

Incidence of Cholelithiasis, its Complications and Management at Isra University Hospital

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ABSTRACT

Aim: To determine the frequency of cholelithiasis, complications and its management at Isra University Hospital, Hyderabad.

Setting: General Surgery Department, Isra University Hospital, Hyderabad

Duration: One year from Nov 2015 to Oct 2016

Methods: Patients (>20 years and <80 years) presenting in general surgery Out Patient Department (OPD) and admitted in general surgery ward with a suspected case of cholelithiasis based on the signs and symptoms along with supported physical examination were enrolled in this study. The confirmatory diagnosis of gallstones was made by using abdominal ultrasound. The complications of cholelithiasis were assessed thoroughly by examined and investigated by laboratory investigations and abdominal ultrasound, where appropriate and any complication. Data was collected via study proforma and analysis was done by using SPSS version 20.

Results: A total of 383 suspected patients were selected for this study. The study subjects consisted of 127 males (33%) and 256 (67%) females. The mean age of patients was 43.12±9.43 years. The overall prevalence of gallstones was 38.9% in suspected patients and the rate of complications among patients having gallstones was 46.3% as acute cholecystitis, chronic cholecystitis, acute pancreatitis and obstructed jaundice due to CBD stone, followed by cholangitis, Empyema, mucocele, perforation and peri cholecystitis abscess, gall bladder adenocarcinoma and gall stone ileus. Most of the patients 52.3% were managed through laparoscopic cholecystectomy, 36.2% were managed through open Cholecystectomy and 10.1% were managed conservatively and two patients underwent ERCP by gastroenterologist those having CBD stones.

Conclusion: In the observation of this study gall stone was highly prevalent in suspected cases and disease was associated with several complications. Mostly females and poor peoples were involved in complications by ignorance and late diagnosis of gall stone. Mostly patients were managed by laparoscopic cholecystectomy including open cholecystectomy, conservative treatment and ERCP.

Keywords: Cholecystectomy, complications, management

INTRODUCTION

Gallstones are the stones that can form in any part of the biliary tract, and when this involves the gall bladder, it is called cholelithiasis. Gallstone disease remains one of the most common medical problems leading to surgical intervention. Gallstones constitute a considerable health concern in developed as well as in developing societies¹. It has been well demonstrated that the presence of gallstones increases with age. An estimated 20% of adults over 40 years of age and 30% of those over age 70 have gallstones. During the reproductive years, the female-to-male ratio is about 4:1, with the sex discrepancy narrowing in the older population to near equality². The risk factors predisposing to gallstone formation include obesity, diabetes mellitus, estrogen and pregnancy, hemolytic diseases, and liver cirrhosis³. In a multivariate analysis⁴ of more than 900 patients, researchers identified a family history of cholecystectomy in a first-degree relative and obesity (defined as body mass index [BMI] greater than 30 kg per m²) as strong risk factors for symptomatic gallstone disease with a relative risk of 2.2 (95% confidence interval [CI], 1.5 to 3.0) and 3.7 (95% CI, 2.3 to 5.3), respectively. Gallstones constitute a significant health problem in

developed societies, affecting 10% to 15% of the adult population. Up to 80%, however, will never experience biliary colic or complications such as acute cholecystitis, cholangitis, or pancreatitis. Many gallstones are clinically symptomless, an incidental finding often uncovered during abdominal ultrasound performed for another reason. In a small number of people with gallstones, serious problems can develop if the gallstones cause a severe blockage or move into another part of the digestive system. These complications are in the gallbladder (acute cholecystitis, chronic cholecystitis etc) in the CBD (acute cholangitis, acute pancreatitis) in the intestine (gallstone ileus). During the last two decades, the general principles of gallstone and related complications management have not notably changed. However, methods of treatment have been dramatically altered. Today, Treatment options include early surgery either by laparoscopic cholecystectomy (LC) or open cholecystectomy, or delayed cholecystectomy (surgery after a successful conservative treatment), or conservative approaches like treatment with antibiotics and percutaneous cholecystectomy (PC) for high-risk patients for surgery⁵. Clinically silent cholelithiasis is increasingly diagnosed as an incidental finding during imaging examinations, particularly abdominal ultrasound. In adults,

