

Clinical Study and Management of Cholelithiasis and Its Complication

Dr. Viral G. Sangani M.S. Assistant Professor. & Dr. Priyank N. Barot &
Dr. Pavan K. R.

Department Of General Surgery, Shri M.P. Shah Government Medical College Jamnagar.

Date of Submission: 11-12-2019

Date of Acceptance: 26-12-2019

I. Introduction:

- Diseases of gallbladder are one of the important causes of abdominal morbidity which are ignored because of lack of specific signs and symptoms.
- Gall stone disease is chronic recurrent disease of hepatobiliary system characterized by formation of gallstones due to impaired metabolism of bile acids, bilirubin and cholesterol. [1,2]
- This altered metabolism is associated with formation of calculi in gallbladder, common bile duct and common hepatic duct. [1,2]
- Incidence of gallstone disease is on a rise globally due to change in dietary changes, life style changes, associated with high junk food consumption and increased sedentary life style modification. [1,2]
- Incidence is very high in female than male. [1,2,3]
- Based on chemical composition 50% of the stones are cholesterol followed by mixed and least are pigmented stones. [1,2]
- Mixed and pigmented stones are very common in south India and cholesterol stone common in north India. [3]
- Simple mechanism of formation of stones is super saturation of constituents in bile surpassing their maximum solubility. [1,2]
- Prevalence of Cholelithiasis is variable and has been reported as 2-2.9% in India with differences inter states and inter regions. [3]
- The prevalence is most common in north Indians compared to south Indians. [3]
- Recent data indicates that increase incidence among in rural population. [3]
- This is due to and ease of availability of investigation and ultrasound at rural also.
- 75% of patients required or seek medical attention due to episodic pain in abdomen.
- Diagnosis of gallstone disease is on clinical examination and proper history, combined with proper investigation.
- Laparoscopic Cholecystectomy is gold standard for symptomatic treatment of gallstone disease and other benign condition of gallbladder. [7,8]
- Due to changes in incidence of gallstone disease, there is great need to study of developing incidence, variable presentations due to change in lifestyle, associated risk factors, and clinical presentation. Our study mainly focuses on total clinical study with surgical management, their outcome and complication.

II. Material And Methodology

HOSPITAL SETTING

- The study was conducted at the Department of General surgery by me, at Guru Govindsingh Government hospital Jamnagar, a tertiary care Centre.
- Hundred patients with right hypochondrium + epigastric pain were admitted, evaluated and treated for symptomatic gall stone disease.

STUDY PERIOD

- July- 2017 to July 2019

STUDY DESIGN

- The patients were initially clinically examined and routine worked up, including all routine blood investigation, and ultrasound of abdomen. For further clarify the diagnosis, patients evaluated for CECT abdomen. (If needed).

- Patients have acute cholecystitis- treated conservatively with I.V antibiotics, I.V fluids, I.V analgesia and follow up after 6 weeks for interval cholecystectomy.
- Patients having gall bladder stones with cholecystitis- treated conservatively with I.V antibiotics, I.V fluids, I.V analgesia and follow up after 6 weeks for interval cholecystectomy.
- Patients having CBD stones is referred for ERCP stone removal, later followed for cholecystectomy.
- Patients having CBD stone GB stone is initially referred for ERCP guided stenting and /or stone removal then followed up for cholecystectomy.
- Patients having GB stone with Pancreatitis, is managed primarily for pancreatitis with I.V antibiotics, I.V fluids, I.V analgesia. Once pancreatitis treated then after 6 weeks later, patient is called for cholecystectomy.
- Patient having incidental finding of GB stone is managed conservatively with reassurance and advised for avoid fatty diet and with antacids and followed up, if symptoms persist and not responding to conservative treatment then cholecystectomy is done.
- Patient having GB perforation with GB stone is managed by conservative by I.V. antibiotic, I.V. analgesia and I.V. fluids and Ryle's tube aspiration. Later followed up for cholecystectomy.

