

**A clinico pathological study of cholelithiasis and management****P Shivaramulu<sup>1</sup>,Karna Vijaya<sup>2\*</sup>**<sup>1</sup>*Assistant Professor, Department of General Surgery, Surabhi Institute of Medical Sciences, Mittapally, Siddipet, India*<sup>2</sup>*Assistant Professor, Department of Obstetrics & Gynaecology, Surabhi Institute of Medical Sciences, Mittapally, Siddipet, India***Received: 20-01-2021 / Revised: 13-03-2021/ Accepted: 11-04-2021****Abstract**

**Aim & Objectives:** The aim of this work was to collect a comprehensive account of the disease profile of cholelithiasis, its clinical presentation, complications and the management in the prevailing set up in our hospitals. **Methodology:** This clinic pathological study and management of cholelithiasis was done in Dr. B.R. Ambedkar Medical College and K.C. General Hospital attached to the Dr.B.R. Ambedkar Medical College, Bangalore. Fifty cases during the period December 1995 to March 1998 were randomly selected which were admitted to surgical units. **Results:** In the present study, Majority of the patients studied in this series came with chronic history of repeated attacks of pain and dyspepsia. Cholelithiasis is generally more common in females; in our study also the female to male ratio is 2:1.2. The only investigation which we relied upon was ultrasonography with 96% sensitivity for gallbladder stones, whereas for common bile duct stones the sensitivity is 70%. Minilap cholecystectomy has the advantage of very much reduced hospital stay was 4 days. In cases, where exploration of CBD was done, the average hospital stay was 12 days. **Conclusion:** In conclusion, the conventional cholecystectomy and minilap cholecystectomy still remain to be the commonly done operation in majority of our hospitals and other centres with good results.

**Keywords:** Cholelithiasis, Ultrasonography, Minilap cholecystectomy, Dysepsia

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**Introduction**

Stones afflicting man were curiosities, the myth surrounding the formation were legion. quests for the knowledge regarding the stone formation improved with time. Having acquired the same, constant improvement in the detection techniques paralleled the rational management. The advances in the field of radiology, especially the sinology has been a mile stone in the story of stone detection. Consequently hitherto unexplained dyspeptic symptoms, could be explained. Silent stones could be picked up and the unnecessary explorations of CBD could be minimised. The potentially dangerous calculous cholecystitis once thought of an infrequent disease in contrast to acid peptic disease in this part of the country is emerging as a common entity for various reasons. Access to sonologic evaluation, CT scan, better imaging techniques and refinement in surgical techniques with the availability of antibiotics have minimised the risks and cholecystectomy, the major modality of management at least in our country continues to be the mainstay in the management. Dissolution or disruption of stones' by medical or mechanical means once a fantasy now a reality has come as gift to patients who are otherwise unfit or unwilling for surgery. The concept of key hole surgery' not long ago a futuristic surgery, in the form of laparoscopic cholecystectomy has come to stay and may probably replace unwanted surgeries in carefully selected patients. Calculous cholecystitis no longer the domain of fatty, forty, fertile females but a significant members may not belong to this group. It is in this background this study is undertaken in all earnestness, to evaluate the symptomatology, investigation and management of the patients afflicted with the cholelithiasis And its clinical presentation.

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E-mail: [surenderjakkam@gmail.com](mailto:surenderjakkam@gmail.com)**Aims and Objectives**

The aim of this work was to collect a comprehensive account of the disease profile of cholelithiasis, its clinical presentation, complications and the management in the prevailing set up in our hospitals.

**Main Objectives**

1. To study the incidence of gall stone disease seen in Dr.B.R. Ambedkar medical college Hospital and K.C. General Hospital, Bangalore over a period of two years.
2. To study the risk factors and aetio pathogenesis of the symptoms and signs of gall stones.
3. To identify the age, sex distribution and to analyse the symptoms and signs of gall stones.
4. To study the incidence and presentation of various types of gall stones.
5. The purpose of the present study on gall stones disease is to clinically analyse the cases and to rationalise, and to evolve the methods of investigation and management.

