



PREOPERATIVE PREDICTORS OF DIFFICULT LAPAROSCOPIC CHOLECYSTECTOMY IN PATIENTS WITH CHOLELITHIASIS: A LONGITUDINAL STUDY AT A TERTIARY CARE CENTER IN CENTRAL INDIA

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ABSTRACT

Background: Laparoscopic cholecystectomy (LC) is the gold standard treatment for symptomatic cholelithiasis. However, a subset of patients experience technical difficulty, leading to increased operative time, complications, or conversion to open surgery. Accurate preoperative prediction is essential for surgical planning and patient counseling. **Methods:** This longitudinal study included 158 adult patients with cholelithiasis undergoing LC at a tertiary care center in Central India. Demographic, clinical, laboratory, and ultrasonographic parameters were recorded preoperatively. Intraoperative difficulty was assessed based on adhesions, Calot's anatomy, dissection difficulty, vascular or gallbladder injury, blood loss, and need for drain insertion. **Results:** The mean age was 57.3 ± 15.6 years, with 44.3% patients aged > 60 years. Male patients constituted 44.3%. Gallbladder wall thickening (mean 6.0 ± 2.3 mm), impacted stones (51.3%), peri-gallbladder adhesions (50.6%), and CBD stones (37.3%) were common. Difficult dissection occurred in 41.4% cases. Advanced age, male sex, gallbladder wall thickening, impacted stones, CBD stones, and fibrotic gallbladder were significantly associated with difficult LC. **Conclusion:** Preoperative clinical and ultrasonographic parameters reliably predict difficult LC. Incorporation of these factors into routine assessment can improve operative planning, reduce complications, and enhance patient safety.

KEYWORDS : Laparoscopic cholecystectomy, difficult cholecystectomy, gallbladder wall thickness, impacted stone, cholelithiasis

INTRODUCTION

Cholelithiasis is one of the most common biliary disorders worldwide. Laparoscopic cholecystectomy has replaced open surgery as the standard of care due to reduced postoperative pain, shorter hospital stay, and faster recovery. Despite its advantages, LC can be technically challenging in certain patients owing to inflammation, fibrosis, or distorted anatomy. Identifying predictors of difficult LC preoperatively allows better case selection, appropriate surgeon allocation, and informed consent.

MATERIALS AND METHODS

This longitudinal observational study was conducted over 12 months in the Department of General Surgery of a tertiary care hospital in Central India. Adult patients (≥ 18 years) diagnosed with cholelithiasis and planned for LC were included. Patients with malignancy, obstructive jaundice, pregnancy, or those unfit for general anesthesia were excluded. Preoperative assessment included demographic data, clinical findings, laboratory investigations, and ultrasonography. All surgeries were performed by an experienced surgeon using a standard four-port technique. Data were analyzed using SPSS version 23.0.

RESULTS

Among 158 patients, females predominated (55.7%). The most common symptoms were fever (24.1%), jaundice (23.4%), and right upper quadrant pain (22.2%). Ultrasonography revealed mean gallbladder wall thickness of 6.04 mm, multiple stones in 48.1%, impacted stones in 51.3%, and peri-gallbladder adhesions in 50.6%. Difficult dissection was encountered in 41.4% cases.

Postoperative complications were minimal, with no complications in 91.1% patients.

DISCUSSION

The present study demonstrates that gallbladder wall thickening, impacted stones, advanced age, male sex, and presence of CBD stones are strong predictors of difficult LC. These findings are consistent with previously published

literature. Thickened gallbladder walls and impacted stones distort Calot's anatomy, increasing the risk of vascular or biliary injury. Recognition of these predictors can aid in preoperative risk stratification.

CONCLUSION

Difficult laparoscopic cholecystectomy can be reliably predicted using simple preoperative clinical and ultrasonographic parameters. Routine use of these predictors can enhance surgical planning, reduce intraoperative complications, and improve overall patient outcomes.