Subject selection

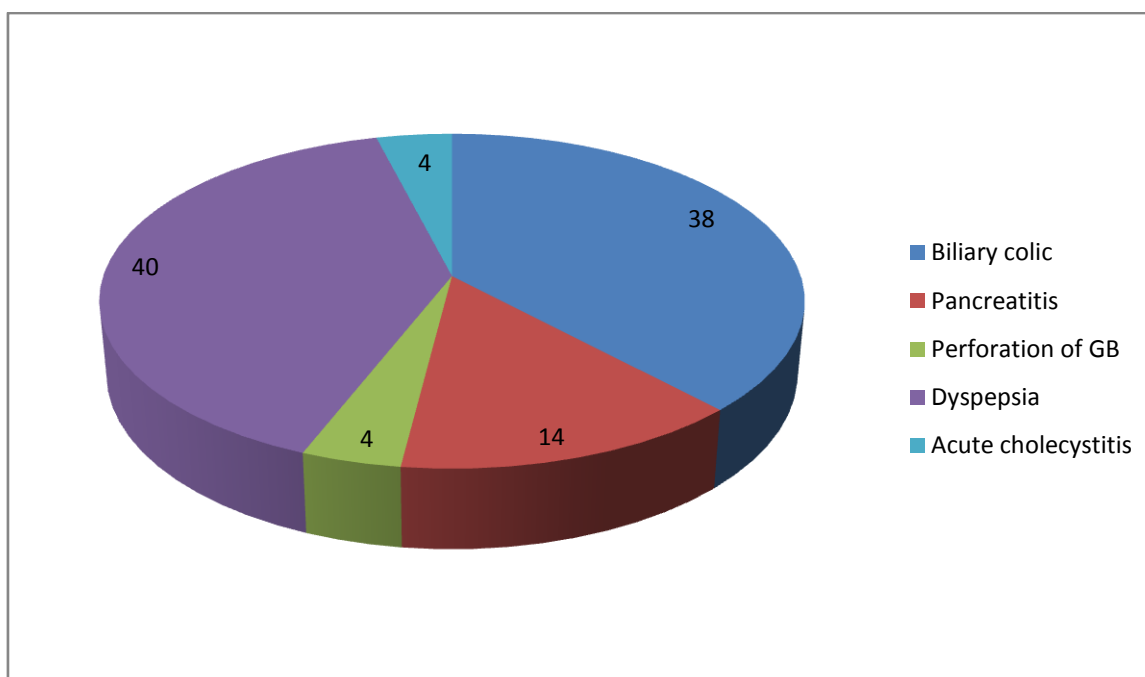
- Those who came for Interval cholecystectomy.
- Those who resolved pancreatitis and came for cholecystectomy for GB stone.
- Those who have removed CBD stone by ERCP and later came for cholecystectomy.
- Patient having symptom of dyspepsia with GB stone.
- Patient with GB stone with Gall bladder perforation manage conservatively and later followed up for cholecystectomy.

III. Observation

- In this study 100 patients presented with complain of epigastric + right hypochondrium pain are evaluated, investigated and managed accordingly. In this study following observation is made.

TABLE 1

- Presentation of patients



• Clinical presentation

Biliary colic	
Only GB stone	20
Only CBD stone	4
CBD + GB stone	14
Pancreatitis	14
Perforation of GB	4
Dyspepsia	40
Acute cholecystitis	4