**Materials and Methods**

This clinic pathological study and management of cholelithiasis was done in Dr. B.R. Ambedkar Medical College and K.C. General Hospital attached to the Dr.B.R. Ambedkar Medical College, Bangalore. Fifty cases during the period December 1995 to March 1998 were randomly selected which were admitted to surgical units. ALL these patients were admitted in our surgical wards with provisional diagnosis of cholecystitis, after a detailed history and thorough examination and necessary investigation were done. The approach used in the history taking, examination and investigation is labelled as in the proforma. the basis for selection of cases in this study was a suggestive of history, clinical features, positive ultrasonographic findings and confirmation per operatively. The condition of the patient were noted at the time of discharge with a regular follow up after discharge.

**Analysis and Observations**

An analysis of a detailed study of clinico pathological presentation of cholelithiasis cases admitted to the surgical units of Dr.B.R. Ambedkar Medical college hospital and K.C. General Hospital, Bangalore between December 1995 to March 1998.

**Incidence**

The incidence in relation to the total number of surgically operated cases during the above period is calculated to be 4.3%.

**Table 1:Cases related**

Total no. Of abdominal cases operated	Cholecystectomy	Percentage
1810	75	4.3%

**Table 2: Age &Sex Incidence of Cholelithiasis**

Age in years	No.of cases	Male cases(%)	Female cases(%)
71-80	2	1(2%)	1(2%)
61-70	7	1(2%)	6(12%)
51-60	8	2(4%)	5(10%)
41-50	13	7(14%)	6(12%)
31-40	14	3(6%)	11(22%)
21-30	5	2(6%)	3(6%)
11-20	1	1(2%)	-

Range of age incidence was between 18-72 years.

Male: female ratio :1:2.2

Highest incidence in females 31-40 years(22%)

Highest incidence in males 41-50 years(14%).

**Physical Constitution and Parity**

Though obese people suffer more but in the present series most of them are over weight, but moderately built. Whereas in north

American surgeons series 30% of the patients are obese and most patients are multiparous.

**Table 3:Analysis of Incidence of Gall Stones among Women**

Sl. No.	Parity in women	No.	Percentage
1.	Multiparous women	45	90%
2.	Multiparous women	5	10%

**Table 4:Analysis of Incidence of Different Symptoms and Signs in Cholelithiasis**

Sl. No.	Symptoms and signs	No.of cases	Percentage
1.	Pain Abdomen	46	92%
2.	Nausea/Vomiting	18	36%
3.	Jaundice	12	24%
4.	Flatulant Dyspepsia	5	10%
5.	Fever With Chills & Rigors	4	8%
6.	Palpable Gall Bladder	8	16%
7.	Palpable Liver	6	12%

Pain abdomen is the commonest clinical symptom to which the patient seeks relief. It is present in 92% of cases. The other common clinical symptoms are nausea, vomiting, dyspepsia, fever with chills and rigors and jaundice.

**Investigations**

In all 50 cases studied, ultrasonography was the prime investigation performed, LFT, blood urea and serum cholesterol were other specific investigations performed.

**Table 5:Evaluation of cases**

Sl. No.	Ultrasonographic evaluation	No.of cases	percentage
1.	Stones in gall bladder only	32	64%
2.	Stones in gall bladder andh Stones in CBD with dilatation	10	20%
3.	Stones in the gall bladder with dilatation of CBD	2	4%
4.	Stone in the hartmans pouch with distended gall bladder	4	8%

In 12 patients ultrasound shows dilatation of the CBD and two cases shows dilatation of the intrahepatic ducts and two cases of gall bladder stones out of 50 cases and two cases of CBD stones out of 12 cases are failed to pick up with the ultrasonography, and stones in the hartmann's pouch was found in 6 cases. For missed gall bladder stones plain X-ray of abdomen and oral cholecystography was done. Apart from routine investigations, specific investigations were as a specific tests for all the 50 cases. Of which 12 cases the liver function tests values were elevated.