50% to 70% of cases are asymptomatic, and progression to symptomatic disease and its transformation to gallstones induced complications are relatively low, ranging from 10% to 25%. Conversely, most children and adolescents present symptoms, from nonspecific abdominal pain symptoms to biliary symptoms, such as biliary colic, dyspepsia and jaundice. Many patients with gallstones can be managed expectantly. Generally, only persons with symptoms related to the presence of gallstones and those who develop complications warrant surgical intervention⁶. Data about the prevalence of gallstones, related complications, and its management around the world are discrepant. Several epidemiological studies have been undertaken in Europe but accurate data on the frequency of cholelithiasis related complications, and undertaken strategies to manage complicated patients in Pakistan are still lacking for that reason it needs to be researched in our center as no scientific data has been published from our center. That is why this study aims to investigate the frequency of gallstones related complications and its management so that scientific gap can be filled and management strategies can be made accordingly.

MATERIAL & METHODS

This prospective and descriptive was conducted at general Surgery department of Isra university Hospital, Hyderabad. Study duration was one year from Nov 2015 to Oct 2016. Non probability purposive sampling technique was used. Patients presented in general surgery Out Patient Department (OPD) and admitted in general surgery ward with a suspected case of cholelithiasis based on the signs and symptoms having age ≥20 years of either gender after getting their informed consent were included in this study. Those patients who were already diagnosed and did not consent to participate were excluded. Informed and written consent was taken from all patients. The confirmatory diagnosis of gallstones was made by using abdominal ultrasound. The complications of cholelithiasis were investigated by laboratory investigations and abdominal ultrasound, where appropriate and complications were recorded during the hospital stay. The findings such as age, sex, ethnicity, symptoms and examination findings of cholelithiasis, surgical procedure performed, duration of hospital stay, and gallstones related complications were recorded in a proforma for data collection. Statistical Package for Social Sciences (SPSS) Version 20 was used for data processing. The descriptive frequencies and percentages were computed for qualitative variables such as gender, comorbidity, ethnicity, chosen surgical procedure, and gallstones related complications. Mean and standard deviation calculated for quantitative variables such as age. P value of <0.05 taken as statistically significant.

RESULTS

A total of 383 suspected patients were selected for this study. The study subjects consisted of 127 males (33%) and 256(67%) females. The mean age of patients was 43.12±9.43 years. Maximum age was 80 years and minimum age was 25 years (Table 1).

The overall prevalence of gallstones among our study population was 38.9% and the rate of complications among

patients having gallstones was 46.3% (Fig.1).

Most common complications related to gall stone were acute cholecystitis, chronic cholecystitis, acute pancreatitis and obstructed jaundice due to CBD stone, followed by cholangitis, Empyema, mucocele, perforation and peri cholecystitis abscess, gall bladder adenocarcinoma and gall stone ileus.

Most of the patients having gallstones 52.3% were managed through laparoscopic cholecystectomy, 36.2% were managed through open Cholecystectomy and 10.1% were managed conservatively and two patients underwent ERCP by gastroenterologist those having CBD stones (Fig. 2).

Table 1: Descriptive statistics of the patients according to age and gender (n=383)

Variables	Statistics	
Age	Mean±SD	43.12±9.43 years
	Median	55 years
	Standard Deviation	9.43 years
	Minimum	20 years
Gender	Males	127(33.0%)
	Females	256 (67.0%)
SES	Poor	159(41.5%)
	Middle	138(36.0%)
	Upper	86(22.5%)

Fig. 1: Frequency of gallstones (n=383)

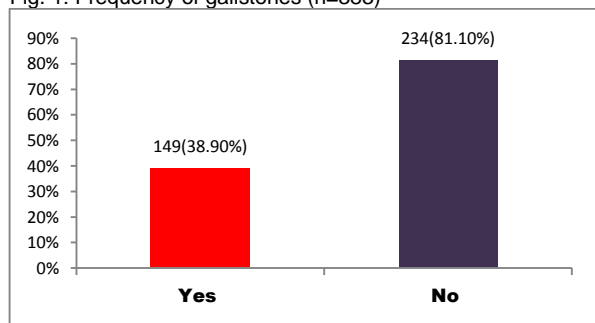
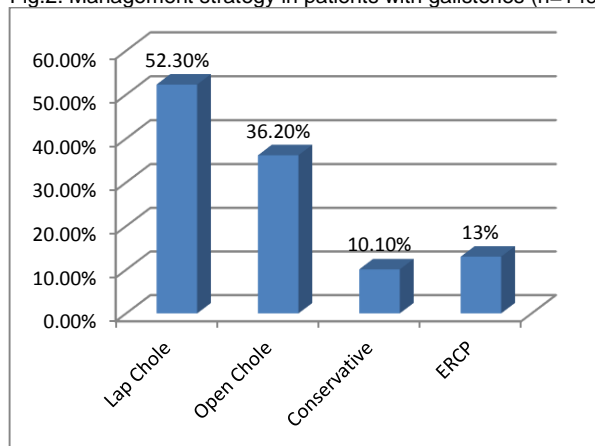