TABLE 2

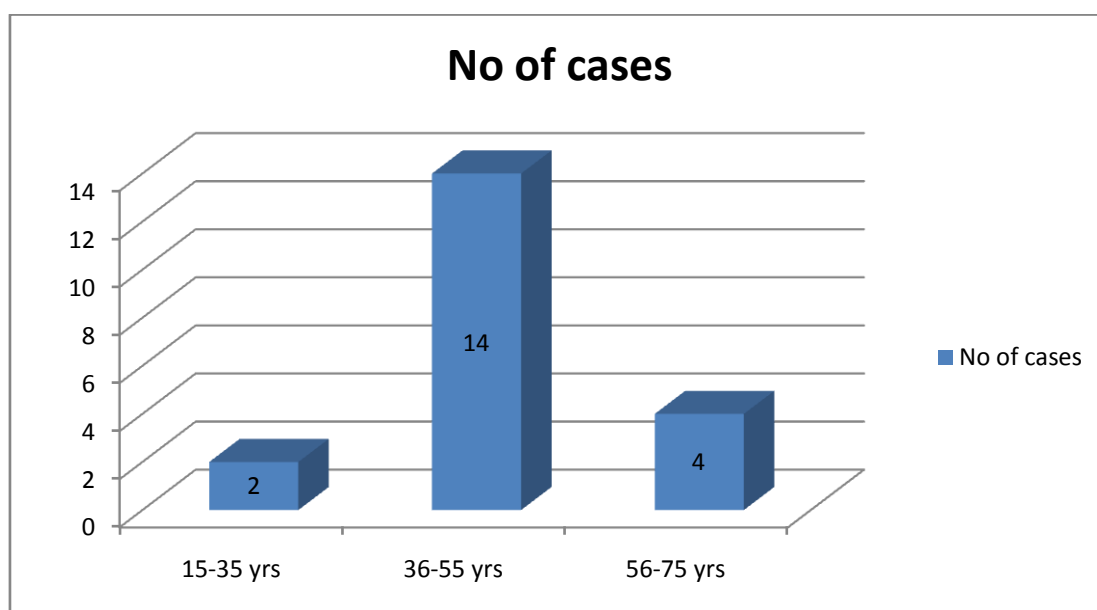
In this study, out of 100 patients

Female	60
Male	40

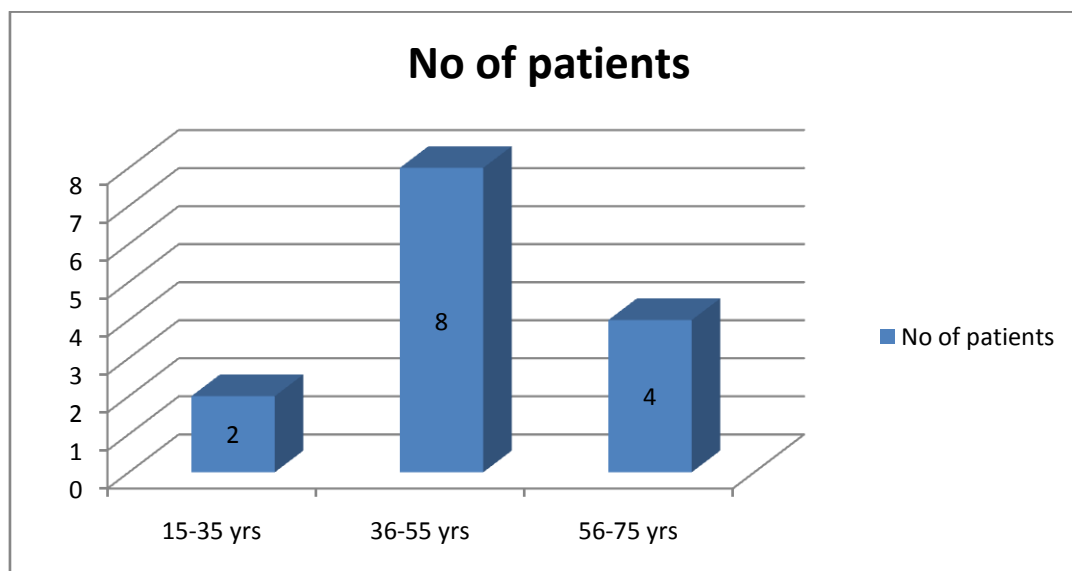
TABLE 3

AGE DISTRIBUTION

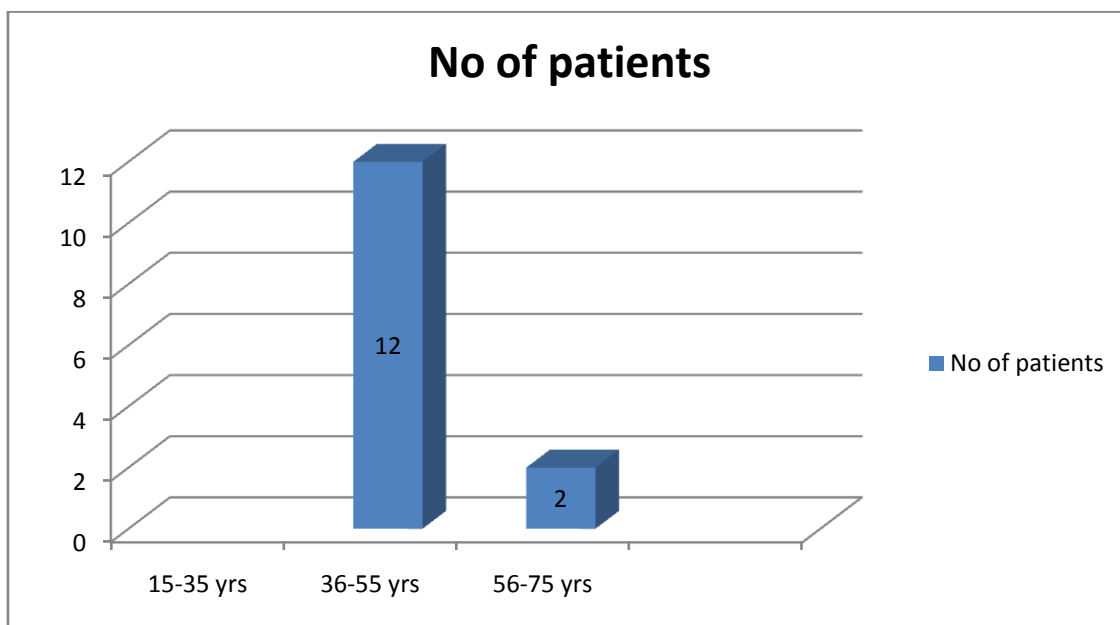
➤ GB stone with acute Calculous cholecystitis / Biliary colic [Only GB stone]



• GB stone with Acute Pancreatitis



