



AN OBSERVATIONAL STUDY OF PREOPERATIVE PREDICTIVE FACTORS (CLINICAL & RADIOLOGICAL) IN DIFFICULT LAPAROSCOPIC CHOLECYSTECTOMY IN A TERTIARY CARE CENTRE

Surgery

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ABSTRACT

Background: CHOLELITHIASIS is the most common biliary pathology accounting for 10-15% in general population and around 80% patients does not show any symptoms. In india it is estimated to be around 4-5%. The gold standard treatment for any gall bladder pathology is laparoscopic cholecystectomy. It is very difficult to predict preoperatively, whether it is going to be easy or difficult. The study identifies the factors that can predict difficulty in laparoscopic cholecystectomy and thus complications can be prevented beforehand. **Material And Method:** This is an observational study done between 2019-2020 in a tertiary care centre –surat,Gujrat. It includes 40 cases of cholelithiasis who had undergone laparoscopic cholecystectomy by a single laparoscopic surgeon. The method for the study included screening of patients of cholelithiasis with clinical and radiological findings. Later patients were assigned scores based on age, sex, past history, clinical examination and radiological findings preoperatively and score upto 5 is designated as easy, 6-10 as difficult and 11-15 as difficult. **Result:** In our study - age, obesity, previous hospitalisation, gall bladder wall thickness and pericholecystic collection were the significant predictors of difficult laparoscopic cholecystectomy. **Conclusion:** Predicting preoperatively a difficult outcome is important for any untoward complications that might occur intraoperatively so that one can be prepared to handle any complications and carry laparoscopic cholecystectomy safely. In this present study it is evident that following factors- age, obesity, previous history of hospitalisation with similar complaints, gb wall thickness and pericholecystic collection were significant predictors of difficult laparoscopic cholecystectomy.

KEYWORDS

Difficult Laparoscopic cholecystectomy, predictive score, scoring system

INTRODUCTION:

CHOLELITHIASIS is the most common biliary pathology accounting for 10-15% in general population and around 80% patients does not show any symptoms. The prevalence of gall stone In india it is estimated to be around 4-5%. The etiology of gall stones is mainly related to concentration of bile and stasis of bile in gall bladder. Cholelithiasis incidence reaches its peak in 5th -6th decades. Women are more affected than men in the ratio of 4:1. The gold standard treatment for any gall bladder pathology is laparoscopic cholecystectomy. The advantages of laparoscopic cholecystectomy are earlier return of bowel function, less post-operative pain, better results cosmetically, shorter duration of hospital stay and also earlier return to full activity.

At times laparoscopic cholecystectomy has becomes difficult. At present there is no standard scoring system available to predict the degree of difficulty preoperatively. In this study, we have worked out a scoring system for predicting the difficulty in laparoscopic cholecystectomy preoperatively and correlate with our intraoperative degree of difficulty. The study identifies the factors that can predict difficulty in laparoscopic cholecystectomy and thus complications can be prevented beforehand.

MATERIAL AND METHOD:

This is an observational study done in the year 2019-2020 in a tertiary care centre –surat, Gujarat. It includes 40 cases of cholelithiasis who had undergone laparoscopic cholecystectomy by single laparoscopic surgeon. The cholelithiasis patients whose diagnosis is confirmed by USG examination were evaluated with following factors: age, sex, h/o previous hospitalization, obesity, abdominal scar, palpable gall bladder, sonographic findings- gall wall thickness, pericholecystic collection and impacted stone in cystic duct. After complete clinical and radiological evaluation –patients were assigned scores based on age, sex, past history, clinical examination and radiological findings prior to surgery as described in the scoring system.

Table-1 Scoring System.

HISTORY			MAX SCORE
AGE	<50Y (0)	>50Y(1)	1
SEX	FEMALE (0)	MALE(1)	1
H/O HOSPITALIZATION	N(0)	Y(4)	4
CLINICAL FINDINGS			
OBESITY	N(0)	Y(2)	2
ABDOMINAL SCAR	N(0)	Y(2)	2
PALPABLE GB	N(0)	Y(1)	1
RADIOLOGICAL FINDINGS			

GB WALL THICKNESS	<4mm(0)	>4mm(2)	2
PERICHOLECYSTEIC COLLECTION	N(0)	Y(1)	1
IMPACTED STONE IN CYSTIC DUCT	N(0)	Y(1)	1

After preoperative predictive scoring all patients were subjected to do laparoscopic Cholecystectomy and preoperative scoring is correlated with difficulty level of laparoscopic cholecystectomy.

Laparoscopic cholecystectomy is the procedure of choice for majority of gall bladder pathology. Pneumoperitoneum is created using CO₂ either by open method-inserting 10mm or 12mm port under direct visualisation of peritoneum or by closed method by using verres needle prior to inserting initial port. Additional ports are inserted one 5mm in right subcostal region and another 5mm in subxiphoid region. The Calot's triangle is laid wide open by dividing the peritoneum on posterior aspect and on anterior aspect. Once the anatomy is clearly defined and the Calot's triangle has been laid open –the cystic duct and cystic artery are clipped and divided.

