

## Comparison of Postoperative Pain and Hospital Stay in Standard Cholecystectomy versus Mini-Cholecystectomy

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### ABSTRACT

**Objective:** To compare the conventional open and mini-cholecystectomy.

**Material and methods:** This comparative, cross-sectional study was carried at Nishtar Hospital, Multan from April 2010 to September 2010. A total of 50 patients were included in the study.

**Results:** Among 50 patients of gall stone, 8(16%) were male and 42(84%) were female. As regards age, 16(32%) were of <40 years, 14(28%) between 41-50 years and remaining 20(40%) were of >50 years. Out of 50 patients, 32(64%) patients presenting with pain right hypochondrium, in 14(28%) patients presenting complaint was pain epigastrium. In 25 patients of group-A, who were treated conventional open cholecystectomy; the average hospital stay was 8.66 days with shortest stay of 6 days and longest stay of 10 days. Out of 25 patients 16(64%) patients were discharged after 8<sup>th</sup> day while 4(16%) patients were discharged after patients were discharged after 6 days. In the 25 patients of group-B who were treated by minicholecystectomy, the mean hospital stay was 3.33 days with shortest of 2 days and longest of 5 days. Eight (32%) patients were discharged on 2<sup>nd</sup> postoperative day, while 14(56%) were discharged on the 3<sup>rd</sup> postoperative day.

**Conclusion:** Mini-cholecystectomy is associated with less patients discomfort and decreased incidence of postoperative complications.

**Key words:** Minicholecystectomy, cholelithiasis, cosmetics, conventional cholecystectomy.

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### INTRODUCTION

Gall stone disease a second commonest abdominal problem after acute appendicitis, which needs proper investigation and early investigation to reduce the agony and complications of the disease<sup>1</sup>. For acute attacks of cholecystitis in old days, conservative treatment was recommended. But now with the advancement in the field of surgery, it is advised to apply proper surgical treatment i.e. cholecystectomy. 30% of the patients develop complications due to the delay in surgical treatment. Both the morbidity and mortality are increased in those patients who develop complications due to gall stone disease and surgery performed after the onset of complications.

The clinical presentation of gall stone disease is variable. Patient can present with the pain in the right hypocondrium, pain in epigastrium, dyspepsia or vomiting. In acute cases, fever with the rigors and pain may be the presenting complaints<sup>2</sup>. All the patients should be investigated properly. Investigations like complete blood examination, complete urine examination, ultrasonography abdomen and liver function tests should be performed in all the patients. Exact cause of gall stone formation is not known. Possibly metabolic problems, infection, abnormalities

in bile composition and stasis are responsible factors<sup>3</sup>. In old days patients use to have conservative treatment for acute attacks. Since the advancement in surgical facilities it is better to apply the proper surgical procedure i.e. cholecystectomy (conventional, mini or laparoscopic) in symptomatic patients or patients with complication of gall stone<sup>4</sup>.

Symptomatic gall stone disease has been treated for a century. Carl Langenbuch performed first cholecystectomy through a "T" shaped incision which was perfected by Theodor Kocher<sup>5,6</sup>. Kocher's incision starts from the xiphoid process and it runs parallel to the 5 cm below the right costal margin for about 10-30 cm, depending upon the surgeons to do cholecystectomy through a small incision<sup>7</sup>.

Mini cholecystectomy can be performed through a smaller incision about 5 cm in the right subcostal region. Mini cholecystectomy requires less operating time, less postoperative pain and early return to work than standard (open conventional) cholecystectomy<sup>8</sup>. On the other hand, mini-cholecystectomy can be performed through a smaller incision about 5 cm in the right subcostal region. Cholecystectomy can also be performed with the help of a laparoscope but it is quite costly for the common people of our region. In 1987 laparoscopic cholecystectomy was added to the list of surgical treatment of gall stone disease, which is an established standard procedure<sup>9</sup>. But it is very costly, so, mini-cholecystectomy can be used as a

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viable alternative to laparoscopic cholecystectomy especially in patients who cannot tolerate laparoscopic procedures and in areas where cost containment is critical<sup>10</sup>.

**MATERIAL AND METHODS**

This comparative, cross-sectional study was carried at Nishtar Hospital, Multan from April 2010 to September 2010. A total of 50 patients divided in two equal groups, were included in the study.

**RESULTS**

Among 50 patients of gall stone, 8(16%) were male and 42(84%) were female (Table-1). As regards age, 16(32%) were of < 40 years, 14(28%) between 41-50 years and remaining 20 (40%) were of >50 years as shown in table-II. Out of 50 patients, 32(64%) patients presenting with pain right hypochondrium, in 14(28%) patients presenting complaint was pain epigastrium. While in 6(12%) patients dyspepsia was the major symptoms and in 37(74%) patients the vomiting was present off and on Table-III.