- GB stone with CBD stone/ billiary colic



- GB stone with GB perforation and managed conservatively, later on followed for Interval Cholecystectomy

17year/ male	01
67year/ male	01
37year/ male	01
62year/ female	01

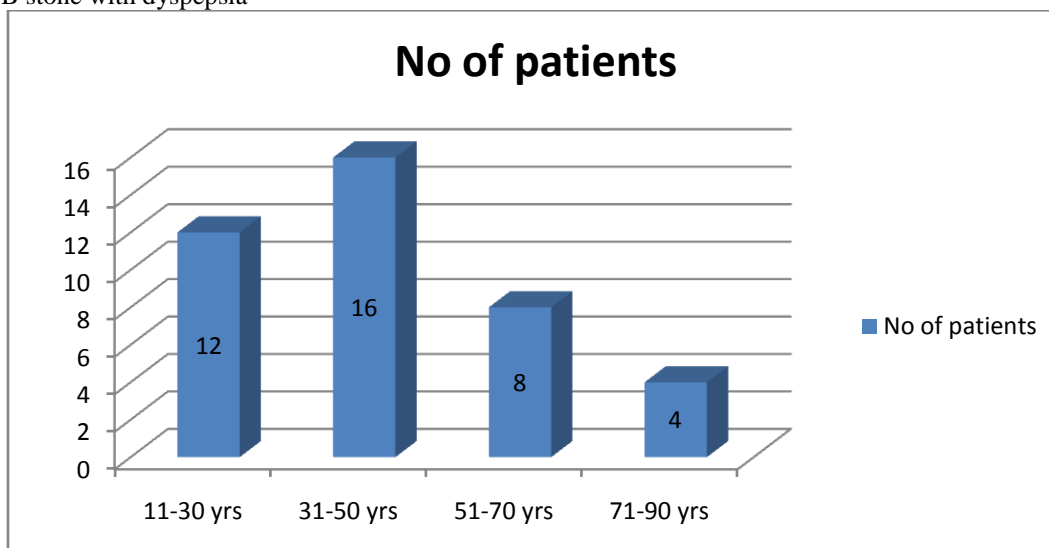
- Patients of Acute Cholecystitis managed conservatively, later on followed for Interval Cholecystectomy

