Original Article

Postoperative Outcome of Minicholecystectomy and Conventional Cholecystectomy

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ABSTRACT

Objective: To investigate the effects of different incision lengths following elective Cholecystectomy

Study Design: Prospective cross sectional, comparative study

Place and Duration of Study: This study was conducted at Surgical Unit II Peoples Medical University of Health Sciences Nawabshah from January 2009 to December 2010.

Patients and Methods: In this study, 100 patients were taken as a sample size. In this study, sampling technique was Purposive, non probability. Main Outcome Measures were postoperative pain, Length of hospital stay, Cost of treatment, Time until return to work, Complications. Most surgeons still prefer the open approach when dealing with common bile duct stone. The technique of open Cholecystectomy might compete with laparoscopic Cholecystectomy in avoiding prolonged operating time and major expenses. Mini-Cholecystectomy requires less operating time, less postoperative pain, and early return to work than standard conventional open Cholecystectomy

Results; There were 37 female and 13 male in MC group, and 42 female and 8 male in CC group. Median age was 55 (range 20-80 years) median BMI was 23 (range 17-30). 15 patients in MC and 18 patients in CC group were with acutely inflamed gall bladder and remaining were with chronic gall stone disease. In MC group of 50 patients the mean hospital stay was 2.5 days with shortest 1 day and longest 5 days. 35 (70%) patients were discharged within 2 days 10(20%) on 3rd and 5 patients remained fro 5 days.

Conclusion Minicholecystectomy offers less pain, earlier recovery and better cosmetic results than conventional open Cholecystectomy.

Key Words; Minicholecystectomy, Conventional Cholecystectomy, hospital stay,

INTRODUCTION

Today the removal of gall bladder is the safest, the most effective and widely recommended treatment for gall bladder disease. It is the second most common abdominal problem after acute appendicitis.[1] Three essential methods are used for the removal of gall bladder, Standard open Conventional Cholecystectomy (CC), Mini-Cholecystectomy (MC), and Laparoscopic Cholecystectomy (LC).

The first to describe Cholecystectomy through minilaparotomy incision was Dubios in 1982 and it appears that the term minicholecystectomy was coined by Gocco and Chambers in 1983.[2] There is a rise in the conversion rate from laparoscopic to open surgery, that reflects to adapt an all corners policy for laparoscopic Cholecystectomy and may be willing to undertake the operation in those with acute cholecystitis and previous abdominal surgery or alternatively that they have a more mature and suitable approach to conversion.[3] The most surgeons still prefer the open approach when dealing with common bile duct stone.[4] The technique of open Cholecystectomy might compete with laparoscopic Cholecystectomy in avoiding prolonged operating time and major expenses.[5] Open Cholecystectomy is still the gold standard by itself or in candidates contraindicating laparoscopy or as a sequel of laparoscopy during conversion.[6] Symptomatic gall stone disease has been treated for a century, Carl Langebuch performed first Cholecystectomy through a "T" shaped incision which was perfected by Theodor Kocher incision, it starts from the Xiphoid process to the right costal margin for about 10 to 30 cm, depending upon the surgeons to do Cholecystectomy through a small incision. Cholecystectomy and nearly all biliary surgeries can be performed in adults through a right transverse or oblique incision which varies from 3 to 6 cm in minicholecystectomy, and 10 to 16 cm in conventional Cholecystectomy.

Mini-Cholecystectomy requires less operating time, less postoperative pain, and early return to work than standard conventional open Cholecystectomy.[7] The aim of the work is to determine whether the patient comfort and hospital stay can further be improved if the wound is painful by shorter incision or not.

PATIENTS AND METHODS

About 100 patients were selected 50 patients in each group for Minicholecystectomy (MC) and conventional Cholecystectomy (CC) from January 2008 to December 2009 at Surgical Unit II of Peoples Medical College & Hospital Nawabshah. Patients with symptoms of gall

stone disease of either sex above the age of 20 years upto 80 years were included in our study. Patient excluded from study were, below 20 and above 80 years and patients with mass in right hypochondrium suspected to malignant, HCV positive with disturbed prothrombin time, and cirrhotic patients.

Each Cholecystectomy was prospectively recorded according to a protocol that involves patient's characteristics, surgical details, hospital stay, postoperative pain, intra and postoperative complications. Patients under going elective Cholecystectomy were given verbal and written information concerning the operation, expected hospital stay and convalescence. We operated on both acute and chronic cholecystitis on list. Every patient was given prophylactic antibiotic dose of Ceftriaxone and metronidazole 8 hours before surgery and at the time of induction of anaesthesia. Thrombosis prophylaxis was administered as tinzaparin subcutaneously the evening before surgery and five hours after surgery.

A personal standardized technique for MC as established after a 4 year experience of performing the operation with chronic gall stone disease. A small cushion was placed under the caudal portion of the right thoracic cage in order to raise the gall bladder region. The incision was started approximately 3 cm right to the midline ran obliquely parallel to and 3 cm below the right costal margin. The initial length of the incision was 4-5 cm depending upon the size of the patient was extended if necessary but did not more than 7 cm.

Data were presented as median, mean and range, comparisons of operative time, postoperative analgesia, and length of hospital stay were done by Student t test, and U-test. Difference between start of oral diet and complications rate were evaluated by the X^2-test and were considered significant when probability value was <0.05.

RESULTS

This prospective comparative cross sectional study was conducted at Surgical unit II PMCH Nawabshah. A total of 100 patients were included in the study 50 in MC group and 50 in CC group. There were 37 female and 13 male in MC group, and 42 female and 8 male in CC group. Median age was 55 (range 20-80 years) (Table 1) median BMI was 23 (range 17-30). 15 patients in MC and 18 patients in CC group were with acutely inflamed gall bladder and remaining were with chronic gall stone disease.

