



ROLE OF ULTRASONOGRAPHY TO DETERMINE DIFFICULTY IN LAPAROSCOPIC CHOLECYSTECTOMY.

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ABSTRACT **BACKGROUND:** Gallstones constitute a significant health problem in developed societies, affecting 10% to 15% of the adult population. In 1992, The National Institute of Health (NIH) accord advancement meeting expressed that laparoscopic cholecystectomy "gives a safe and effective treatment to most patients with symptomatic gallstones. In about 2 to 10% of laparoscopic cholecystectomy, conversion to open cholecystectomy is needed for safe removal of gallbladder.

AIM OF STUDY: To study the various ultrasonographic parameter which may predict difficulty in performing laparoscopic cholecystectomy
MATERIALS AND METHODS: The materials for the present study on "clinical study to determine factors for difficulty in laparoscopic cholecystectomy" comprises of 118 cases admitted to PADMASHREE DR. D.Y. PATIL hospital and research institute, Kolhapur from may 2014 to may 2016 a period of 24 months.

RESULTS: The highest age incidence of cholelithiasis was in the 3rd decade, and was more common in females. Pain abdomen was the most common symptom. The only complication was of port site infections in 1.6% (n=2) and in both cases there was biliary spillage. impacted stone (P<0.0001) and pericholecystic collection (P<0.0001) were significant predictors of difficult laparoscopic cholecystectomy.

INTERPRETATION AND CONCLUSION

Ultrasound is the most sensitive and accurate investigation for diagnosis of cholelithiasis. In this series it is found there is good correlation between gall bladder wall thickness on ultrasound i.e. >4 mm with difficulty in laparoscopic cholecystectomy (p<0.0001).

KEYWORDS : Lap Chole . Ultrasound . Prediction . Difficult

INTRODUCTION⁽¹⁾

Gallstones constitute a significant health problem in developed societies, affecting 10% to 15% of the adult population, meaning 20 to 25 million Americans have (or will have) gallstones.⁽²⁾ In 1992, The National Institute of Health (NIH) accord advancement meeting expressed that laparoscopic cholecystectomy "gives a safe and effective treatment to most patients with symptomatic gallstones."⁽³⁾⁽⁶⁾ Laparoscopic cholecystectomy has turned into the best quality level in the treatment of cholelithiasis and is supplanting open cholecystectomy. The rate of transformation from laparoscopic cholecystectomy to open cholecystectomy is 2 to 15%.^(6,13) Henceforth it is important to think about the prescient components for troublesome laparoscopic cholecystectomy. Subsequently this study was embraced.

MATERIAL AND METHODS

The materials for the present study on "clinical study to determine factors for difficulty in laparoscopic cholecystectomy" comprises of 118 cases admitted to PADMASHREE DR. D.Y. PATIL hospital and research institute, Kolhapur from may 2014 to may 2016 a period of 24 months. The method for the study included screening of patients who came with upper abdominal pain, or dyspepsia or vomiting or jaundice. Such patients were studied in detail clinically and investigated. Ultrasound abdomen was done in all patients. Routine hematological and biochemical investigations were done. LFT and PT-INR were done in all patients.

The patients confirmed by USG examination of cholelithiasis were evaluated with following factors: Pericholecystic collection, impacted stone. (Table 1)

All the patients were received symptomatic treatment. Following evaluation the patient will be subjected to laparoscopic cholecystectomy and time taken, biliary / stone spillage, injury to duct/artery or conversion were noted. All the patients were operated by single laparoscopic surgeon. Post operatively cases were followed up for any complication. Drain was removed on 3rd post OP day depending on the drainage, and suture removal was done 8th post OP day. All cases were followed up for any recurrent symptoms.

Table 1 Easy/difficult – our criteria

Easy	Time taken <60 min no bile spillage no injury to duct, artery
Difficult	Time taken 60–120 min bile/stone spillage injury to duct no conversion
Very difficult	Time taken >120 min conversion

STATISTICAL METHODS

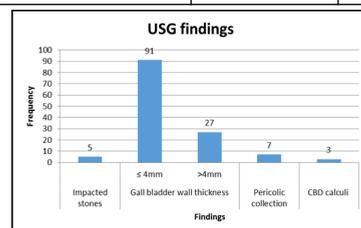
- Data was expressed as percentage and mean \pm S.D.
- Kolmogorov-Smirnov analysis was performed for checking linearity of the data
- Fischer's exact test or Chi square test was used to analyze the significance of difference between frequency distribution of the data.
- ROC curve was plotted to check the diagnostic significance of predictive score.
- P value <0.05 was considered as statistically significant.
- SPSS© for windows™ Vs 17, IBM™ Corp NY and Microsoft excel™ 2007, Microsoft® Inc USA was used perform the statistical analysis.

RESULTS

Of the 118 patients included in the study, Ultrasonographic finding like gall bladder wall thickness was normal in 91 (77.1 %) patient and increased in 27 (22.8 %) patients, impacted stone noted in 3 (2.5 %) patients and pericholecystic collection in only 7 (5.9 %) patient is noted. Table 1 and graph.

Table 1: USG Findings in study subjects

PA Findings	Frequency	Percent
Impacted Stones in the neck	5	4.2
Gall Bladder Wall Thickness	≤4	77.1
	>4	22.9
Pericholic Collection	7	5.9
CBD Calculi	3	2.5



Graph 1: USG Findings in study subjects

DISCUSSION

Ultrasound is the most sensitive and accurate investigation for diagnosis of cholelithiasis. Of the 118 patients, all had stones in the gall bladder, 22.9% (n=27) patients had thickened gall bladder wall and 5.9% (n=7) had peri-cholecystic collection. In this series it is found there is good correlation between gall bladder wall thickness on

ultrasound i.e. >4 mm with difficulty in laparoscopic cholecystectomy (p<0.0001). The thickened wall gall bladder is difficult to grip during the surgery. In our series impacted stone in the neck of the gall bladder was seen as good predictor for difficult laparoscopic cholecystectomy (p<0.0001). The main difficulty with impacted stone in the neck is in holding the gall bladder during dissection, due to impacted stone; the gall bladder is distended with mucosa forming mucocele of gall bladder which is more difficult to grip. Peri-cholecystic collection is another independent risk factor for difficult laparoscopic cholecystectomy (p<0.0001). Peri-cholecystic collection leads to difficulty in dissection due to dense adhesion with the surrounding structure with Calot's triangle.

RISK FACTORS	LEVEL	PER-OP OUTCOME			P VALUE	
		E-NO%	D-NO (%)	VD-NO (%)	PS	R ⁽¹⁴⁾
USG-WALL THICK	≤/4	94.60%	16.70%	12.50%	<0.0001	0.038
	>4	5.40%	83.30%	87.50%		
IMPACTED STONE	Nil	100.00%	83.30%	75.00%	<0.0001	0.19
	Yes	0.00%	16.70%	25.00%		
P/C COLLECTI ON	Nil	0.00%	22.20%	37.50%	<0.0001	0.999
	Yes	100.00%	77.80%	62.50%		

CONCLUSION

Ultrasound is the most sensitive and accurate investigation for diagnosis of cholelithiasis. Gall bladder wall thickness on ultrasound i.e. >4 mm found to have difficulty in laparoscopic cholecystectomy.

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