached to J.J.M.medical college, Davangere with primary diagnosis of chronic calculous cholecystitis and who underwent elective open cholecystectomy were included for this prospective study from June 2009 to May 2011 (2 years). A total of 60patients were studied.

Diagnosis of chronic calculous cholecystitis was based on detailed history, thorough clinical examination and USG abdomen.. These patients were subjected to the required preoperative investigations. After ensuring fitness for surgery, elective open cholecystectomy was performed. Cases were allotted to either groups of elective open cholecystectomy with or without drain alternatively as and when they got admitted. Intraoperatively, adhesions, excessive bleeding and technical difficulties were noted. Each case was analysed with respect to post-operative abdominal complications like wound infection, drain fever, biliary peritonitis, subhepatic collection/abscess, postoperative pain, hospital stay and convalescence. Subhepatic collection was assessed by USG on 3rd & 7th postoperative days. Each patient was followed up in the outpatient department after 1 month, 6 months and 12 months with regard to chronic abdominal pain and wound infection.

Patient with chronic calculous cholecystitis undergoing elective open cholecystectomy were included in the

study and patients diagnosed with acalculous cholecystitis, acute cholecystitis, gallbladder carcinoma, gallbladder polyps, calculus cholecystitis associated with complications, like empyema, obstructive jaundice were excluded.

Evaluation of the observations was done using chi square test and student unpaired t test.

Results

The study included 60 patients of chronic calculous cholecystitis undergoing elective open cholecystectomy. Of them, 30 patients had a tube drain kept in the sub hepatic space and remaining 30 patients were without a drain. The most commonly affected age group was 41-50yrs with 21 cases(35%) followed by 31-40yrs with 13cases(21.7%). The youngest patient was 18yrs and oldest 92yrs. 32 patients were female and 28 were male. The present study showed female preponderance of gall stone disease. Post operative pain was evaluated by Visual Analogue Scale(VAS) and was graded from grade 0 to grade 5. In the drain group 27 patients 16 had grade 3 and 11 grade 4pain. In the group without drain 7 had grade 1and 15 had grade 2 pain and only 7 had grade 3 pain. (Table 1)

Table 1.POST OPERATIVE PAIN

	With Drain		Without Drain		Total	
Pain	No.	%	No.	%	No.	%
G0	0	0	0	0	0	0
G1	0	0.0	7	23.3	7	11.7
G2	3	10.0	15	50.0	18	30.0
G3	16	53.3	7	23.3	23	38.3
G4	11	36.7	1	3.3	12	20.0
G5	0	0	0	0	0	0

$X^2 = 26.8$ $P<0.001$HS

In the present study wound infection was noted in 2(7%) patients in the drain group and 1(3%) patients without drain group. This was not statistically significant.(Table 2)

The sub hepatic collection was assessed by USG on 3rd and 7th post operative days. Mean subhepatic collection noted in patients with drain on 3rd day was 36.6+/-15.3 ml and on 7th day was 22.6+/-11.3ml. Mean subhepatic collection in patients without drain on 3rd day was 25+/-9.5ml and 7th day was 12.16+/-8.7ml. There was significant difference noted between the two groups.(Table 3)

Table 2. POST OPERATIVE WOUND INFECTION

WI	With Drain	Without Drain
Absent (-)	28(93)	29(97)
Present (+)	2(7)	1(3)

There was no biliary peritonitis observed in our study.

Mean hospital stay was 4days in patients without drain and was 6days in drain group.

Discussion

Since the first successful elective cholecystectomy in 1888 by Langenbeck, the issue of the use of routine drainage is still unresolved, needing a clear answer. Spivak et al in 1913 reported first cholecystectomy without drainage [3]. In 1915 Yachet et al described that there is no need to drain the peritoneal cavity and nothing extra is to be gained by leaving drains in the fossa after cholecystectomy. Any leakage of blood and bile from the gall bladder bed is effectively absorbed by the peritoneum.[4,5,6]. The holes of the drain get plugged with fibrinous exudates and clotted blood [7]. The practice of using drain after cholecystectomy is based on tradition rather than any scientific fact. It is associated with increased morbidity, slow convalescence, significant post operative nausea and pain and delay in return to the job [7,8]. The present study also revealed that putting a drain after cholecystectomy is associated with increased morbidity.

The other logic for drainage of sub-hepatic space after cholecystectomy is fear of bile leakage from the gall-bladder bed that may lead to bile peritonitis. However, many cases have been reported where indwelling drains failed to drain the bile or pericholecystic abcess. Therefore the lack of bile leakage from a drain cannot be interpreted as the absence of bile leakage [9]. According to Frederich Coller "Bile is not educated to climb up the drains". Drains become surrounded by omentum or blocked by some clot or exudates soon after the insertion into the peritoneal cavity and thereby isolated [9,10].

Table 3. POST OPERATIVE SUB HEPATIC COLLECTION

	With Drain		Without Drain			
subhepatic collection in ml	Mean	SD	Mean	SD	Mean Difference	P* Value, sig
3rd POD	36.66667	15.3	25	9.5	11.67	<0.001 HS
7th POD	22.66667	11.3	12.16667	8.7	10.50	<0.001 HS

* Student's unpaired t test

Ultrasonography performed after cholecystectomy on the discharge-day of the patient revealed no significant subhepatic collection in either group[13]. This is also noticed by other workers[11,12]. Cholecystectomy without drainage carries short hospital stay [10]. Our study also supports the view.

Conclusion

The incidence of cholelithiasis is highest in 5th decade and is more common in females. Patients in drain group have significantly more post operative pain and subhepatic collection. There is no difference noted in post operative wound infection and chronic abdominal pain. Therefore drains increase harm to the patient without providing any additional benefits. We suggest that all open cholecystectomies should be completed without drainage of gall bladder fossa.

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