ORIGINAL ARTICLE

CHOLECYSTECTOMY THROUGH MINI LAPAROTOMY INCISION

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ABSTRACT

Background: In standard cholecystectomy gall bladder is approached through a subcostal incision of 7-10cm. New techniques and procedures have evolved, aiming at decreased tissue damage, pain, hospital stay, and complications. This study was conducted to assess cholecystectomy through 5cm mini laparotomy.

Material & Methods: This descriptive study was conducted at department of Surgery Khyber Teaching Hospital Peshawar from January 2002 to December 2002. The trial was open to both sexes irrespective of age and duration of illness. Both, acute & chronic cholecystitis were included. Ninety were females, 10 were males. Mean age was 48 years. Ninety patients had chronic cholecystitis, 5 had acute cholecystitis, and 5 had mucocele of the gall bladder. Close drains were placed in 6 cases. Post operative ultrasound was performed in all these cases specially for the intra and extra hepatic billiary passages and condition of the liver.

Results: The study included 100 patients with cholelithiasis. Cholecystectomy through 5cm subcostal incision was possible in 90 cases. In 10 cases anatomical landmarks could not be identified satisfactorily through 5cm incision and it had to be extended. The average operating time was 50 minutes and average blood loss was 100ml. The average post-operative hospital stay was 2 days. Sub-hepatic collection developed in only one patient.

Conclusion: Cholecystectomy through minilaparotomy is a safe procedure with shorter operating time, fewer complications, better cosmesis and less post-operative stay. It may be recommended as a procedure of choice where laparoscopic facilities are not available.

Key words: Gall bladder, Cholecystectomy, Minilaparotomy.

INTRODUCTION

There has been fundamental change in the management of gall stones and cholecystitis in the past 10 years. Most surgeons agree that stone removal techniques have an unacceptably high recurrence rate with non-operative measures and that cholecystectomy is the treatment of choice.[1] Carl langenbech performed the first open cholecystectomy on 15Th July 1882 for symptomatic gall stones.[2,3]

Dissolution therapy with methyl-terbutyl-ether and cheno or ursodeoxycholic acid is a reasonable alternative to cholecystectomy in very elderly or unfit patients with functioning gall bladder and a limited number of small, radiolucent calculi. Treatment is often prolonged and recurrence follows after its cessation.[4-6] Extracorporeal shock wave lithotripsy and percutaneous cholecysto-lithotomy are other methods for dealing with gall stones non operatively. But they have the disadvantage of leaving the diseased gall bladder in situ to form more stones.[7,8]

Minicholecystectomy was first introduced in1982 to reduce morbidity, limit the post operative scar and post operative pain.[9,10] As opposed to standard Cholecystectomy, involving a 7-10 cm incision, and muscles cutting technique, in minilaparotomy cholecystectomy 3-5 cm incision is made and muscle splitting approach employed. It reduces the hospital stay and patients has a small scar on the abdomen but require surgical experience and good assistance.[11]

Although laparoscopic cholecystectomy is considered to be the procedure of choice but some surgeons consider minilaparotomy as an alternate to laparoscopic cholecystectomy,[12] specially in centers where laparoscopic facilities are not available because it does not need special training, equipment and is also cost effective.

This study was conducted to assess Cholecystectomy through 5cm mini laparotomy.

MATERIAL AND METHODS

This retrospective study was conducted at Surgical Department of Khyber Teaching Hospital Peshawar from January 2002 to December 2002. During this period 100 consecutive patients with cholelithiasis irrespective of age and sex were included in this study. The effect of minilaparotomy on hospital stay, pain experienced, and complications were observed.

Patients with abnormal liver function and dilated common bile ducts on ultrasonography were excluded as standard protocol, due to the limited exposure of the gall bladder and its surrounding structures by minilaparotomy cholecystectomy. Pre-operative evaluation of the patients comprised of a detailed history including a review of previous medical and surgical record and meticulous physical examination especially of cardio-respiratory system and indicated laboratory and imaging tests. Ultrasound was performed in all these cases especially for the intra and extra hepatic billiary passages and the condition of the liver.

All operations were performed under general anesthesia. A 5cm sub-costal incision was marked over the site of the gall bladder. In young patients muscle was divided, while in the elderly, it was split along its fibers and retracted. Peritoneum opened and junction of the cystic and common bile duct was identified first. If difficulty was encountered in identifying anatomical land marks, the length of incision was extended.

The gall bladder was removed from the fundus down or the cystic duct and upwards depending on the surgeons preference. If gall bladder was very distended it would be aspirated before proceeding, the empty gall bladder is easier to grasp for dissection. The cystic duct and artery were ligated with 2/0 polyglactin (vicryl). Specialized retractors were not used. Abdominal wall was closed with No. 1 prolen in layers and skin with 2/0 silk. Closed drains were used in 6 cases only. Nasogastric tubes were not used. Intravenous fluid were discontinued after 24 hours. Patients commenced on free fluid and light diet on the first post-operative day.

All patients were reviewed as out patients one month following discharge, and a follow up ultrasound was performed.

