ORIGINAL ARTICLE

Mini-Cholecystectomy (A Medial Muscle Retracting Approach)

J. G. Langer, Sanjay Kumar Bhasin, Rajinder Kumar Nagar, Suleman Choudhary

Abstract

Mini-cholecystectomy, one of the minimally invasive techniques of gall bladder removal was used on 50 cases of symptomatic gallstones with 4-6 cm transverse incision. The rectus muscle was retracted medially in all the cases starting incision short of midline. No special retractors were used. Depending upon the availability either liga clips or silk was used for occlusion of the cystic duct and artery. In only one case the incision had to be extended to complete the operation. The success rate was 98%. Average operation time was 47.7 minutes, average hospital stay was 4.82 days and post-operative analgesics required on average were 3.48 doses per patient. No specific intra-operative or post-operative complications were noticed which could have incapacitated the patient for a long time. The average time taken to return to work was 14 days. There was negligible morbidity and no mortality. In the follow up period extending from 2 weeks to 3 months, no long term complications were noticed and patients were very well satisfied with outcome of the procedure.

Keywords

Cholelithiasis, Mini-cholecystectomy, Minimally invasive.

Introduction

Biliary diseases, constitute a major portion of digestive tract disorders world over, with cholelithiasis being the fore-runner and causing general ill health requiring surgical intervention for total cure. (1,2). For last more than hundred years cholecystectomy has enjoyed unchallenged supremacy as treatment of choice for symptomatic gallstones. The credit of performing first ever cholecystectomy goes to Carl-Langenbuch, who performed it on 15th July 1882 at the Lazaruskrankenhas in Berlin on a 42 years old man. (3,4) Mini-cholecystectomy is credited to Goco and Chamber (1983) almost 100 years after the conventional cholecystectomy was performed. 4-6 cm muscle splitting subcostal incision was used (5). Thereafter many attempted small incisions with quite encouraging results. (6-10). The fascinating but challenging era of laparoscopic-cholecystectomy started in the year 1987 (11). Thereafter, more and more surgeons have shown inclination towards this minimally invasive procedure. Also, it has become question of debate regarding the superiority of mini-cholecystectomy

From the Postgraduate Department of Surgery, Government Medical College, Jammu (J&K).

Correspondence to : Dr. Sanjay Bhasin, 37-New Company Bagh Canal Road, Jammu (J&K) India.

and laparoscopic-cholecystectomy over each other.

We, in our series have tried successfully 4-6 cm incision retracting rectus muscle medially with a success rate of 98%.

Material and Methods

The present study is based on 50 patients of either sex having symptomatic gallstones. The patients were admitted in the department of surgery in Government Medical College, Jammu over a period of two years extending from 1999 to 2001. No specific criterian was adopted for patient selection or exclusion from the study group. Minimum age of the patients was 17 years and maximum 68 years whereas minimum weight was 45 kgs and maximum 65 kgs. Thirty-eight patients were having dyspepsia, 40 having pain in the right hypochondrium and having sour eructations as main symptoms. Six patients had lump abdomen at the time of admission, 14 patients had tender right hypochondrium and 30 patients had no sign at the time of admission. Once declared fit for surgery by the anaesthetist. All patients were subjected to mini-cholecystectomy.

Under general anaesthesia and patients being in supine position, right hypochondrium was lifted up by placing sand bag under the right lower chest and hypochondrium. A 4-6 cm transverse incision was given starting short of midline and extending laterally in the line of ninth costal cartilage margin. Anterior sheath was incised transversally. Rectus muscle was separated from the sheath and retracted medially. Posterior sheath and peritoneum were incised transversally. Gall bladder was located and grasped with the sponge holding forceps and freed of any adhesions. Two small abdominal packs were put into the abdominal cavity in order to push the stomach, duodenum, colon and omentum away from the gall bladder. Two small Deaver's retractors were placed on the abdominal packs and mentioned structures retracted. Liver, if required was retracted headway with small liver retractor. In this way we approached the Calot's triangle. Cystic duct and artery were dissected free and occluded separately either with liga clips or silk. After cutting the cystic duct and artery, gall bladder was freed from its fossa using finger and cautery whenever needed. Depending upon intra-operative findings, we put tube drain in the Morrison's pouch in selected patients. Hemostasis was secured completly and abdomen closed in layers using catgut/vicryl for peritoneum as well as sheath. Skin was closed with either interrupted silk sutures or subcuticular prolene/monocryl.

Results

The incision length ranged from 4-6 cm. The minimum time taken to complete the surgery was 25 minutes and maximum 110 minutes. The post-operative period analgesic doses were 2-8 per patient with average of 3.48 per patient, whereas post-operative hospital stay was 4.82 days (average 2-8 days). The details of results of this study are shown in Table I and Table II. There was no mortality and negligible morbidity in the post-operative period. Minor complications observed in the post-operative period were prolonged drainage and prolonged ileus in one patient each, nausea/vomiting and wound infection in 2 patients each, whereas in one patient mild fever was noticed. In 2 patients with CBD stones detected intra-operatively, mini-cholecystectomy with choledochotomy was completed successfully.