Fig.2. Management strategy in patients with gallstones (n=149)



DISCUSSION

Diseases of the gallbladder are common and treatment is costly. The best epidemiological screening method to accurately determine point prevalence of gallstone disease

is ultrasonography. Many risk factors for cholesterol gallstone formation are not modifiable such as ethnic background, increasing age, female gender and family history or genetics.

In this study the median age in our study was 55 years and the mean was 43.12 years and the most common gender was females in this study and these findings are corroborated by several authors.[6,7] Similarly Naeem M et al[8] reported that nearly 85.4% of the participants were female. The mean \pm S.D. for age was 43.8 ± 9.59 years. On other hand Bilal M et al⁹ reported that out of all study subjects 902 males (50.1%) and 898 females (49.9%), with the mean age of 43.56 ± 9.34 years. Shafique MS et al¹⁰ also reported that there were 208 females (85.2%) and 36 males (14.8%) with a mean age of 26.2 ± 2.98 years. In North America the Native American population had the highest prevalence of cholelithiasis^{11,12}, 73% of female Pima Indians over the age of 25 years had gallstones. Similar were the findings for Chippewa and Miamac Indians^{13,14}. Prevalence data of Multicenter Italian study on cholelithiasis (MICOL) showed that of the 46139 subjects screened ultrasonographically, 29739 (64.46%) had gallstones¹⁵. Pregnancy and sex hormones are believed to place women at a higher risk, and the view has been supported by several classical epidemiologic studies¹⁶. Estrogen increases biliary cholesterol secretion causing cholesterol super saturation of bile rendering it lithogenic. Li VK et.al 2009 reported that at least 25% of morbidly obese individuals have evidence of gallstone disease. Females with obesity (body mass index [BMI] >32 kg/m²) have an even increased risk of gallstones formation¹⁷.

In this study prevalence of gall stone was 38.9% out of 383 suspected patients. However Agunloye A M et al¹⁸ reported that gall stone was found in 70(17.5%) of the 400 patients. On other hand Bilal M et al⁹ stated that 184 patients had echogenic mass with shadowing on ultrasonography; yielding a prevalence of 10.2% for gallstones in the study participants. Furthermore, in Iraq the prevalence was 33% of gallstones in type 2 DM increases and correlates positively with obesity in female with increased parity and long and uncontrolled diabetes.

In this study most common complications related to gall stone were acute cholecystitis, chronic cholecystitis, acute pancreatitis and obstructed jaundice due to CBD stone. In the comparison of this study Ozkan Z et al¹⁹ reported 135(78.4%) patients were diagnosed with acute cholecystitis and 36(21.6%) with acute pancreatitis. Sangwan MK et.al²⁰ reported in their retrospective study that 29 % of the cases presented with acute cholecystitis, 10% acute Pancreatitis, whereas Choledocholithiasis have been reported in 10-15% cases. These findings are consistent with the present study.

CONCLUSION

In the conclusion of this study gall stone was highly prevalent in suspected cases and disease was associated with several complications. Mostly females and poor peoples were involved in complications by ignorance and

late diagnosis of gall stone. Mostly patients were managed by laparoscopic cholecystectomy including open cholecystectomy, conservative treatment and ERCP. By early diagnosis and treatment patients can be prevent from adverse complications related to gall stone disease.