22 year/ female	01
26 year/ female	01
24 year/ male	01
20 year/ male	01

- Patientns presented as Acute Biliary colic and diagnosed as CBD stone and referred for ERCP guided stenting/stone removal

46 year/ female	01
48year/ female	01
50year/ female	01
54year/ male	01

- GB stone with dyspepsia



➤ In this study 100 patients with GB stone with various presentation is studied

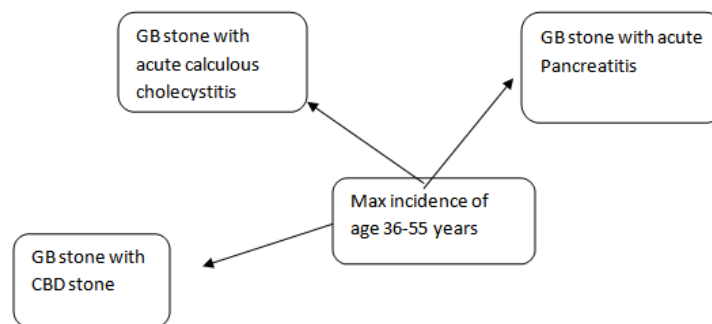


TABLE 4: MANAGEMENT OF PATIENTS

No	Diagnosis	Management	No of cases
1	Acute cholecystitis	Managed conservatively with iv antibiotics, analgesics, fluids and supportive therapy, F/b Interval cholecystectomy.	4
2	Acute Calculous Cholecystitis (biliary colic GB stone only)	Managed conservatively with iv antibiotics, analgesics, fluids and supportive therapy, F/b Interval cholecystectomy.	20
3	GB stone with CBD stone (biliary colic)	Patients are sent for ERCP guided removal of stone and stenting followed by Laparoscopic cholecystectomy followed by stent removal.	14
4	Acute biliary colic (only CBD stone)	Patients are sent for ERCP guided removal of stone and stenting followed by Laparoscopic cholecystectomy followed by stent removal.	4
5	GB stone with Pancreatitis	Managed conservatively, with I.V. fluids, I.V. antibiotic, analgesic and supportive therapy, later followed up for cholecystectomy.	14
6	GB stone with Dyspepsia	Patients are Initially managed with medical treatment not improving with it than treated with cholecystectomy.	40
7	GB stone with GB wall perforation	Managed conservatively, with I.V. fluids, I.V. antibiotic, analgesic and supportive therapy, later followed up for cholecystectomy.	4

IV. Discussion

The primary aim of this study is to treat gall stone disease, prevent its further development of complication and to study various presentation of gall stone disease, treatment of gall stone disease by laparoscopic cholecystectomy.

In this study evaluation is done based on the treatment protocol followed in our institution with available facilities and certain limitation like lack of ERCP guided stenting and or stone removal and laparoscopic CBD exploration.

1) AGE DISTRIBUTION

In this study is out of 100 patients with GB stone, 20 patients having acute calculous cholecystitis out of them 14 patients were from 36-55 years age group, 4 patients were from 56-75 years age group and 2 patients were 15 – 35 years of age group.

