

To study the role of ultrasonography to predict difficulties in cholecystectomy

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Abstract

Background: The present study was done to study the role of ultrasonography to predict difficulties in cholecystectomy. In this study we compare the preoperative ultrasonography findings with the intra operative findings.

Methods: The present study was done at Maharao Bhim Singh Hospital attached to Govt. Medical College, Kota, from January, 2018 to January, 2019. Total 50 patients were included in the present study with preoperative ultrasonography report done within one week preoperatively.

Results: Preoperative evaluation of patients by Ultrasonography revealed that 7 patients (14%) had contracted gall bladder and 43patients (86%) had distended gall bladder. On exploration, 10 patients (20%) were having contracted gall bladder and 40 patients (80%) were showing distended gall bladder.

Conclusion: Our study on comparing pre operative ultrasonography findings regarding either gall bladder contracted or distended with intra operative findings the p value was 0.999, which shows that preoperative

ultrasonography can't detect either gall bladder is distended or contracted with high surgical concordance

Keywords: USG, Gall bladder, Cholecystectomy.

Introduction

Ultrasonography (USG) is the procedure of choice for identifying gallstones. High resolution, USG can detect gallstones as small as 2 mm with sensitivity >95%. The investigation is rapid, none invasive and does not involve ionizing radiation. The normal gallbladder wall appears as a pencil thin echogenic line at sonography. The thickness of gall bladder wall depends on degree of gallbladder distension. On the basis of different ultrasonographic findings of gallbladder, surgeon can predict the difficulty to be faced during laparoscopic surgery. By this, the surgeon can select appropriate cases, thus reducing the complication rate and operative time and cost. An accurate communication between operator and assistant is vital as movements of the camera can easily impede the operating surgeon. Instruments often interfere with each other within the abdomen and extracorporeally, where attachments such as the camera light lead often restrict movement. These difficulties may be partially alleviated by instruments

such as in-line laparoscopes with a longer shaft to allow the assistant to position his or her hands away from those of the operating surgeon.¹⁻⁴

Materials and Methods

1. Source of Data

Total of 50 patients with cholelithiasis who presented under surgical unit B at Maharao Bhim Singh Hospital attached to Govt. Medical College, Kota.

1. **Duration of the study:** January 2018 - January 2019

2. Methods of collection of Data

My study is a prospective study conducted over a period of 12 months. After obtaining detailed history, complete general physical and systemic examination, the patients will be subjected to relevant investigations. The complete data is collected in a specially designed case recording form. The data collected will be transferred into a master chart which is then subjected for statistical analysis.

DESIGN OF THE STUDY: Prospective, Randomized study.

Sample Size: Cases admitted with cholelithiasis to Dept of surgery at Maharao Bhim Singh Hospital attached to Govt. Medical College, Kota. During the period about 50 cases of cholecystectomy will be studied.

The number of patients may be increased subject to availability and time to increase the statistical value of result.

Patients are selected with following inclusion and exclusion criteria.

Inclusion Criteria

- All the patients had symptomatic cholelithiasis
- Normal Liver Function Test (LFT)
- No stone in Common Bile Duct (CBD)

All patients underwent detailed clinical history and examination and routine investigation with preanesthetic chekup will be carried out.

Exclusion Criteria

- Patient with suspected GB malignancy
- Concomitant common bile duct stone
- Deranged liver function test
- Refractory coagulopathy and inability to tolerate general anesthesia.

All patient underwent ultrasonography of abdomen with pelvis and LFT within seven days prior to surgery.

Procedure

A total of 50 patients will be included in study. An informed consent form will be taken and patients will be counselled about the detailed procedure, merits and demerits of operation.

All operations will be performed with general anesthesia. No postoperative analgesic device will be used.

The operative time will be recorded by an operating theater nurse. In case of open cholecystectomy, the time from skin incision to skin closure and in case of laparoscopic, the time from insertion of veress needle to closure of the trocar insertion site.

If procedure is laparoscopic convert to open surgery then time from insertion of veress needle to closure of the trocar insertion site and open surgery incision site.