Serum cholesterol estimation was done as a specific test for all 50 cases, in my study only 5% of cases serum cholesterol level was found to be elevated. Urine examination reveals bile salts and bile pigments in 24% of cases. Chest X-ray, ECG, served as a routine pre-operative investigations.

**Management**

50 cases were studied during the period of December 1995 to March 1998 and all cases were taken for elective surgery after preparing the patients with (a) i.v. fluids, (b) Inj. Vitamin K for 3 days, (c) antibiotics.

**Table 6:Incidence of Various Incisions**

Sl. No.	Type of incision	No. of cases	Percentage
1.	Kocher's incision	30	60%
2.	Minilapkocher's incision	10	20%
3.	Rt. Upper paramedian incision	7	14%
4.	Upper midline incision	3	6%

Out of 50 cases 30 cases were operated by using a Kocher's subcostal paramedian incision was taken in 7 cases(14%).An upper midline incision. Minilapkocher's incision in 10 cases(20%) and upper incision for cases associated with duodenal ulcer and fibroid uterus.

**Table 7: Analysis of Operative Procedure Used**

Sl. No.	Operative procedure	No. of cases	Percentage
1.	open cholecystectomy	34	68%
2.	Open cholecystectomy with CBD exploration and T.tube drainage	12	24%
3.	Cholecystectomy with hysterectomy	2	4%
4.	Cholecystectomy with appendectomy	2	4%

Open cholecystectomy was the most common operation performed. by ultrasonography and detected at the time of surgery.Open cholecystectomy with appendectomy was done in 4% cases were diagnosed pre-operatively as fibroid uterus and bilateral ovarian cysts. Open cholecystectomy with CBD exploration was done due to stones in CBD in 12 cases (24%) of which 10 cases were diagnosed pre-operatively by ultra sonographic evaluation and two cases are missed

**Table 8:Analysis of post operative period among the various operative procedures**

Sl. No.	Open cholecystectomy	Open cholecystectomy with CBD exploration	Mini cholecystectomy
1.Appearance of bowel sounds	2 <sup>nd</sup> -4 <sup>th</sup> POD	4 <sup>th</sup> -5 POD	2 <sup>nd</sup> POD
2.Removal of drain	3 <sup>rd</sup> -4 <sup>th</sup> day	4 <sup>th</sup> ,6 <sup>th</sup> day	3 <sup>rd</sup> day
3.Post operative ambulation	4 <sup>th</sup> day	4-6 <sup>th</sup> day	2 <sup>nd</sup> day
4.Fever with wound infection	5 cases	8 cases	=
5.post cholecystectomy syndrome	3 cases	5 cases	=
6. Bile leak with peritonitis	1 cases	2 cases	=
7. Day of discharge	8-10 day	10-14 day	8 <sup>th</sup> day
8. Pancreatitis	=	=	=
9. Basal pneumonitis	=	2 cases	=
10. Deaths	=	=	=

**Bile Culture**  
Bile culture was done in all cases in our study. Bile was sterile (yielding no growth) in about 33 cases (66%) in our study. E. Coli was isolated in 10 cases (20%) staphylococci aureus in 4 cases, pseudomonas pyocyanus in 3 cases (6%) and klebsiella in 3 cases.

**Table 9:Organisms isolated and number of cases**

Sl. No.	Organism isolated	No.of cases
1.	E.coli	10
2.	Staphylococcus aureus	4
3.	Pseudomonas	3
4.	Klebsiella	3
5.	No growth	30

**Table 10:Analysis of the gall stones (30 Cases)**

Sl. No.	Chemical composition	No. Of cases	Incidence present study
1.	Cholesterol	4	13.3%
2.	Bilirubin(calcium bilirubinate)	10	33.3%
3.	Mixed stones	16	53.4%

**Follow Up**

Only 60% of our patients came for followup ,of which the only problem which we encountered in them was post cholecystectomy syndrome in 8% cases. The rest were all healthy.