These findings are consistent with study done by Rachamalla RR, Mankapuram KK in 2018[9], and Shamadha and Shrinivas 2013[10], which suggested that majority of patients with gall stone acalculous cholecystitis were from age group 40-50 years of age group

Table -1

No	Study	Findings
1	RACHAMALLA RR 2018[9]	Average age between 40-50 years
2	SHANDHA AND SHRINIVAS[10]	Average age between 40-50 years
3	OUR STUDY	Average age between 36-55 years

2) In our study of 100 patients with GB stone, 14 patients having GB stone with Pancreatitis, among them 8 patients were 36-55 years of age group and 4 patients were 56-75 years and 2 patients were 15-35 years of age group.

These finding are consistent with Toh SKC S, Johnson CD[11] and HammarstormLE1998, Stridbakh [12] which suggested that majority of patients with GB stone and pancreatitis are between 45-55 years of age group

Table 2

	Study	Findings
1	Toh SKC phillips S, Johnson CD[11]	Average age between 45to 65 years age
2	Hammarstorm LE 1998, Stridbakh[12]	Average age between50-60 years of age
3	Our study	Average age between 36 to 55 years of age

3) In our study of 100 patients with GB stone, 14 patients having GB stone with CBD stone, among them 12 patients were 36-55 age, 2 patients were 56 to 75 years of age
 These findings are consistent with study done by Ye Rim Chang, in 2013[13] and DO Hoo-et-Al in 2016[14]which suggested that majority of patients with CBD stone were from age group 50-60 years of age group

Table 3

	Study	Findings
1	Ye Rim Changetal in 2013[13]	Average age between 51-60 years
2	DO Hoo-et-Al in 2016[14]	Average age between 51-70 years
3	Our study	Average age between 36-55 years

4) In our study of 100 patients, 40 patients have GB stone with symptom of dyspepsia that not responding to conservative therapy, go for laparoscopic cholecystectomy. Among them 14 patients were from 31 to 50 years a group 12 patients were from 11 to 30 years of age group 8 patients were from 51 to 70 years of age group, 4 patients were from 71 to 90 years of age group
 These findings are consistent with study done by Narayan H 2019[15] and Shanthikumari 2017[16] which suggested that majority of patients with GB stone with dyspepsia were from age group 40 to 50 years of age.

Table 4

	Study	Findings
1	Narayan H 2019,[15]	Average age between 40 to 50 years
2	Shanthikumari 2017[16]	Average age between 30 to 40 years
3	Our study	Average age between 30 to 50 years

SEX DISTRIBUTION

1) Out of 100 patients 14 were having CBD stone with GB stones among 14, 8 patients were females and 6 were males. Results were consistent withHenry volzke et al 2005[17]and Dr. Ankit Chhoda M 2017[18]which states that significantly higher proportion of females compared to males.

	Study	% of females
1	Henry volzke et al 2005[17]	62%
2	Dr Ankit chhoda M 2017[18]	58.5%
3	our study	57.10%

2) Out of 100 patients with GB stones among them 20 patients having Acute calculous cholecystitis, among them 12 were female 8 were male, which is consistent with RACHAMALLA RR 2018[9]& SHANDHA AND SHRINIVAS in 2013[10], that Acute calculous cholecystitis, higher proportion is seen in female

- a) RACHAMALLA RR 2018[9] ⇨ 57% of female
- b) SHANDHA AND SHRINIVAS 2013[10] ⇨ 56% of female
- c) **Our study ⇨ 60 % Of female are affected**

3) In our study, among 100 patients 14 patient having GB stone with pancreatitis, among 14 ,6 were female and 8 were male which is consistent with study Toh SKC phillips S, Johnson CD[11]Hammarstorm LE1998[12], higher proportion is seen in male

Toh SKC phillips S, Johnson CD 2000[11]	56.5% male involved
Hammarstorm LE 1998, Stridbakh 1998[12]	58% male involved
Our study	57.10%male involved

4) In our study,among 100 patients 40 patients having GB stone with dyspepsia, among those 40 patients, 28 patients were female and 12 patients were male. Which is consistent with study Narayan H 2019[15] and Shanthikumari 2017[16], which suggest higher proportion is seen in females.

