

# Early Cholecystectomy versus Conservative Management in Mucocele Gall Bladder

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## ABSTRACT

**Aim:** To compare the early cholecystectomy versus conservative management in mucocele gall bladder.

**Study design:** Retrospective study

**Place and duration of study:** Department of General Surgery, Ward-2, JPMC/Jinnah Sindh Medical University, Karachi from 1<sup>st</sup> October 2020 to 30<sup>th</sup> September 2022.

**Methodology:** One hundred patients suffering from cholelithiasis with mucocele gall bladder were included. The patients were divided into two groups on the basis of stone location. Group 1 was those where the stone was found on the base of common bile duct (CBD) and elective/early surgery was conducted for the cases of cholelithiasis. Group 2 was those where conservative/delayed surgical technique was applied due to stone location not in the CBD for treatment. While in each group there were 50 cases which were age and gender matched. The first priority for surgical option was through laparoscopic surgery.

**Results:** The mean age of the patients was 45.2±3.3 years. Out of the total cases in group 1 the process of ERCP was conducted in 64% of the cases before laparoscopy. There were 1% and 10% cases which were shifted to open surgery from laparoscopic in group 1 and 2 respectively. Consequently, the mean operative time and hospital duration was increased in group 2. Within the Group 2 cases the risk of sepsis, wound contamination and perforation of gall bladder was much higher than in the Group 1 by a value of 10%, 12% and 6% respectively. There was 1 case of mortality and 2 cases of pancreatitis in group 2.

**Conclusion:** The early cholecystectomy is a much safer and efficient procedure on treatment of mucocele gall bladder cases verses conservative management.

**Keywords:** Early cholecystectomy, Conservative management, Mucocele gall bladder

## INTRODUCTION

Gall bladder stones are one of the common conditions observed all over the globe. It occurs with a higher prevalence in women than men especially in those having higher body mass index. The treatment of gall stones in the gall bladder is associated with surgical removal of the gall bladder. Decade before the process was conducted through open surgery while with advancement in scientific techniques the gall bladder removal is performed through laparoscopic method. The removal of gall bladder is termed as cholecystectomy. Laparoscopic cholecystectomy is accepted as a gold standard from managing the cholecystitis and cholelithiasis<sup>1,2</sup>.

The gall bladder stones are mostly made up of cholesterol. The diagnosis of the gall stones required tests like fasting ultrasonography as well as morganatic resonance cholangiopancreatography (MRCP). In Pakistan the prevalence of gall stones ranges within 8-20 percent. The age between 40 -60 years is at high risk for the formation of cholecystitis<sup>3-5</sup>.

Studies have reported various timeline approaches for cholecystectomy procedure even laparoscopic technology. The word gallbladder mucocele is referred to an over distended gall bladder which is filled with mucoid or with the clear watery content. This is commonly un-inflamed and is a result of outlet-obstruction of the gallbladder. It is caused by obstructed stone in the gallbladder neck or inside cystic duct. The performance of the early cholecystectomy or conservative management have been a long debate in mucocele gall bladder cases. Due to the benefits of nonoperational risks the conservative treatment method is considered as a viable option.<sup>6</sup> Although within the conservative treatment cases there is a high risk of recurring gall-stones<sup>7,8</sup>.

The present study was designed to compare and assess the earlier cholecystectomy with the conservative management in mucocele gall bladder cases. The results of this study will highlight the most effective method for the treatment of mucocele gall bladder cases and improve the health outcomes.

## MATERIALS AND METHODS

This retrospective study was conducted at Department of General Surgery, Ward-2, JPMC/Jinnah Sindh Medical University, Karachi from 1<sup>st</sup> October 2020 to 30<sup>th</sup> September 2022. A total of 100 patients suffering from cholelithiasis with mucocele gall bladder were included. The cases where mucocele gall bladder was not present were not included. Cases of cholecystitis were also not placed in inclusion criteria. The sample size generation was based on Australian sample size calculator software where 80% power of test and 95% CI was taken from sample calculation. Each patient was completely informed about the study and a well-versed consent was retrieved before their participation. Patient's clinical diagnosis was based on their liver function test, MRCP imaging as well as initial ultrasonography results. All the clinical and medical history of the patients was taken from their medical files. The patients were divided into two groups on the basis of stone location. Group 1, those where the stone was found on the base of common bile duct (CBD) and elective/early surgery was conducted for the cases of cholelithiasis. Group 2, those was conservative/delayed surgical technique was applied due to stone location not in the CBD for treatment. While in each group there were 50 cases which were age and gender matched. The first priority for surgical option was through laparoscopic surgery. Patients division in the groups were based on their personal consent and choice. Technical problems were scored as 1 (present) or 0 (absent) for following five operative stages: accessing the peritoneal canal, adhesion dissection from gall bladder, calot triangle dissection, gall bladder bed dissection, gall bladder extraction from abdominal -cavity. For the cases where the stone has entered CBD the process of ERCP was conducted before laparoscopy. The Specimens retrieved were further sent for histopathological analyses. Complete demographical, clinical and pre/post operational information was documented in a well structure questionnaire. Data was analyzed by using SPSS version 26.0 where Chi-square and 't' test were applied with a p value <0.05 as significant.

