MINILAP CHOLECYSTECTOMY: MODIFIED APPROACH

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Introduction

Cholecystectomy is the most commonly performed elective operation [1]. It remains the standard treatment for benign gall bladder diseases with proven efficacy. Calculus cholecystitis is the commonest indication for cholecystectomy as 98% of patients with symptomatic gall bladder disease are found to be harbouring stones in their gall bladder [2]. Cholecystectomy remains the gold standard for benign gall bladder diseases. The pain and long hospital stay associated with standard cholecystectomy is mainly due to a big incision used in the standard procedure. The latest development of laparoscopic cholecystectomy, first time performed by Phylip Mouret in 1987 [1] offers the main advantage of significant decrease in post operative pain and lessened hospital stay. However, this requires costly equipment and infrastructure apart from expertise and costly consumables. A less used alternative is the performance of the surgery through a small incision of less than 5 cm long in the subcostal area. This procedure has been done earlier by different authors, but the procedure is not popular as yet [3]. This could be due to inadequate visualisation deep inside and difficulty of ligating the cystic duct and artery. We got over this difficulty using long narrow lighted retractors and by using clips for ligation. Experience with this modification has not yet been reported in recent literature. This study was aimed at evaluating cholecystectomy through a small incision in the subcostal area using aforesaid modification in terms of efficacy and decrease in post operative morbidity.

Material and Methods

Fifty consecutive patients reporting on two specific days of a week with benign gall bladder diseases with or without gall stones admitted, treated and followed up at Army Hospital, Delhi Cantt from Jul 94 to Dec 95 were included in this study. Patients found to be having common bile duct stones were excluded from the study. All cases were assessed clinically and by routine biochemical and radiological evaluation in regard to the presence of benign

gall bladder disease and their fitness for undergoing surgery. This included liver function studies as well as ultrasonography. The later study was particularly noteworthy since the radiologist was requested to not only exclude ductal stones but also correctly mark the location of the gall bladder on the surface of the abdomen. All cases where a CBD exploration was indicated were excluded from the study. The pre-operative work up and the preparations were the same as for any major abdominal surgery. All cases were done under general anaesthesia and full relaxation. The incision was placed over the previously marked area in the subcostal region and was limited to just 4-5 cms long. The abdominal muscles were partly split and partly cut transversely, the rectus muscle retracted medially. On opening the peritoneum the anatomy was first ascertained by retracting the duodenum medially, the transverse colon downwards the usual way by keeping abdominal swabs under the previously placed narrow special lighted retractors. This demonstrates the fundus of the gall bladder which is usually readily identified and surgery performed the usual way by first dissecting the Callot's triangle and clipping the cystic artery and the cystic duct after carefully confirming the anatomy. The access to the area was facilitated by the placement of self illuminating narrow but deep retractors. Clips instead of sutures were used for ease of operation. The gall bladder was removed in a retrograde fashion in most of the cases. In some the fundus was delivered first. The wound was closed in layers the usual way. Drains were usually not used unless there were definite indications for the same. The post operative care consisted of intravenous fluids and antibiotics for two days. Patient willing to go discharge and staying closer to hospital were discharged after two days and called back on 8th day for removal of sutures. The drains when kept were removed after 24 hours if not otherwise indicated. The patients were nursed back to normal status and the sutures were removed on the eighth day. On their first review at the end of the two weeks the following points were recorded:

- a) Relief from preoperative symptoms.
- b) The degree of pain and the need for analgesics
- c) Wound infections
- d) The time of ambulation after operation and
- e) The time taken to return to work.

Observations and Results

The study was conducted on fifty patients consisting 41 females and 9 males. The age ranged from 18 to 77 yrs (mean 41 yrs) (Table-1). The most common presenting symptom was right hypochondriac pain followed by vague abdominal dyspepsia. Fever was present in 7 patients (Table-2). There was no past history of jaundice in any of them. There was one case of gallstones

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detected on routine ultrasound evaluation for unrelated symptoms. Twenty (40%) patients were weighing more than the acceptable upper limits, most of them more than 20% overweight. Three patients were found to be having associated hypertension and another three were found to be diabetics. Two more had associated respiratory problems and all these were under medications for the same. Cholecystectomy through a minimal subcostal incision was possible in 41 (82%) patients (Table-3). In the remaining 9 cases the incision had to be extended (Table-4). Out of these, in two patients associated CBD stones were detected during surgery and in one the anatomical landmark was not identified till the incision was extended. This occurred more commonly in the earlier part of the studies, probably reflecting the learning curve than due to actual technical difficulty. The procedure could be performed even in obese patients. Post operative analgesic requirements was determined by the doses of Intramuscular pentazocin (Fortwin 30 mg) requirements. The average dose requirements for all patients was 4.2 intramuscular injections, with 3.5 being the average dose for minimal incision group, and the 7.4 for the extended incision group (Table-5). The requirement of post operative IV alimentation was also less.