**Comparative Discussion**

Based on the analysis of fifty cases of cholelithiasis studied in surgical units of Dr.B.R.Ambedkar medical college hospital and K.C.General Hospital between December 1995 to March 1998.

The following comparative discussion is available with the literature.

**Incidence of Cholelithiasis**

Autopsy studies were done in India. In Calcutta and Chandigarh the figure from above studies indicate that the prevalence of cholelithiasis is 3.01 to 5.4%. A further study in west Bengal indicates that, the incidence of cholecystectomies is 25.9% of all the surgical procedures.In present clinical study 4.3% of all major

abdominal procedures were cholecystectomies due to calculous cholecystitis.In our series the youngest patient was 18 years and eldest was 70 years. Highest incidence seen in 31-40 years.In North American surgeon series the youngest patient was 7 years and eldest was 70 years.In present series maximum number of patients are in the age group of 41-50 years .where as in north American surgeon series the majority of patients were in the age group of 51-60 years.According to M. Shafique et al.from ranchi (IJS march 1983). Majority were below 40 years of age[1].Male to female ratio in the present study is 1:2.2 and the male to female ratio of vijaypal et al. was 1:2.4[2].

The prevalence of gall stones in Europe is approximately 1:2. Dr.Bhanasali from Bombay has noted a female preponderance 3:2 below the 50 years of age and a slight male preponderance after 50

years of age[3].Most of the our patients in the present series belonged to the lower socio economical group.

**Physical Constitution:**Though obese people suffer more but in the present series most of them are not over weight , but moderately built

where as in north American surgeon series 30% of the patients are obese.

**Table 12:Presenting Symptoms**

Complaints	In karl. Series(4)	Vijaypal series(2)	Kala Z.S. series(5)	Present series
Pain abdomen & tenderness in RH	90%	94%	97%	92%
Nausea /vomiting	44%	54%	84%	36%
Dyspepsia	53%	34.6%	64%	10%
Jaundice	10%	22%	11%	24%
Fever	8.1%	16%	10%	8%
Murphy's sign	10%	8%	12%	16%

Pain is the presenting symptom in almost all cases (92%). There is wide variability in duration of the pain ranging from 3 months to 1 year .most of them gave history of chronic recurrent attacks of pain. In all patient pain is localised to right hypochondrium. Radiation of pain to back or tip of right shoulder is present in 20% of cases only. In majority of patients the pain is of colicky in nature.In this series there is decyresed incidence of dyspepsia, nausea and vomiting as compared to other series as shown above the table.

**Clinical Features and Investigations**

In our studies 10% cases did not present with abdominal pain , these patients presented for dyspeptic symptoms of 4 months to 1 year duration.In our study 12 cases presented with jaundice associated with other symptoms .all these patients had stones in CBD.In Vijaypal et al. Series 22% of cases presented with jaundice[2]. According to maingot's abdominal surgery, cholelithiasis remains undetected during life in approximately 60-80% of people , since most gall stones are asymptomatic[6].Majority of the cases in our

study were admitted,diagnosed as chronic cholecystitis (70%). 10 cases presented with acid peptic disease, which is common in this part of the country and found to have cholelithiasis. Empyema of gall bladder in 4% of cases and none of the case found to have carcinoma of bladder.Out of 50 cases leucocytosis was seen in 10 cases of which 4 cases had calculous cholecystitis and 6 cases had choledocholithiasis.Karl et al. Found a raised serum alkaline phosphatase in 20% of cases. In our series found in 24% of cases[4]

**Ultrasonography**

It is a non-invasive method used routinely in many centres in the diagnosis of cholithiasis. The sensitivity of this test was recorded upto 85-90% in many centres.In this series , the sensitivity is 96% in diagnosing cholelithiasis and 70% in choledocholithiasis.ERCP has proved to be more useful as a routine as therapeutic and diagnostic procedure in choledo-cholithiasis with gall bladder stones. In such cases preoperative endoscopic stone extraction is advised.