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## RESULTS

The mean age in group 1 was 44.3±3.4 years and in group 2 46.1±3.2 years. There were 58% of women and 42% men in group 1 while 56% women and 44% men in group 2. There was no significant difference in the age and gender of two groups. Out of the total cases in group 1 the process of ERCP was conducted in 64% of the cases before laparoscopy (Table 1).

There were 1% and 10% cases which were shifted to open surgery from laparoscopic in group 1 and 2 respectively. Consequently, the mean operative time and hospital duration was increased in group 2. The operative time was 41.1±1.2 minutes in group 1 while it was 45.3±2.2 minutes in group 2. The duration of hospital was 4.4 ±2days in group 1 while due to 8% open surgery cases the mean hospital stay in group 2 was increased to 5.9±3 days (Table 2).

Group 2 cases the risk of sepsis, wound contamination and perforation of gall bladder was much higher than in the Group 1 by a value of 10%, 12% and 6% respectively. There was 1 case of mortality and 2 cases of pancreatitis in group 2. An increased risk of biliary colic and pain was observed in group 2 cases and statistically the significant ( $P<0.05$ ) difference was found (Fig. 1).

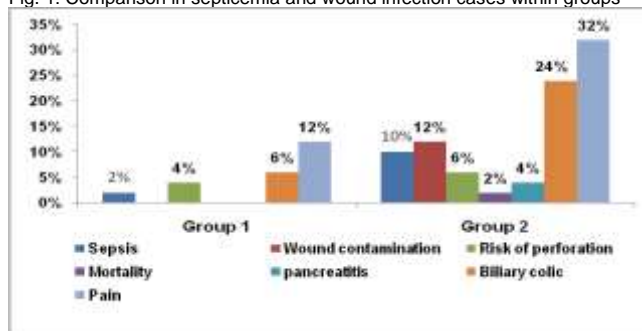
Table 1: Comparison of age and gender in both groups (n=100)

Variable	Group 1		Group 2		P value
	No.	%	No.	%	
Age (years)	44.3±3.4		46.1±3.2		0.89
<b>Gender</b>					
Male	21	42.0	22	44.0	1.2
Female	29	58.0	28	56.0	
ERCP	32	64.0	6	12.0	0.042

Table 2: Comparison of operation time and hospital stay within the groups

Preoperative risk factor	Group 1	Group 2	P value
Laparoscopic	49 (98%)	45 (90%)	0.88
Open	1 (2%)	5 (10%)	
Operation time (minutes)	41.1±1.2	45.3±2.2	0.051
Hospital stay (days)	4.4 ±2	5.9±3	0.019

Fig. 1: Comparison in septicemia and wound infection cases within groups



## DISCUSSION

The clinical effectiveness of the early surgical treatment versus conservative method has been assessed in the present research. It was observed that there is a significant reduction in operation time and duration of stay within the two groups. A higher risk of surgical complications, wound infection and sepsis has been observed in cases with conservative treatment than early cholecystectomy. A systematic review conducted in India has also reported similar findings where early surgical method was preferred with reduction in hospital stay and pain due to gall stones<sup>5</sup>.

The results of a meta-analysis elaborate that complications related with biliary colic and cholangitis are significantly lower in early surgical removal of the gall bladder. The perioperative

complications and intraoperative complication have also been mentioned in some studies related to conservative method approach in cholecystectomy of mucocele gall bladder<sup>10-15</sup>. The results are in similarity with the current research.

There has been some literature reporting cases where no surgery was required in conservative method approach. However this was not the scenario in the present research as the stones were either in the neck or inside cystic duct making a non-surgical procedure not recommendable<sup>16-18</sup>.

Previous studies have reported a high risk of bile duct injury in early cholecystectomy cases<sup>19-20</sup>, however there was no significant variance observed in context to bile duct injury within the present study results. Similar result is reported elsewhere<sup>21</sup>.

## CONCLUSION

The earlier cholecystectomy is a much safer and efficient procedure on treatment of mucocele gall bladder cases versus conservative management. It reduced the risk of infection and complications related with delayed surgical method.

**Conflict of interest:** Nothing to declare

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