TABLE 1
Age wise distribution

Age group (years)	No. of patients (%)
Below 20	02 (04%)
20 - 29	08 (16%)
30 - 39	15 (30%)
40 - 49	12 (24%)
50 - 59	06 (12%)
60 - 69	05 (10%)
70 & Above	02 (04%)
Total	50 (100%)

TABLE 2
Presenting symptoms

Presenting symptoms	No. of patients (%)
Biliary pain	49 (98%)
Nausea and vomiting	26 (52%)
Flatulence	26 (52%)
Fat intolerance	13 (26%)
Jaundice	NIL
Fever	07 (14%)
Asymptomatic	01 (02%)

TABLE 3
Size of incision (patients where cholecystectomy was possible through incision average length = 4.96 cms)

Size of incision	No. of patients (%)
4.0	03 (07.32%)
4.5	09 (14.64%)
5.0	14 (34.15%)
5.5	15 (36.38%)
Total	41 (100%)

TABLE 4
Characteristics of the patients in whom incision had to be extended

Age	Height	Weight	Pathology	Anatomy
30	158	64	Ch. cholecystitis	Normal
64	168	78	- do -	Normal
42	156	70	- do -	Normal
70	158	76	- do -	Normal
50	161	68	Ac. cholecystitis	Short cystic duct
26	158	49	Empyema Gall Bladder	Normal
32	162	72	Ac. cholecystitis	Normal
42	174	75	Ch. Cholecystitis	Normal
32	150	30	Choledocolithiasis	Short and broad cystic duct

TABLE 5
Comparison of various parameters in both groups

Parameter	Measurement	All cases	Minimal incision	Extended incision
Post op. analgesics requirements	Ave. no. of doses Fortwin (30 mg)	4.2	3.5	7.4
Post op hospital stay	Days	4.1	3.7	6.2
Wound infection	No. of pts (%)	2 (4%)	1	1
Return to work	Days	51	24	40
Operating time	Minutes	71	64	106
Ave. blood loss	ml	86	75	137

Discussion

Cholecystectomy is a major surgical procedure and although has a proven safety and efficacy, this procedure is associated with a long post operative hospital stay of 7-9 days, significant post-operative morbidity in terms of pain at the operation site and a long time off from work. Recently much interest has developed in minimally invasive surgery with the development of laparoscopic cholecystectomy and the subsequent efforts at imitating the benefits thereof such procedures. This has resulted in emergence of "Minilap-Cholecystectomy", wherein the procedure is performed through a small 5cm incision and we could perform the procedure in 82% cases. In others, the incision had to be extended to about 7-8 cms to facilitate cholecystectomy. The major disadvantage of the small incision is the accessibility which has been overcome by means of the use of the narrow but deep retractors which were self-illuminating. This not only made the job of the surgeon easier but also of the assistant who was able to devote more time for effective assistance. The cystic artery and duct were not sutured but occluded by using long handle liga-clips thus overcoming the disadvantage of small incision. Due to the adequate

illumination the anatomy was also well identified thereby reducing the chances of any untoward incidents like injury to the cystic artery or the biliary ducts-the most dreaded complications of a standard cholecystectomy as well as laparoscopic procedure wherein the complication rates have been variously quoted between 2 and 6 percent [5,6]. We have not encountered any major complications in doing the procedure but we would like to caution that the sample size is too small and we cannot draw any conclusion on account of that. Another likely complication is that of increased wound infection because of the undue retraction of the wound margin and the consequent tissue damage but we have not encountered any major problem on account of that. The time factor is also not altogether different since we were able to perform the procedure within one hour in almost all cases. The expertise is also not lacking since it could be done by surgeon who was capable of doing a standard cholecystectomy. The duration of the hospital stay was the main advantage since our patient could be discharged within 2-3 days where as it is always 7-10 days in standard procedure. The requirement of post operative analgesics was also less since they were ambulated faster. The requirement of post operative IV

alimentation was also less because of the same reason.

Thus, it will be seen that minilap cholecystectomy is a safe and easily performed procedure which does not require any sophisticated equipment. It is a patient friendly procedure and does not require the elaborate layout of laparoscopic cholecystectomy. It is also less costly and requires no special training.

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