**Table 13:Operative Procedure Performed**

Operation performed	Rai et al.	Shafique et al.	Vijaypal et al	Present study
Open cholecystectomy alone	77.3%	87.4%	57%	68%
Open cholecystectomy with CBD exploration and 'T' tube drainage	17.3%	17.2%	15.3%	24%
Open cholecystectomy with hysterectomy	-	-	-	2%
Open cholecystectomy with appendicectomy	-	-	-	4%

The above comparison clearly shows that cholecystectomy is the common operation performed on the biliary tract. Exploration of the common bile duct in 12 cases(24%).The incidence of CBD exploration varies from 7.6 to 42.3%. in our study CBD exploration was higher than other workers which was around 24%[5]

Dr. S.K.Bhanasali Bombay (1979) reported a 31% of incidence of CBD exploration[3].All cases which underwent CBD exploration for

stones had 'T' tube was removed after 'T' tube cholangiogram on 7-10<sup>th</sup> day.

In our study chronic inflamed gall bladder incidence is about 70%. Mucocele of gall bladder in 4% , empyema of gall bladder in 6% of cases seen

**Table 14:Pathological Findings at Laparotomy**

Pathological appearance	Vijaypal et al.	Shafique et al.	Present study
Chronic inflamed gall bladder	70.1%	70.3%	70%
Acutely inflamed gall bladder	-	-	20%
Empyema of gall bladder	6.9%	3.2%	6%
Mucocele of gall bladder(distended gall bladder)	5.3%	-	4%
Carcinoma of gall bladder	-	-	-

**Gall Stone Analysis**

**Gall Stones Analysis Comparison:**In our present study mixed stones are 53.4% pigment stones are 33.3% and cholesterol stones 13.3% of cases.

**Table 15:Post Operative Complications**

Post operative complication	Dr.Bhanasali et al[3]	Present study
Wound infection	2.3%	10%
Persistent biliary leak	6.54%	2%
Jaundice	-	-
Post cholecystectomy	4%	8%
Basalpnemonitis	-	4%
Incisional hernia	-	-

Wound infection is one of the major cause of post operative morbidity, rest of the complications were very minimal and managed conservatively[3-6] All the cases in our study drainage was used, and 2% of cases biliary leak from drainage site continuing beyond 3 days. There were no deaths in our study .mortality in elective gall bladder surgery from 0.3 to 2.4%. Rai et al In their 75 operations had a mortality of 1.3%[7].Kala et al. In their series had 2% mortality .Dr.Bhanasali in his series of 118 patients, experienced a mortality of 2.33%[5].

#### Conclusion

1. Majority of the patients studied in this series came with chronic history of repeated attacks of pain and dyspepsia. The simple non invasive investigation, ultrasonography with 96% sensitivity is of great help in early diagnosis of these cases and timely management. Majority of the patients presenting in our hospital are usually from poor socio-economic strata, though cholelithiasis is commonly found in upper socio economic strata.
2. Cholelithiasis is generally more common in females, in our study also the female to male ratio is 2:1.2.
3. The only investigation which we relied upon was ultrasonography with 96% sensitivity for gallbladder stones, whereas for common bile duct stones the sensitivity is 70%. So the other criterias like the history of attacks of jaundice, dilatation of CBD, the colour of the bile and palpation of CBD if necessary after Kocherisation of the duodenum should complement the ultrasonography in deciding upon exploration of the common bile duct.
4. In majority of our general hospitals, well developed facilities for laparoscopic cholecystectomy still does not exist. So open

cholecystectomy and minilap cholecystectomy, wherever relevant, still remain the treatment of choice.

5. Minilap cholecystectomy has the advantage of very much reduced hospital stay was 4 days. In cases, where exploration of CBD was done, the average hospital stay was 12 days.
6. In conclusion, the conventional cholecystectomy and minilap cholecystectomy still remain to be the commonly done operation in majority of our hospitals and other centres with good results.

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