

# Mini Cholecystectomy - Better Option than Conventional Cholecystectomy

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Cholecystectomy is the gold standard procedure for symptomatic gallstones. It can be performed by either open or by laparoscopic method. Open cholecystectomy can further be done by either conventional method or by using a smaller incision known as minicholecystectomy. Many studies previously have shown that minicholecystectomy has comparable results with laparoscopic or open cholecystectomy. This prospective study consisted of 100 patients and was done over a period of one year. Patients were randomly allocated as Group A (conventional cholecystectomy) and Group B (mini cholecystectomy). The age and sex distribution were comparable. Minicholecystectomy was successfully performed in 46 (92%) of cases, while 4 (8%) cases were converted to conventional cholecystectomy. The total operative time was comparable in two groups. Moreover patients in Group B had less postoperative pain, shorter stay in hospital and returned early to their work. The postoperative complications were also comparable in both groups. This comparative study concluded that minicholecystectomy offer less postoperative pain, shorter hospitalization, and early return to work, without any increased risk of postoperative complications. Moreover it does not require sophisticated methods or additional specialized skills and thus can be performed by any experienced general surgeon.

**Key words:** conventional cholecystectomy, minicholecystectomy

The surgical removal of the gall bladder has been the "gold standard" for the treatment of symptomatic gallstones for well over a century. Carl Langenbuch first performed it in 1882 through a T-shaped incision. He ushered in a modern era and appropriately stated that "the gall bladder should be removed not because it contains stones, but because it forms them"<sup>1</sup>. Since then at least seven further incisions for cholecystectomy have been described<sup>2</sup>. Of these the most commonly used are Kocher's sub-costal and right paramedian Incisions. Surgical methods used nowadays for cholecystectomy include conventional open cholecystectomy, minicholecystectomy and laparoscopic cholecystectomy.

The concept of minimally invasive surgery in early eighties came when surgeons realized that the surgical wounds are one of the main factors in morbidity related to cholecystectomy. So the minicholecystectomy was introduced in 1982, in order to decrease morbidity<sup>3</sup>.

The aim of this prospective study is to compare conventional and mini cholecystectomy and to investigate the impact of different lengths of incisions on procedure time, post operative pain, post operative pulmonary complications, total stay in hospital, early morbidity and return to work.

## Materials and methods

This study was carried out in west surgical ward, Mayo hospital Lahore, on the patients admitted for elective cholecystectomy from a period of July 2005 to June 2006. They were randomly distributed to group A (conventional cholecystectomy) and group B (minicholecystectomy). All patients were matched for variables like age and sex. The patients with obstructive jaundice, acute cholecystitis,

empyema and mass gallbladder were excluded from the study. Consultants performed all cholecystectomies.

A 5 cm sub costal incision was used for minicholecystectomy. Skin, subcutaneous tissue and anterior rectus sheath were incised. Rectus muscle was retracted medially and posterior rectus sheath with peritoneum was opened. After packing the area, the dissection was done in Calot's triangle. Cholecystectomy was completed, using a single 2/0 vicryl suture for ligation of cystic artery, cystic duct and for wound closure, in majority of cases. In case of difficulty in exposure or adhesions, rectus muscle was divided. But even if this was difficult, the operation was converted to conventional cholecystectomy. While in group A, the right sub costal incision of 13-15 cm was used for conventional cholecystectomy, with division of rectus muscle.

Drain was placed in sub hepatic space in majority of group A patients and was removed in 24-48 hours. Drain was not placed in majority of group B patients. All the patients were given 3 doses of first generation cephalosporin. Local anesthetic (bupicaine 10 ml diluted in 20 cc) was infiltrated around wound and injection tramadol 50 mg was given I/M at time of recovery. Operation time was calculated from time of induction of anaesthesia to extubation. Total analgesic requirement was also noted on charts post operatively. Categorical scale for pain was implied on both groups at 24-48 hours. Wound infection was identified as cellulitis around the wound or as purulent discharge. Pulmonary complications were taken as basal atelectasis or pneumonia. Similarly total stay in hospital, return to job and other morbidities were recorded carefully. The patients were followed on outpatient basis for 2 weeks and then monthly for 3 months.

**Results**

A total number of 100 cases were included in this study, of which half (50) belonged to each group. Their age and sex distribution is shown in the Fig 1 and 2 respectively.

Fig 1: Age distribution

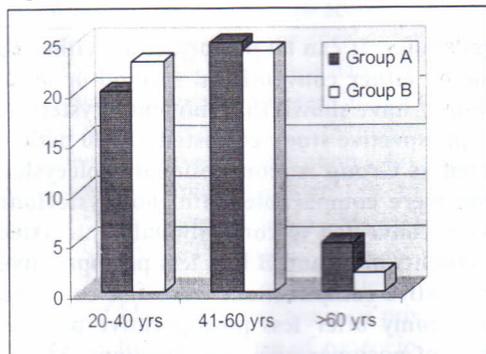
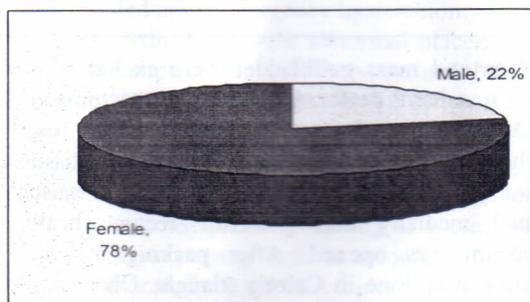


