



The Clinical Features, Ultrasonographical and Histopathological Findings in Cholelithiasis

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Abstract

This prospective and descriptive study was conducted at the department of General Surgery, A total 100 patients mean age of presentation was 35.23 ± 12.32 years, mean duration of operation was 40.32 ± 14.96 minutes. Age group of 21-40 (67%) was highly effected. Females (66%) were maximum affected than males(34%). The most common mode of presentation being pain (43%), followed by Nausea(21%), Dyspepsia (17%), Pain + Jaundice(10%) and Pain + Nausea(9%) in decreasing order, patients with palpable gallbladder(16%) had more difficulty in operation. USG thickness $>3\text{mm}$ (42%) and single stone(19%) in ultrasound of gallbladder had difficulties in operation with duration of operation $>40\text{min}$. Sensitivity, Specificity, Positive predictive value, Negative predictive value and Diagnostic accuracy of detection of stone in ultrasound were 100%, 98.83%, 93.94%, 100% and 99% respectively. All specimens after operation sent for histopathological examination and found Chronic cholecystitis (74%) is maximum followed by Acutecholecystitis(23%) and Mucocele of gallbladder(3%). Out of 100 laparoscopic cholecystectomy, 5cases were converted to open-cholecystectomy due to adhesions around gallbladder which would not be detected in ultrasound.

Keywords; Cholelithiasis, Laparoscopy, Cholecystectomy, Clinical Manifestations, ultrasound scanning.

Introduction

Cholelithiasis is a most common gastro intestinal tract pathology that will be encountered by a General Surgeon. In 1420 first gall stone account

was given by a pathologist Antonio Beneveni, in a woman who died with pain abdomen^[1].

Cholelithiasis has worldwide prevalence, with estimated incidence of 1.39/100 person/year, varying little between populations. It is common in

females and in advanced age^[2,3]. Patients with gallstones typically complain of right Hypochondrium or epigastric pain, which may radiate to the back. Other symptoms include dyspepsia, flatulence, food intolerance particularly to fats^[4]

An abdominal ultrasound is the standard diagnostic test for gallstones^[5]. Ultrasonography has estimated sensitivity and specificity of 84% and 99%, being gold-standard for the diagnosis of extra hepatic biliary diseases, detecting gallstones of 1.5-2 mm in diameter^[6]. The liver contains many enzymes some of which are also present in the serum in very low concentrations. Elevated serum liver enzymes can reflect abnormalities in liver cells or bile ducts. Liver damage in patients with gallstones is thought to be the result of chronic extra hepatic large bile duct obstruction with or without repeated episodes of cholangitis and may ultimately progress to secondary biliary cirrhosis^[7].

First successful removal of gallbladder was done by Carl Langenbuch in 1882 for gall stone disease^[8]. Attempts at laparoscopic cholecystectomy (LC) was started in the early 1980s and although the first documented laparoscopic cholecystectomy was performed by Erich Muhe in Germany in 1985,^[9] number of workers credit Philip Mouret from France as pioneer of first human laparoscopic cholecystectomy. Laparoscopic cholecystectomy has rapidly become the procedure of choice for routine gallbladder removal and is currently the most commonly performed major abdominal procedure in Western countries^[10]. Laparoscopic cholecystectomy has become a therapeutic gold standard in symptomatic cholelithiasis.

The aim of study is to evaluate clinical features, ultrasound findings and operative parameters and histopathological findings.

Material and Methods

This study was conducted at Kamineni Academy of Medical Sciences and Research Centre, Hyderabad from January 2016 to December 2017 after obtaining permission from hospital ethics committee. Patients who were admitted in General

Surgery ward and diagnosed to have cholelithiasis by ultrasound findings included.

Inclusion criteria was patients who were diagnosed as a case of cholelithiasis, patients who were willing to be included in the study and patients who were fit for general anesthesia for laparoscopic cholecystectomy.

Exclusion criteria is patients who were not willing to take part in study and known case of viral hepatitis, alcoholic liver disease, drug related liver problems, Patients who had undergone previous upper abdominal surgeries excluded.

About 100 patients diagnosed as cholelithiasis and who underwent laparoscopic cholecystectomy of age 15-80 years of both sexes are included in this study. Pre operative history was taken and clinical examination of abdominal with special emphasis on presence of tenderness in right hypochondrium and palpation of gallbladder was observed. Pre-operative baseline investigations necessary for fitness which include ECG, Chest X-ray PA view, Urine R/E,RFT, complete haemogram, blood sugar level (fasting) and LFT were conducted.

Preoperative transabdominal sonography was done by Philips ultrasound on B mode, gray scale and real time scan with 3.5MHz probe as a routine in the pre-operative workup. It included number and size of gall stones in gall bladder, if the gall bladder was contracted or distended with its wall thickness (<3mm or >3mm), with Acute or Chronic cholecystitis features.

Statistical Methods

Descriptive analysis of data was done by calculating mean, median, mode and standard deviation. Predicting difficulties in laparoscopic cholecystectomy by clinical and ultrasound findings were done by Fisher's exact probability test.