	Study	% of females
1	Narayan H 2019[15]	68 % of females are involved
2	Shanthikumari 2017[16]	69% of females involved
3	our study	70% of females involved

- From above discussion it becomes clear that for the management of gall bladder stones, first of all we have to undergo complete evaluation of hepato-biliary system with evaluation of co-morbidities like Pancreatitis and cholecystitis and common bile duct stone.
- This involves undergoing Laboratory investigation, Ultrasonography, CT scan. (if needed)
- If GB stone is asymptomatic then patient is followed up with medical therapy to prevent symptoms of dyspepsia but if patient is dyspeptic since long time and not having responding to it, then cholecystectomy is advised.
- If patient is having acute episode of Acute calculous cholecystitis / Acute cholecystitis then patient is managed conservatively and then followed up later for cholecystectomy.
- If patient having GB stone with pancreatitis is then first management of Pancreatitis is done with iv fluids, iv antibiotics, iv analgesics, once acute pancreatitis episode subsides then later cholecystectomy is performed.
- If patient having CBD stone / CBD stone with GB stone, patient is referred for ERCP guided stone removal and stenting and then later followed up for cholecystectomy followed by later removal of stent.
- Patient with GB stone with gall bladder wall perforation/ impending gall bladder perforation, in our study among 100, 4 patients with GB stone with GB perforation is managed conservatively and later followed up for cholecystectomy.
- For cholecystectomy, Laparoscopic cholecystectomy is gold standard approach.

V. Summary

- This retrospective study was done in 100 cases of gall bladder stone disease in Department of **GENERAL SURGERY, SHRI M.P. SHAH GOVT. MEDICAL COLLEGE, JAMNAGAR.** from July 2017 to July 2019
- Gall bladder stone disease is common hepatobiliary disease and due to its various presentations it is essential to early diagnosis and prevent further complication.
- Study included 100 Patients presented with Epigastric + Right hypochondrium pain.
- All 100 patients included in study were appropriately examined, History evaluated and investigated by Laboratory investigation, USG and CT scan. (if needed)
- Out of 100 patients in the study 20 patients were presented with Biliary colic due to Acute Calculous cholecystitis, 4 patients were presented with biliary colic due to stone in CBD, 14 patients were presented with biliary colic due to GB stone with CBD stone, 14 patients were presented with Pancreatitis with GB stone, and 40 patients having symptoms of dyspepsia with GB stone. 4 patient having GB stone with perforation of Gall bladder, and 4 patients having acute cholecystitis. Patients were managed accordingly.
- Gold standard method for cholecystectomy is Laparoscopic cholecystectomy.

VI. Conclusion

- Gall bladder stone disease is a very common condition and its incidence is rising due to life style factor. Gall stone disease having wide variety of presentation, complication of gall disease are vary and unpredictable and because of it, increasing morbidity and mortality, if not treated timely, management of gall stone disease are complicated procedure and required step wise strategic approach.
- Gall stone disease is very common in females than males.
- Most common pathology of gall stone disease is Dyspepsia.
- Most common age group presented with Dyspepsia is 31-50 years.
- Gall bladder stone disease with its various presentations are more common in females except GB stone with pancreatitis more common in males.
- Most common age group for GB stone with Acute calculous cholecystitis, GB stone with CBD stone, GB stone with Pancreatitis is 36-55 years.

