

Incidence of Conversion of Laparoscopic to Open Cholecystectomy in Patients Presenting With Thick Walled Gall Bladder

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ABSTRACT

Objective: To assess the incidence of conversion of laparoscopic cholecystectomy to open in patients presenting with gall bladder wall thickness more than 3mm. Also examine the per-operative complications and post-operative wound infection.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Surgery, Central Park Teaching Hospital Lahore from 1stMay 2018 to 30thApril 2019.

Materials and Methods: Total 132 patients of both genders with ages 20 to 60 years with gall bladder diseases having wall thickness >3mm were included. Patient's demographics including age, sex, and duration of disease and thickness of gall bladder wall were recorded after taking written consent. All the patients underwent laparoscopic cholecystectomy. Per-operative complications, conversion to open and post-operative wound infection were recorded.

Results: There were 105 (79.55%) females and 27 (20.45%) males with mean age 36.48±13.52 years. Mean duration of disease was 3.95±3.45 years. 92 (69.70%) patients had gall bladder wall thickness 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to 5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness. 45 (34.09%) patients had per-operative adhesion, perforation found in 13 (9.85%) patients and per-operative bleeding during separation was found in 50 (37.88%) patients. 17 (12.88%) patients needed conversion to open cholecystectomy. Post-operative wound infection found in 20 (15.15%) patients.

Conclusion: Thick walled gall bladder is directly associated to conversion laparoscopic to open cholecystectomy with high rate of per-operative complications and post-operative wound infection.

Key Words: Laparoscopic Cholecystectomy, Conversion to Open, Preoperative Complications, Wound Infection.

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INTRODUCTION

Since decades laparoscopic cholecystectomy is the procedure of choice for symptomatic cholelithiasis, with reduced operative time and decreased hospital stay in comparison to the open procedure.^{1,2} However there are still 3.6 to 13.9 % conversion rates in local and international studies.^{3,4} In a number of studies gall bladder wall thickness more than 3mm on ultrasound, has been shown to have a positive relation with prolonged operative time in laparoscopic cholecystectomy and an increased conversion rate to open cholecystectomy.⁵⁻⁸

Ultrasound is the modality of choice for measuring gall bladder wall thickness as it is economical, easily available and noninvasive with accuracy of 92%.⁹

Laparoscopic cholecystectomy has many advantages over open cholecystectomy in terms of minimal postoperative pain, shorter hospital stay, better cosmesis and early recovery.^{10,11} However, in 1-13% conversion to an open procedure has to be done because of multiple reasons.¹² Sherma et al¹³ in their study have noted the reasons for difficulties with more than 3mm gall bladder wall thickness. They noticed 6% had dense adhesions around gall bladder, 0.2% had unclear anatomy of CA lot's triangle even after dissection, 13.3% had bleeding from liver bed and 11.7% had perforation of gall bladder during peeling from liver bed.

MATERIALS AND METHODS

This prospective study was conducted at Department of Surgery, Central Park Teaching Hospital Lahore from 1stMay 2018 to 30thApril 2019. A total of 132 patients of both genders with ages 20 to 60 years presenting with cholelithiasis with gall bladder wall thickness >3mm were included. Patient's demographics including

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age, sex, and duration of disease and thickness of gall bladder wall on ultrasound were recorded after taking written consent. Patients with history of previous abdominal surgery, with Para umbilical hernia, obstructive jaundice, empyema gall bladder and patients who were unwilling were excluded from this study. All the patients underwent 3 port standard laparoscopic cholecystectomy by an experienced surgeon. Per-operative complications such as local adhesion, perforation of gall bladder and bleeding during dissection were recorded. Conversion to open was noted. Post-operative wound infection was recorded. Data was analyzed by SPSS 24. P-value less than 0.05 were considered as statistically significant.

RESULTS

Table No. 1: Baseline characteristics of all the patients

Variable	No.	%
Age (years)	36.48±13.52	
Gender		
Male	105	79.55
Female	27	20.45
Disease duration (years)	3.95±3.45	
Wall thickness (mm)		
3.5 - 4.5	92	69.7
4.6 - 5.5	29	21.97
>5.5	11	8.33

Table No. 2: Frequency of per-operative complications

Peroperative complications	No.	%
Adhesion	45	34.09
Perforation	13	9.85
Bleeding during dissection	50	37.88

5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness (Table 1). Forty five (34.09%) patients had per-operative adhesion, perforation occurred in 13 (9.85%) patients and per-operative bleeding during separation in 50 (37.88%) patients (Table 2). Seventeen (12.88%) patients needed conversion to open cholecystectomy due to excessive bleeding during separation of gall bladder from liver bed. Years. Mean duration of disease was 3.95±3.45 years. 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to We found 20 (15.15%) patients had developed post-operative wound infection while 112 patients had no post-operative wound infection.

DISCUSSION

Laparoscopic cholecystectomy is no doubt the treatment of choice for gall bladder disease. Many studies have reported that laparoscopic cholecystectomy is much safer and effective treatment modality with very low rate of complication.^{14,15} The conversion rate of laparoscopic cholecystectomy to

open cholecystectomy is very low, but in different studies wall thickness of gall bladder is an important factor influencing the conversion rate and difficulty level of laparoscopic cholecystectomy.¹⁶ Present study was conducted to determine the conversion rate of laparoscopic to open cholecystectomy in patients with thick walled gall bladder. There were 105 (79.55%) female patients and 27 (20.45%) patients were males with mean age 36.48±13.52 years. Many previous studies reported female patients had high rate of gall bladder disease as compared to males and majority of patients were between 25 to 45 years of age.^{17,18}

In present study mean duration of disease was 3.95±3.45 years. 92 (69.70%) patients had gall bladder wall thickness 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to 5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness. A study conducted by Zaman et al¹⁹ reported the median duration of disease was 4.53±4.67 years and average wall thickness was 4.07±0.63mm. In our study 45 (34.09%) patients had per-operative adhesion, perforation found in 13 (9.85%) patients and per-operative bleeding during separation was found in 50 (37.88%) patients. These results showed similarity to previous studies in which patients with thick walled gall bladder disease had high rate of per-operative complication and the most common complication reported was bleeding during separation from Liver bed followed by adhesion and perforation of gall bladder.^{20,21}

In this study 17 (12.88%) patients needed conversion to open cholecystectomy due to excessive bleeding during separation of gall bladder from liver bed. 20 (15.15%) patients developed post-operative wound infection while 112 patients had no post-operative wound infection. We found that patients with wall thickness more than 4.5mm had high rate of conversion to open 58.82%. Several previous studies showed similarity to our findings in which more gall bladder thickness increases the conversion of laparoscopic to open cholecystectomy.^{22,23} Post-operative wound infection rate was high due to conversion to open. Some previous studies showed different results regarding post-operative wound infection in which wound infection rate reported was 3 to 5.5%.^{24,25}

CONCLUSION

We concluded that thick walled gall bladder increases the degree of operative difficulty and is directly associated with conversion of laparoscopic to open cholecystectomy. Preoperative assessment of gall bladder wall thickness can predict the difficulty level and the surgeon will be better prepared and can also counsel the patient for the higher risk of conversion.

Author's Contribution:

Concept & Design of Study: Amna Shahab
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