Results

This study was conducted at Kamineni Academy of Medical Sciences and Research Centre, Hyderabad includes 100 patients. The mean age of the patients who presented with chief complaints was 35.23±12.32 years. In our study minimum duration of operation was 30minutes and maximum being

80minute with mean duration of operation 40.32± 14.96minutes. Females were 66% and male were 34%.

Table 1: Age wise distribution of patients

Age(years)	No/% of patients
≤20	6
21-40	67
41-60	23
61-80	4

Table 2: Clinical Symptoms according to sex wise distribution

Symptoms	Females	Males	Total
Dyspepsia	9	8	17
Nausea	14	7	21
Pain	33	10	43
Pain + nausea	3	6	9
Pain +Jaundice	7	3	10

Out of 100 patients, the difference between palpable gall bladder was observed in 16 % patients in that 6% had difficulty in surgical procedure and non palpable in 84% patients.

Table 3: Predicting difficulties by ultrasound findings

Ultra sound scanning		Duration of surgery	
		<40 min	>40 min
USGB(Ultra sound of gall bladder)	Contracted	28	21
	Distended	14	16
USGW(Ultra sound of gall bladder wall thickness in millimeter(mm))	< 3 mm	16	09
	>3 mm	7	35
USGS(Ultra sound finding of stone)	Single stone	1	18
	Multiple stone	48	4
CBD(Common bile duct)	Dilated	0	2
	Non-dilated	45	4

Table 4: Sensitivity, Specificity, PPV, NPV and DA of USG for detection of stone in gallbladder

Ultra sound gallbladder stone	Operative finding of stone	
	SS (single stone)	MS (multiple stone)
Sensitivity	100%	100%
Specificity	98.83%	100%
Positive predictive values	93.94%	100%
Negative predictive values	100%	100%
Diagnostic accuracy	99%	100%

Table 5: Type of operation

Ultra sound gallbladder final	Laparoscopic cholecystectomy (number)	LC converted to open cholecystectomy (number)
Acute cholecystitis	21	2
Chronic cholecystitis	71	3
Mucocele of gallbladder	3	0

In our study out of 100 patients operated for cholelithiasis, laparoscopic cholecystectomy was done in 95 and converted to open cholecystectomy in 5 cases.

Discussion

In this study most commonly affected age group by cholelithiasis was 20-40 years (67%), the mean age of the patients who presented with chief complaints was 35.23±12.32 years and were in comparison with other results^[11,12]. most commonly affected sex was females^[13]. In our study, most common mode of clinical presentation was pain in right Hypochondrium (62%) followed by Nausea(13%), Dyspepsia (10.50%), Pain along with Nausea (7.5%) and least mode of presentation being Pain along with Jaundice (7%). Bat et al^[14] in their study pain was observed in 67% patients. In our study, patients who had palpable gallbladder (7.5%) on clinical examination had more difficulties in operation when compared to non-palpable gallbladder. Similar finding were observed in study done by Agarwal et al.,^[15] 12% palpable.

In our study, 49% had difficulty in operation with >40mins of duration of operation in older patients. Yadav et al.,^[16] stated that advancing age had difficulty in operation.

In our study, parameters in ultrasound of gallbladder such as wall thickness greater than 3mm and single stone in gallbladder are good predictors of difficulties in Laparoscopic cholecystectomy. Similar findings were observed in studies conducted by Nayak^[13], Lonare^[15] and Yadav^[16] had difficulties in operation with thickened gallbladder wall in ultrasound. In our study, diameter of CBD is not good predictor of difficulty, but studies done by

Lonare et al.,^[15] had difficulty(>6mm) in operation with CBD dilated.

In our study Sensitivity (100%), specificity (98.83%), positive predictive value (93.94%), negative predictive value (100%) and Diagnostic accuracy (99%) of USG in detection of stone were observed. Kumar et al.,^[17] observed Sensitivity (100%), negative predictive value(100%) and positive predictive value(93.94%) in USG. Kreimer et al.,^[18] observed 98.9% of sensitivity and 97.8% of positive predictive value and 96.7% of Diagnostic accuracy.

In our study most common finding in HPE for both males and females is chronic cholecystitis (74%) followed by acute cholecystitis (23%) and mucocele of gallbladder (3%). Our findings are comparable to studies done by Nayak et al^[13] who observed chronic cholecystitis 84.28% and acute cholecystitis 14.28%.

Conclusion

From our study we conclude that Females are most commonly affected by cholelithiasis than males. Most of the patients present with pain as their chief complaint. Most commonly affected age group is between 31-40 years. Nausea and pain along with jaundice are good clinical parameters for prediction of difficulties in laparoscopic cholecystectomy. We can predict difficulty in operation if patient presents with recent attack of pain (<2months), and palpable gallbladder in clinical examination and advancing age. Ultrasound parameters like contracted gallbladder, wall thickness >3mm and single stones are good factors to predict difficulty in operation. Chronic cholecystitis is the most common finding in the histopathological examination.

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