RESULTS

Minimal incision cholecystectomy was performed through 5cm incision with division of the lateral half of rectus abdominal muscle according to the technique of O'Dwyer 1990.[2].Cholecystectomy through 5cm subcostal incision was possible in 90 cases out of 100 cases. In 90 cases stones had caused chronic cholecystitis, 5 cases had acute cholecystitis and 5 cases had mucocele.

In 10 cases anatomical land marks could not be identified satisfactorily through 5 cm incision and it had to be extended. The average operating time was 50 minutes and average blood loss was 100 ml. The average post-operative stay for these patients was 2 days. Sub-hepatic collection de-

Table 1: Age and sex distribution of patients

Age Groups (years)	Number of cases
40-45	40
46-50	30
51-55	30
Sex: Female	90
Male	10

Table 2: Results of procedure

Parameter	Results
Average surgical time	50 min
Post operative complications	In 7 cases (7%)
Deleyed Return of bowel habits	In 2 cases. (2%)
Mean Hospital stay	2 days
Drain. Intra- abdominal	6 cases (6%)
Cosmesis	5 cm linear scar
Work disability	6-8 days
Difficulties at operations	10 cases incision had to be extended

Table 3: Complications of Mini laparotomy cholecystectomy

Complication	Number of Cases
1. Wound bleeding	1 (1%)
2. Wound infection	3 (3%)
3. Abdominal infection (Sub-hepatic collection)	1 (1%)
4. Ileus	2 (2%)
5. Wound dehiscence	Nil
6. Pancreatitis	Nil
7. Urological infection	Nil
8. Pulmonary complications	Nil
Total	7 (7%)

Table 4: Patients in whom incision had to be extended

Patient No.	Age (years)	Weight (Kg)	Pathology	Anatomical abnormalities
1	51	80kg	Acute cholecystitis	Normal
2	45	70	Acute cholecystitis	Normal
3	40	60	Mucocele Gall Blader	Normal
4	45	70	Acute cholecystitis	Normal
5	42	65	Mucocele Gall Blader	Normal
6	45	65	Ch cholecystitis	Low insertion of cystic duct
7	48	65	Ch cholecystitis	Low insertion of cystic duct
8	55	70	Ch cholecystitis	Low insertion of cystic duct
9	45	65	Ch cholecystitis	Double cystic artery
10	45	70	Ch cholecystitis	Double cystic artery

veloped in one patient. Closed drains were placed in 6 cases.

A post-operative ultrasound was performed to check for any collection. Only one patient developed post-operative collection which was treated conservatively.

A total of 100 patients, 90 females and 10 males with cholelithiasis were included in the study. They were in the range of 40-55 years with mean age 48 years. (Table-1)

DISCUSSION

In this retrospective study of small incision cholecystectomy in 100 cases which was designed to elimenate bias for this technique. The aim of this procedure is to remove safely the diseased gall bladder with little trauma, early recovery with short hospital stay and better cosmesis (specially in South Asia and 3rd world countries).The incision for open cholecystectomy has been getting smaller over the past decade, with an attendant reduction in post-operative morbitity.[13]

For a long time and still cholecystectomy is performed by usual long kocher's or paramedian incision because it is associated with lower incidence of pulmonary and abdominal complications.[14-16]

The minilaparotomy cholecystectomy incision that just splits the right rectus abdominis muscle is alternative to the laparoscopic technique. It has very good results but was associated with limited surgical exposure especially in obese patients. This made the procedure some what difficult and significantly prolonged the operating time. The transaction of the middle third of this muscle gives much better surgical exposure and shorter operating time.[17,18]

This procedure is performed through 5 cm sub-costal incision and uses some longer and narrow instruments and more emphasis is placed on antigrade (fundus first) dissection. Indeed many surgeon are likely to feel more comfortable adapting to mini laparotomy cholecystectomy rather than laparoscopic cholecystectomy because of the obvious familiarity of operating directly on the billiary tree rather than indirectly using a two dimensional image on a video monitor.

Reduction of abdominal wall trauma by use of short incision should be accompanied by rapid recovery and short hospital stay for patients. In our study the average hospital stay was 2 days in patients undergoing cholecystectomy through 5 cm sub-costal incision.[19,20] The average post-operative time was 50 minutes, wound length was 5 cm with moderate use of post-operative analgesia. Our results compare favorable with study[21,22] conducted by Kelly & Borr. Results obtained from that study showed wound mean length of 5.7 cm, operating time 50 minutes, post-operative analgesia 4.6 doses, and duration of post-operative stay 3 days. Post-operative complications developed in three cases, with injury to common bile duct in one case.[23,24]

More effort should be put in to improve the mini laparotomy technique rather than by-passing it. For example the use of a ring retractor has been shown to make surgery much easier.[25]

CONCLUSION

Cholecystectomy through minilaparotomy is a safe procedure with shorter operating time, fewer complications, better cosmesis and less post-operative stay.

It may be recommended as a procedure of choice where laparoscopic facilities are not available.

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