REFERENCES

1. Stinton LM, Shaffer EA. Epidemiology of gallbladder disease: cholelithiasis and cancer. *Gut Liver* 2012 Apr;6(2):172-87.
2. Zamani F, Sohrabi M, Alipour A, Motamed N, Saeedian FS, Pirzad R, et al. Prevalence and risk factors of cholelithiasis in Amol city, northern Iran: a population based study. *Arch Iran Med* 2014 Nov;17(11):750-4.
3. Zhu L, Aili A, Zhang C, Saïding A, Abudureyimu K. Prevalence of and risk factors for gallstones in Uighur and Han Chinese. *World J Gastroenterol* 2014 Oct 28;20(40):14942-9.
4. Nakeeb A, Comuzzie AG, Martin L, Sonnenberg GE, Swartz-Basile D, Kissebah AH, et al. Gallstones: genetics versus environment. *Ann Surg* 2002 Jun;235(6):842-9.
5. Hasbahceci M, Alimoglu O, Basak F, Canbak T, Sisik A, Caliskan EM, et al. Review of clinical experience with acute cholecystitis on the development of subsequent gallstone-related complications. *Turk J Med Sci* 2014;44(5):883-8.
6. Behari A, Kapoor VK. Asymptomatic Gallstones (AsGS) - To Treat or Not to? *Indian J Surg* 2012;74(1):4-10
7. Farzaneh Sheikh AE, Zavvareh HT, Gharadaghi J. Prevalence and characteristics of gallstone disease in an Iranian population: a study on cadavers. *Hepatobiliary Pancreat Dis Int* 2007 Oct;6(5):509-12.
8. Sun H, Tang H, Jiang S, Zeng L, Chen EQ, Zhou TY, et al. Gender and metabolic differences of gallstone diseases. *World J Gastroenterol* 2009 Apr 21;15(15):1886-91.
9. Naeem M, Rahimnajiad NA, Rahimnajiad MK, Khurshid M, Ahmed QJ, Shahid SM, Khawar F, Najjar MM. Assessment of characteristics of patients with cholelithiasis from economically deprived rural Karachi, Pakistan. *BMC research notes*. 2012 Dec 1;5(1):334.
10. Bilal M, Haseeb A, Saad M, Ahsan M, Raza M, Ahmed A, Shahnawaz W, Ahmed B, Motiani V. The prevalence and risk factors of gallstone among adults in Karachi, south Pakistan: A population-based study. *Glob J Health Sci*. 2016;9(4):106-14.
11. Shafique MS, Ahmad R, Ahmad SH, Hassan SW, Khan JS. Gallstones in Young Population and Its Complications. *THE ULUTAS MEDICAL JOURNAL*. 2018;4(3):131-8.
12. Spathis A, Heaton KW, Emmett PM, Norboo T, Hunt L. Gallstones in a community free of obesity but prone to slow intestinal transit. *Eur J Gastroenterol Hepatol* 1997 Feb;9(2):201-6.
13. Heaton KW. The epidemiology of gallstones and suggested aetiology. *Clin Gastroenterol* 1973 Jan;2(1):67-83.
14. Williams CN, Johnston JL. Prevalence of gallstones and risk factors in Caucasian women in a rural Canadian community. *Can Med Assoc J* 1980 Mar 22;122(6):664-8.
15. Williams CN, Johnston JL, Weldon KL. Prevalence of gallstones and gallbladder disease in Canadian Micmac Indian women. *Can Med Assoc J* 1977 Oct 8;117(7):758-60.
16. Attili AF, Carulli N, Roda E, Barbara B, Capocaccia L, Menotti A, et al. Epidemiology of gallstone disease in Italy: prevalence data of the Multicenter Italian Study on Cholelithiasis (M.I.COL.). *Am J Epidemiol* 1995 Jan 15;141(2):158-65.
17. Allli VV, Yang J, Xu J, Bates AT, Pryor AD, Talamini MA, et al. Nineteen-year trends in incidence and indications for laparoscopic cholecystectomy: the NY State experience. *Surg Endosc* 2016 Sep 7
18. Li VK, Pulido N, Fajnwaks P, Szomstein S, Rosenthal R, Martinez-Duarte P. Predictors of gallstone formation after bariatric surgery: a multivariate analysis of risk factors comparing gastric bypass, gastric banding, and sleeve gastrectomy. *SurEndosc*. 2009;23:1640-1644.
19. Agunloye A M, Adebakin A M, Adeleye J O, Ogunseyinde A O. Ultrasound prevalence of gallstone disease in diabetic patients at Ibadan, Nigeria. *Niger J Clin Pract* 2013;16:71-5
20. Ozkan Z, Gul E, Kanat BH, Gundogdu Z, Gonen AN, Yazar FM, Bozan MB, Erol F. Is surgery safe in gallstone-related acute diseases in elderly patients. *J Coll Physicians Surg Pak*. 2016 Jun;26(6):471-5.
21. Sangwan MK, Sangwan V, Garg MK, Singla D. Gallstone disease menacing rural population in north India: a retrospective study of 576 cases in a rural hospital. *Int Surg J* 2015;2:487-91