-The gall bladder is then removed from liver by sharp or cautery dissection and once free, it is removed via the umbilicus port. All instruments and ports are removed and port closure is done using Prolene -1 suture in figure of 8 manner and skin closed using Ethilon 2-0.

Postoperatively patient is given 3rd generation cephalosporins and metronidazole along with injectable proton pump inhibitors and analgesics. Usually on postoperative day 2 patient started with sips orally and gradually increased to full diet and simultaneously patient is mobilised. On monitoring drain output – drain is removed usually on postop day 3 or day 4. On an average all patients are discharged on postop day 4-day 5. Skin suture of port are removed on 7th postop day.

In this study all cases are taken according to inclusion and exclusion criteria. This is estimated to be around 40 patients during the study period. All the relevant information was extracted from these files and filled in the data sheet. This data was then analysed. Data entry and analysis had been done using Microsoft Excel and SPSS version 23

OBSERVATION:

Out of 40 patients 13(32.5%) are males and 27(67.5%) are females. Most of the patients in this study were between 31-40yrs of age(32.5%). Out of 40 patients 8(20%) patients had history of previous hospitalisation for similar complaints, 8(20%) patients had recurrent complaints, 3(7.5%) patients had history of abdominal surgeries. Out of 40 patients 15(37.5%) patients had obesity which is also one of the factor for difficult laparoscopic cholecystectomy. Palpable gall

bladder was present in 5% of patients. Out of 40 patients 20(50%) patients had gall bladder wall thickness >4mm, 1(2.5%) patient had impacted stone in cystic duct and 11(27.5%) patients had pericholecystic collection.

Out of 40 patients 27 patients preoperative score was between 0-5, 11 patients score was between 6-10 and none of the patients score was between 11-15.

Table No-2 Preoperative Score Distribution

SCORE	PRESENT STUDY	PERCENTAGE
0-5	27	67.5
6-10	11	27.5
11-15	2	5

Out of 27 patients who had preoperative predictive score between 0-5 and predicted as easy laparoscopic cholecystectomy – 25 patients had easy laparoscopic cholecystectomy and 2 patients had difficult laparoscopic cholecystectomy. 11 patients who had preoperative predictive score between 6-10 and predicted as difficult laparoscopic cholecystectomy had difficult laparoscopic cholecystectomy and 2 patients with preoperative predictive score between 11-15 had difficult laparoscopic cholecystectomy.

Table -3 Correlation Between Preoperative Predictive Score And Outcome

PREOP SCORE	EASY	DIFFICULT
0 TO 5	25	2
6 TO 10	0	11
11 TO 15	0	2

Table 4: Analysis Of Per-operative Outcome With Risk Factors:-

RISK FACTORS	LEVEL	PER-OP	OUTCOME	P VALUE
		DIFFICULTY	EASY	PRESENT STUDY
AGE	<50YR	2	24	<0.0001
	>50YR	13	1	
SEX	FEMALE	10	16	0.4389
	MALE	5	9	
OBESITY	PRESENT	13	2	<0.0001
	ABSENT	2	23	
PREVIOUS HOSPITALISATION	PRESENT	8	0	<0.0001
	ABSENT	7	25	
ABDOMINAL SURGERY	YES	3	0	0.023
	NO	12	25	
PALPABLE GALL BLADDER	PRESENT	2	0	0.0673
	ABSENT	13	25	
GB WALL THICKNESS	>4mm	4	16	0.0014
	>4mm	11	9	
IMPACTED STONE	PRESENT	1	0	0.1875
	ABSENT	14	25	
PERICHOLECYSTIC COLLECTION	PRESENT	10	1	<0.0001
	ABSENT	5	24	

DISCUSSION:

Laparoscopic cholecystectomy is the fantasy of this era of minimally invasive surgery. What would look simple might not be simple all the time and in that case the consequences could be devastating. Hence there needs to be a way in which a difficulty could be anticipated preoperatively. In about 5-10% of cases of laparoscopic cholecystectomy, conversion to open cholecystectomy may be needed for safe removal of gall bladder.

As laparoscopic cholecystectomy has been widely accepted as the gold standard for the management of gallstone disease, one has to have adequate expertise in the same, as well as in the open approach so as to manage complications. From our study, it is evident that it is possible to identify the risk factors preoperatively and in a cost effective way too

CONCLUSION:

In this study we observed that Clinical and radiological findings in

patients of cholelithiasis are good preoperative predictors for the technical difficulty of laparoscopic cholecystectomy and can help the surgeon to anticipate the risk for intraoperative complications and the possible need for conversion to open cholecystectomy. We concluded that the preoperative scoring system is statistically and clinically a good test for predicting the operative outcome in laparoscopic cholecystectomy.

The following risk factors were considered – age >50yrs, male sex, history of prior hospitalization with similar complaints, obesity , abdominal scar, palpable gall bladder, gb wall thickening, impacted stone in cystic duct and pericholecystic collection,

In this present study it is evident that following factors- age, sex , previous history of hospitalisation with similar complaints , gb wall thickness and pericholecystic collection were significant predictors of difficult laparoscopic cholecystectomy.

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