In CC group the incision adopted was Kocher's incision about 13 to 16 cm length. The average hospital stay was 6.5 days, shortest stay was 4 days and longest stay was 9 days. Out of 50 patients 15 (30%) were discharged on 4th postoperative day, 20(40%) on 5th day and 2 (4%) on 9th day (Table 2) there was no any operative difficulty, there were 8 patients with dilated CBD and Obstructive jaundice due to gall stone disease, which were explored T tube was placed. Recovery was smooth in all patients 6 developed wound haematoma and seroma formation wounds were opened and patients discharged on 7 to 9th postoperative day, 3 patients developed wound infection which was controlled by proper antibiotics and dressings. There was no operative mortality; mean operation time was 75 minutes (range 55-105 min)

Table No 1:Age and sex distribution (CI=95)

No	Age / years	Conventional cholecy-stectomy	Mini cholecy-stectomy	Total
1	20-35	15 (f-12, m-3)	20 (f-17, m-3)	35 =29+6 p= 0.002
2	36-50	20 (f-18, m-2)	15 (f-11, m-4)	35= 29+6 p= 0.005
3	51-65	10 (f-8, m-2)	12 (f-9, m-3)	22= 17+5 p= 0.002
4	66-80	5 (f-4, m-1)	3 (f-3, m-0)	08= 7+1 p= 0.001
	Total	50 (f-42, m-8)	50 (f-37, m-13)	100= 82+18

F= Female, M= Male, CI= Confident interval,

Table No 2: Postoperative Hospital Stay

Discharged on post operative day	Conventional Cholecystectomy	Mini Cholecystectomy
1st	0	4
2nd	0	16
3rd	0	15
4th	15	10
5th	20	2
6th	8	3
7th	5	0
8th	2	0
9th	0	0

In MC group of 50 patients the mean hospital stay was 2.5 days with shortest 1 day and longest 5 days. 35 (70%) patients were discharged within 2 days 10(20%) on 3rd and 5 patients remained fro 5 days. Three patients operated for acute cholecystitis developed operative bile leakage and which was stopped spontaneously in 5 to 6 days. Six patients were found with dilated Common Bile Duct with stone which were explored after removal of gall bladder without extending the incision. There was wound infection in three patients which was controlled by antibiotics and daily dressings. There was no operative mortality,

median operative time was 60 minutes range (45-84 min)

All patients remained in followup for one year. No one in MC group developed incisional hernia but 6 patients in CC group developed incisional hernia which were repaired by proline mesh. Cost of treatment was almost same in both groups, linear and small incision scar was acceptable and postoperative pain was more in CC with visual analogue scale of 10, in MC group 4.5 and in CC group 6.8, and diclofenac sodium was the drug used for pain control.

DISCUSSION

The incidence of gall stone disease is increasing in our society probably due to various factors, like use of oral contraceptive pills, oral estrogen replacement therapy, climacteric symptoms and change in dietary habits.

In this study the female to male ratio was 4:1 of gall stone disease which correlates with a study conducted at Chandka Medical College Pakistan.[8]

More than 2000 cases of MC have been reported world wide without any death or major CBD injuries since first reported in 1982.[9] by decreasing the incision size to 4-7 cm preserving the rectus muscle and using headlights, we have reduced operative morbidity and no increased risk to the patient. A study was conducted at Karachi Vlika Social Security hospital and discussed 10 years experience on MC and CC. In this study MC was performed through 3.5 cm average incision and main outcome measures were, operative time, postoperative pain, hospital stay and resumption to daily life and concluded that MC is superior than CC.[10]

In a study in Israel shows that mean postoperative analgesia requirements in MC and CC group (no of doses of 10mg morphine) were 4.0 to 5.8 respectively (p=0.002). Mean duration of hospitalization was 3 and 4.7 days respectively in MC and CC groups. Mean satisfaction of patient on 1-10 analogue scale was 8.6 and 6 (p=0.002) and was concluded that MC offers less pain, earlier recovery and better cosmetic results than CC.[11] This study is comparable to our study regarding postoperative stay of 2.5 to 6.5 days which is slight longer in CC group.

An other study conducted at Mayo Hospital Lahore showed that less postoperative pain and early return to work is seen in MC than CC patients.[12] and is same as in our study which shows less pain in MC than CC with analogue scale of 10 5.5 and 6.8 respectively.

A study conducted in Budapest, Hungry to elaborate the true value of MC as compared to laparoscopic and CC procedures and concluded that "Cholecystectomy performed by modern minilaparotomy is a realistic alternative to conventional and laparoscopic Cholecystectomy.[13] This study has same results regarding incision length of 4 to 6 cm and cosmesis.

The postoperative complications were more in CC than MC in our study, which is comparable to a study conducted at Lautaro Clinic Africa Chilli which showed that incidence of postoperative complications is much higher in CC than in MC patients.[14] Our study indicates small open Cholecystectomy incision is an alternative treatment for patients with their high incidence of acute cholecystitis and common bile duct stones which is same as done in 2000 by Jorgensen[15] median operative time for MC in our study was 60 minutes (45-84min) and is almost equal to previous studies (40-74min)[16] where as in our study operation time was measured between "knife to skin and last stitch" Post operative hospital stay was about two days in our study which is same as mentioned in the previous studies of MC [17,18,19].

MC is now performed as a day case or ambulatory surgery[20].The results of MC for chronic and acute cholecystitis in our study are comparable with those reported by LC [21] but at lower cost. Avoiding the need for special instruments improves the cost effectiveness of MC.

CONCLUSION

Minicholecystectomy offers less pain, earlier recovery and better cosmetic results than conventional open Cholecystectomy.

Conventional Cholecystectomy should be reserved for problematic and malignant and difficult adherent gall bladders.

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