The operative details will be recorded in proforma.

Statistical Analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.

Results

Table No. 1- Age Distribution

Age Group (In Years)	Number Of Patients	Percentage Of Patients
20-40	27	54%
41-60	15	30%
>61	8	16%

In this study the total number of patients were 50, out of which the youngest patient was 20yr old and the oldest was 75yr of age. Majority of the patients in the present series were in the age group of 20-40 years of age.

Table No. 2- Sex Distribution

Sex	Number	Percentage
Male	6	12%
Female	44	88%

In our study, female sex predominance observed by data because 44 were female patients against 6 male patients diagnosed with cholelithiasis with a female to male ratio of 3.3:1.

Table 3: Gall Bladder Contracted Or Distended

GBWall	USG Finding		Operative Finding	
	Number	Percentage	Number	Percentage
Contracted	7	14%	10	20%
Distended	43	86%	40	80%

ANOVA SPSS t test - P value is 0.999

Preoperative evaluation of patients by Ultrasonography revealed that 7 patients (14%) had contracted gall bladder and 43patients (86%) had distended gall bladder. On exploration, 10 patients (20%) were having contracted gall bladder and 40 patients (80%) were showing distended gall bladder.

Table 4: Pericholecystic Fluid & Other Finding

	USG Finding	Intra-Operative Finding
Pericholecystic Fluid	5(10%)	8(16%)
Adhesion	0(0%)	37(74%)
Porcelain GB	1(2%)	0(0%)
Mucocele/Pyocele	0(0%)	4(8%)
Perforated GB	0(0%)	1(2%)

ANOVA SPSS t test - P value is 0.2513

In our study, in only 5 patients (10%) the preoperative USG finding was suggestive of pericholecystic fluid collection and in 1 patient (2%) with porcelain GB. But on exploration, 8 patients (16%) were having pericholecystic fluid collection and 4 patients (8%) were having mucocele/pyocele.

On exploration of patient with preoperative USG finding of porcelain Gall Bladder, normal distended Gall Bladder was found.

1 patient with preoperative USG finding of distended normal Gall Bladder with multiple calculi, found perforated on exploration.

Discussion

With the availability of improved skills and instruments, preoperative ultrasonography may provide useful information regarding the status of gall bladder. This preoperative gall bladder condition may be helpful for the surgeon to decide and design the operative procedure.

In our study one case of perforated GB and 4 cases (3 mucocele & 1 pyocele) found intra-operatively. USG not identified these finding preoperatively. In case of perforated gall bladder, we convert lap to open surgery. 2 case of mucocele undergone open surgery, 1 case convert to open and 1 case underwent lap cholecystectomy.

In one case pre-operative ultrasonography shown contracted & porcelain gall bladder, so patient underwent open surgery but intraoperative finding was distended gall bladder with adhesion to omentum.

On comparison of preoperative ultrasonography and intraoperative finding, the pericholecystic fluid shown by preoperative ultrasonography in 10% of cases was present in 16% of cases on exploration, in 6% cases finding did not match with intra operative finding. Sanniyasi et al. showed that 7.3% patients presented with pericholecystic fluid in pre operative USG which also found intra operatively and was a risk factor for difficult cholecystectomy.

If we compare, the results of preoperative ultrasonography and intraoperative finding, no adhesion shown in any case by preoperative ultrasonography while on exploration in 74% cases adhesion present.

On comparison, no mucocele/pyocele finding in preoperative ultrasonography but on exploration in 8% cases mucocele/pyocele present. Here also preoperative ultrasonography finding did not match with intraoperative finding.

In one case, preoperative ultrasonography findings shown normal distended gall bladder while on exploration perforated gall bladder present. In one case preoperative ultrasonography shown porcelain gall bladder, while on exploration distended gall bladder present. In these two cases preoperative ultrasonography finding did not match with the intraoperative finding.

Conclusion

Our study on comparing pre operative ultrasonography findings regarding either gall bladder contracted or distended with intra operative findings the p value was 0.999, which shows that preoperative ultrasonography

can't detect either gall bladder is distended or contracted with high surgical concordance.

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