Bibliography

- [1]. Bailey and Love short practice of surgery 25th Edition chapter 63
- [2]. Mastery of surgery, 5th edition, chapter 97
- [3]. Singh V, Trikha B, Nain CK, Singh K, Bose SM. Epidemiology of gallstone disease in India: A community-based study. *Journal of Gastroenterology* 2001;16: 560-563.
- [4]. Evolution of cholecystectomy: A tribute to Carl August Langenbuch. *Indian Journal of Surgery* 2004;66:97-100
- [5]. Gray's anatomy, 39th edition, page no. 243-245
- [6]. Maingot's abdominal operations 11th edition laparoscopic cholecystectomy, pg: 859
- [7]. Laparoscopic surgery of the abdomen By Bruce v. MacFadyen, 1st edition, chapter 15, page no. 127
- [8]. Laparoscopic cholecystectomy an Evidence based guide by ferdinando agresta, 1st edition, page no. 23,24
- [9]. Rachamalla RR, Markapuram KK, Satish S, Singh K. One year study of cholelithiasis at a tertiary care hospital of south India. *Int. Surg. J.* 2018; 5:2444-8.

- [10]. Sharadha B, Shrinivas D. Clinical study of cholelithiasis Int. J. sci study 2017,5(3):210-214.
- [11]. Toh. SKC Phillips S, Johnson CD. A Prospective standards of the presentation and management of Acute Pancreatitis.2000.
- [12]. Hammarstrom LE, Strid beck H, Ihse I. Effect of endoscopic sphincterectomy and interval cholecystectomy on late outcome after gall stone pancreatitis Br J surgery 1998.
- [13]. Changes in demographic features of gall stones disease: 30 years of surgically treated patients YE Rim Chang, Jin- Young Jang, WooilKnon, Jae Woo Park, MeeJoo Kang, JikonRyu, Young Tae Kim, Young-Beam Yun, and Sun-whe Kim, Author information article notes copy right and license information.
- [14]. Prevalence and characteristic of clinically significant retained common bile duct stone after laparoscopic cholecystectomy for symptomatic cholelithiasis Doo-ho-Lee, Young JoonAhn, Hae Won Lee, Jung Kee Chung and In Mok Jung.
- [15]. Narayan H, Ravishankar N, ShivabasappaS, Kotkar N, gall stone and dyspepsia Int. surgery J 2019.
- [16]. Shanthikumari , B. Gargisingh Thakur, summary, prevalence of H. pylori in dyspepsia patients in a tertiary care hospital of Bangalore Internal Journal Contemp med, Res,2017;4(2):509-11.
- [17]. Association between Thyroid function and gall bladder stone disease. Henry Volzke, Daniel M Robinson and Ulrich John world J Gastroenterol.2005 sep21;11(35):5530-5534 published on line 2005 Sep 21.
- [18]. Sex-related differences in predicting choledocholithiasis using current American Society of Gastro Intestinal Endoscopy risk criteria Ankit Chhoda ,Deepanshy Jain, and ShashideepSinghal Ann Gastroenterol 2017; 30(6): 682-687.

RESULT

Out 100 patients 38 patients were presented with Acute Biliary Colic due to GB stone/ GB + CBD stone. 14 patients were presented with GB stone with Pancreatitis, 4 patients were having GB stone with GB wall perforation, 40 patients were presented with GB stone with dyspepsia. 4 patients were having acute cholecystitis.

CONCLUSION

All pathology of Gall stone disease having female preponderance except, GB stone with Pancreatitis having male preponderance. GB stone with Pancreatitis common in age group 35-55 years. GB stone with Acute Calculous Cholecystitis common in age group 35-55 years of age group. Acute Biliary Colic due to GB stone with/without CBD stone is common in age group 35-55 years. Dyspepsia due to GB stone is common in age group 31-50 years. Most common presenting complain of Gall Bladder stone disease is Dyspepsia, with female preponderance. Laparoscopy Cholecystectomy is the Gold standard method of treatment for Gall Bladder stone disease.

Dr. Viral G. Sangani. "Clinical Study and Management of Cholelithiasis and Its Complication." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 12, 2019, pp 21-28.