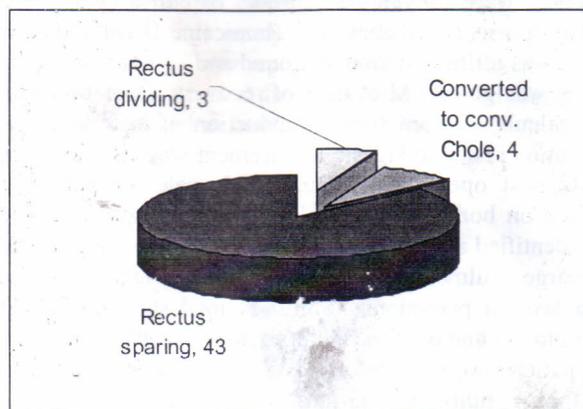
Fig. 2: Sex distribution



Surgical procedures performed in the group B are shown in the following chart (Fig. 3)

Minicholecystectomy, sparing the rectus muscle was done successfully in 43(86%) of cases. Three patients required division of rectus muscle for proper exposure, due to causes like adhesions and obesity. Four patients required conversion to conventional open cholecystectomy due to difficult exposure.

Fig. 3: Minicholecystectomy



Mean duration of procedure for minicholecystectomy was 56 minutes with range of 30 to 86 min. whereas mean duration of conventional cholecystectomy was 50 minutes with range of 25-76 min. Subhepatic tube drain was placed in 45 patients in group A. It was placed in only 3 patients in group B. Postoperative pain was calculated by categorical scale, applied on each patient, at 24 and then at 48 hours. (Table 1)

Table 1:

Categorical scale	Conventional Cholecystectomy		Mini cholecystectomy	
	24 hrs	48 hrs	24 hrs	48 hrs
Mild pain (2)	04	05	14	21
Moderate pain (3)	28	29	22	20
Severe pain (4)	22	20	10	05

The comparison of categorical scale in two groups showed a marked difference. In group A most of patients complained of mild to moderate pain in 59.2% and 62.9% at 24 and 48 hours respectively whereas CAT (categorical scale) of 4 was noticed in 40.7% and 37% respectively. In group B, categorical scale of 2-3 was seen in 78.2% and 89.1% patients whereas CAT of 4 was noticed in 21.7% and 10.8% of patients only at 24 and 48 hours respectively. The post operative complications in both groups were noticed and compared. The comparison indicates that complication rate is slightly more common in group A as compared to group B. the pulmonary complications are esp. significant in conventional cholecystectomy group. (Table 2)

Table 2

Complications	Group A	Group B
Pulmonary	05	01
Wound infections	04	02
Pyrexia	03	02

The duration of stay in hospital in both groups is shown in Table 3. The stay was less in group B as compared to the other group. And the patients with minichole-cystectomy returned to their work significantly earlier as compared to the patients in the other group.

Table. 3: Hospital stay after operation

Stay	Group A	Group B
01 day	10	44
2 days	32	04
3 days	04	0
4 days	02	01
5 days	02	01

**Discussion**

Minimal invasive surgery is one of the great introductions in the field of general surgery and it has greatly contradicted the sayings like 'great surgeons make bigger incisions', which we usually come across during our

training. Minimal invasive procedures have disproved such sayings and have clearly demonstrated that surgical incision is one of the major factor regarding morbidity and mortality<sup>4</sup>. But in our country, facility of laparoscopic cholecystectomy is not available in many health centres and open cholecystectomy is performed for gall stone disease. With advent of improved and skilled surgical techniques and good anesthetic facilities, surgeons are now performing this operation through smaller incisions<sup>5</sup>. The mini cholecystectomy is defined as an open cholecystectomy performed through a smaller (4-6) cm transverse subcostal incision, with or with out dividing rectus muscle<sup>6</sup>.

One of the arguments against this operation in poor exposure and difficult dissection. But now with good instruments and skills, surgeons are performing microcholecystectomy with specialized retractors and clip applicators, through incisions as small as 4cm<sup>7</sup>. whereas minicholecystectomy has the edge over this as it can be performed with same conventional instruments and tying materials<sup>8</sup>. And operating time and complication rate is still less than that performed with specialized instruments.

As far as subjective sense of pain is left, it is highly variable and differs from person to person. There is no standard method to determine its intensity. We used a categorical scale for this purpose and it significantly showed that pain was markedly less in patients with group B as compared to group A and required fewer doses of analgesics.

The complication rate showed that there is no significant increase in complications in mini cholecystectomy. <sup>9</sup>rather pulmonary complication occur less in this group. Total hospital stay was also less and patients return to their daily work earlier<sup>10</sup>. This carries additional socioeconomic value. Furthermore, there is no

need for any specialized training as in case of laparoscopic cholecystectomy.

### Conclusion

In view of our study performed, it is suggested that in experienced and skilled hands, minicholecystectomy is better option than conventional cholecystectomy. This procedure is a good alternative to laparoscopic cholecystectomy as it has same benefits and fewer problems related to the procedure.

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