Table I: Sex distribution

Sex	=n	%age
Male	42	84.0
Female	08	16.0

Table-II: Age distribution

Age(years)	=n	%age
< 40	16	32.0
41-50	14	28.0
> 50	20	40.0

Table-III: Distribution of patients according to symptoms

Symptoms	=n	%age
Pain right hypochondrium	32	64.0
Pain epigastrium	14	28.0
Dyspepsia	06	12.0
Vomiting	37	74.0

Table-IV: Length of hospital stay

Day of discharge	Conventional cholecystectomy	Mini-cholecystectomy
2 <sup>nd</sup>	-	08 (32%)
3 <sup>rd</sup>	-	14 (56%)
4 <sup>th</sup>	-	-
5 <sup>th</sup>	-	03 (12%)
6 <sup>th</sup>	04 (16%)	-
7 <sup>th</sup>	-	-
8 <sup>th</sup>	16 (64%)	-
9 <sup>th</sup>	05 (20%)	-
Average	8.66 days	3.33 days

In 25 patients of group-A, who were treated conventional open cholecystectomy, the average

hospital stay was 8.66 days with shortest stay of 6 days and longest stay of 10 days. Out of 25 patients 16(64%) patients were discharged after 8<sup>th</sup> day while 4 (16%) patients were discharged after patients were discharged after 6 days (Table-IV). Out of 25 patients of group-A, 6(24%) developed immediate postoperative complication like wound infection, while in remaining 19(76%) patients, the recovery was smooth. In 25 patients of group-B, 1(4%) patient, the preoperative complaint of dyspepsia persisted (Table-V).

Table V: Immediate postoperative complications

Complication	Conventional cholecystect	Mini-cholecyst
Severe pain	14 (56%)	04 (16%)
Moderate pain	-	-
Mild pain	06 (24%)	01 (04%)

**DISCUSSION**

Gall stone disease is a common disease involving the hepato-biliary system and is quite common throughout the world as well as in our country. The clinical presentation is variable. Patients may be asymptomatic or may present with acute or chronic cholecystitis, empyema gall bladder and obstructive jaundice. The incidence of gall stone disease is increasing in our society probably due to various factors like increase incidence of early marriage, use of oral contraceptive pills, oral estrogen replacement therapy for climacteric symptoms and change in dietary habits etc.

In present study the female to male ratio of gall stone disease is 4.55:1 which correlates to study conducted in Chandka Medical College, Larkana, Pakistan<sup>11</sup>. While different studies conducted in Europe showed female to male ratio 3:1.

USG abdomen showed gallstone in all the 50 (100%) of present study. Another study conducted in Nishtar Hospital, Multan in 1998-99 also showed USG abdomen gallstones in 100% patients<sup>12</sup>. Thus the study showed that USG abdomen is the most reliable investigation in the diagnosis of gall stone disease but it has certain limitations like presence of excessive bowel gases and acute inflammation of gall bladder.

A study was conducted in K.V.S.S. Site Hospital, Karachi which discussed 10 years experience on mini-cholecystectomy versus 10 years experience of conventional cholecystectomy. In this study mini-cholecystectomy was performed through a small (about 3.5cm) subcostal incision and cases were studied for operative time, postoperative pain, postoperative hospital stay, resumption of daily life and work. It states that as a result of comparison of 2 procedures it is concluded that mini-cholecystectomy is superior to conventional cholecystectomy<sup>13</sup>.

In an international study conducted at Dahr-e Bacheq Hospital, Beyrouth, Liban in 1998 showed that in mini-cholecystectomy no biliary complications, little pain with low analgesia, average hospital stay of 2 days and return to normal working is between 8 days and 14 days<sup>14</sup>.

Another study conducted in North Surgical Ward, Mayo Hospital, Lahore and results of this study narrate that less operative time, less postoperative pain and early return to work is seen after mini-cholecystectomy (incision size upto 5 cm) than conventional cholecystectomy<sup>15</sup>.

The present study shows that most of the patients undergoing mini-cholecystectomy faced only mild pain which was tolerable with very mild analgesia. A study conducted at National Institute of Cardiovascular Diseases, Karachi shows that mini-cholecystectomy (incision size 3.9+0.4cm) is safe as a day care procedure with good pain relief facilitating morbidity with multimodal pain management strategy<sup>16</sup>.

A study was conducted UK to see the effect of incision length on patients' recovery. In this study 30 patients with symptomatic gall stones were randomized to cholecystectomy through a 6cm–15cm transverse subcostal incision. Postoperative hospital stay was significantly shorter in 6 cm incision group (median 3 days vs 5 days). These results suggest that length of incision may influence patients' recovery following elective cholecystectomy<sup>17</sup>. Results of the present study also correlate with above-mentioned study.

In present study average hospital stay was 3.3 days (2-5 days) in mini-cholecystectomy. An average postoperative hospital stay of 3.3 days was also shown in a study performed at department of gastroenterology surgery, Syth GS Medical College, Mumbai<sup>18</sup>. Another study conducted in department of general surgery, Genoa-Nervi Hospital, Italy showed the average postoperative stay was 2 days<sup>19</sup>. In a study performed at All India Institute of Medical Sciences, New Dehli, in 1994 also showed the average postoperative hospital stay of 2.6 days<sup>20</sup>.

In a study 710 patients underwent cholecystectomy. In 643(90.6%) cases out of these 710 patients cholecystectomy was successfully performed through a <4cm incision and with 4.1–6cm incision in 61(8.6%) cases, with 6.1-10 cm incision in 3(0.4%) cases, and >10 cm in 3(0.4%) incisions. They concluded that cholecystectomy performed by modern mini-laparotomy is a realistic alternative to conventional and laparoscopic cholecystectomy<sup>21</sup>. These results also support the results of present study as regard to incision length and cosmetics.

Similarly one study conducted at Lautaro Clinic Arica, Chili also showed that the incidence of

postoperative complications is much higher in conventional open cholecystectomy than in mini-cholecystectomy<sup>22</sup>.

## CONCLUSION

The mini-cholecystectomy is good alternative of conventional cholecystectomy as much as hospital stay, postoperative pain and cosmetics of scar mark are concerned. Mini-cholecystectomy is relatively economical method for the treatment of gall stone disease, which is associated with less patient's discomfort, and decreased incidence of postoperative complications.

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