TABLE I

Operative Parameters.

Incision length	4-6 cm
Operation time	47.7 mt (25-110)*
Peritoneal drainage	30 cases
Nasogasrtic suction	7 cases
Post-operative analgesics	3.48 doses (2-8)*
Post-operative hospital stay	4.82 days (2-13)*
Return to work	14 days (10-21)*

* Range.

TABLE II

Operative Findings.*

No adhesions	20 cases
Minimum adhesions	10 cases
Dense adhesions	7 cases
Obliterated Calot's triangle	4 cases
Contracted gall bladder	4 cases
Mucocele/empyema	7 cases
Dilated CBD with stone	2 cases
Free floating gall bladder	2 cases

* More than one finding observed in single case.

Discussion

First cholecystostomy is credited to John Staugh Bobbs. He opened the hydrops of gall bladder, removed the stones and sutured the gall bladder without drainage to outside on 15th June 1867. Patient survived for 42 years after operation. (4)

15th July 1882 was the day of revolution in the history of gallstone disease as Carl-Langenbuch, through T-shaped incision, performed first ever cholecystectomy. The horizontal limb of the incision was parallel to the liver edge and longitudinal limb ran along the lateral border of rectus muscle. After eight uneventful weeks, patient was discharged (3,4). A variety of non-surgical approaches namely oral dissolution therapy with chenodeoxy cholic acid and ursodeoxy cholic acid, direct contact gallstone dissolution using methyl tert-butyl ether, percutaneous cholecystolithotomy, extra corporal shock wave lithotripsy, chemical cholecystectomy duct have been developed and utilized in selected cases in an attempt to decrease morbidity and disability associated with cholecystectomy,. (12-14) Since the non-surgical therapies have proved ineffective by way of having severe restriction on their applicability, surgical removal of gall bladder has been the gold standard for the treatment of symptomatic gallstones, ensuing a the permanent cure (15). The fear of operation, disfiguring scars, prolonged recovery time and associated pain have been the major concern of most patients undergoing cholecystectomy. Mini-lap cholecystectomy was introduced by Goco and Chamber in 1983 with an intent to decrease morbidity and mortality associated with conventional cholecystectomy, about 100 years after the first successful cholecystectomy performed by Carl-Langenbuch (5). In the current interventional medicine, operation on the gall bladder and biliary tract performed by mini access are even more widely used in practice. Cholecystectomy done through mini-laparotomy is an attractive procedure with well-established superiorities, irrespective of the enthusiasm for laparoscopic accomplishment of the intervention in this particular field of surgery (6-10).

In the present study, the minimum age of the patients was 17 years and maximum was 68 years. Cases unfit for general anaesthesia were not included in the study group, though there are studies wherein mini-cholecystectomy have been done under local anaesthesia (16,17). Majority of the studies have excluded obese, patients with CBD stones and acute cholecystitis from the preview of this operation (7,8). In our study the maximum weight of patient was 65 Kgs. We made small 4-6 cm incision. Small incisions have also been made by other authors, as claimed in the different study groups (6,7,9,18,19). In the present study small deaver's retractors were used for performing the procedure. Various authors have used specially designed retractors and instruments for performing the procedure (20-22). The great advantage of this incision is less post-operative pain, no muscle haematoma, easy extension where needed, less post-operative analgesics, early return to work. We converted one case with success rate of 98%, it being maximum in comparison to other available series in the literature. (6,9,18) There was no major complication observed in the series. Minor complications observed were prolonged ileus, prolonged biliary drainage and post-operative fever in one patient each and wound infection in 2 patients We could successfully complete the procedure in 2 cases of CBD stones detected intra-operatively. Cholecystectomy with choledochotomy was

done and CBD closed ver T-tube. Post-operative hospital stay was 4.82 days (2-13 range), which was quite less in comparison with the conventional cholecystectomy (23). Time taken to return to work (RTW) was 14 days (10-21days range), which was much shorter than what is observed in conventional- cholecystectomy (24). The patients were very well satisfied with the procedure without any complication in the follow up period extending from 15 days to 3 months.

Conclusion

The dicta "the way to hell is paved with small incisions" and "I donot enter through windows, I enter through doors" is fast losing its essence in the present era of minimally invasive surgery. Now patients want less discomfort, less hospital stay, better results and best cosmesis with less expenditure. The study was undertaken with intent to judge the results of this minimally invasive technique.

Mini-lap cholecystectomy can be offered to any symptomatic gallstone case even with CBD stones and high-risk medical problems in any general hospital where surgical facilities are available. In addition no special equipment or training is required. We had no technical difficulties in doing mini-cholecystectomy by retracting the muscle medially nor there was any significant post-operative problem noticed.

Available data of 50 cases and post-operative interaction with them over a period of time reveals that the outcome of this minimally invasive procedure was in favour of patients with insignificant morbidity and no mortality. Hence, it can be considered as widely acceptable and safe surgical technique.

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