ORIGINAL ARTICLE

STUDY ON THE PREVALENCE OF GALLSTONES IN PATIENTS UNDERGOING CHOLECYSTECTOMY IN BENAZIR BHUTTO SHAHEED HOSPITAL (DHQ) ABBOTTABAD

Sara Jadoon[1], Muhammad Nawaz[2], Sumaira Javed[1], Humaira Imtiaz[1], Omair Jadoon[3], Alruba Taimoor[1]

Department of Anatomy, Department of Forensic Medicine[3], Ayub Medical College, Abbottabad, Women Medical College, Abbottabad-Pakistan

Background: The incidence of gall bladder diseases is increasing day by day in developing as well as developed countries. Most common gall bladder diseases include gallstones (cholelithiasis) and cancer of gall bladder. **Objective**: To determine and compare the surgical incidence of gallstones on the basis of gender and age in patients undergoing elective cholecystectomy in Benazir Bhutto Shaheed Hospital (DHQ) Abbottabad. **Methods:** This was a descriptive study which was carried out for a period of one year from January 2017 to December 2017 in surgical unit of Benazir Bhutto Shaheed Hospital Abbottabad on patients who had cholecystectomy secondary to symptomatic gall stone disease diagnosed on the basis of history and ultrasonography. Gallstones were then analysed for bilirubin, cholesterol, calcium and phosphate. The data was analysed by using SPSS Version 16.00. **Results:** In our research study 88% of patients were females while 11.8% were males, the mean age being 35.81±8.12 year. The frequencies of different types of gall stones were: mixed type of stones 80.0% and cholesterol stones 20.0% **Conclusion:** Cholecystectomy secondary to gallstones is more common in women of forty to sixty age groups as compared to men of same age. Majority of gall stones are of mixed type.

Keywords: Cholelithiasis/Gallstones; Elective cholecystectomy

Citation: Jadoon S, Nawaz M, Javed S, Imtiaz H, Jadoon O, Taimoor A. Study on the prevalence of gallstones in patients undergoing cholecystectomy in Benazir Bhutto Shaheed Hospital (DHQ) Abbottabad. J Ayub Med Coll Abbottabad 2021;33(1):102–4.

INTRODUCTION

The incidence of gall bladder diseases is increasing day by day in developing as well as developed countries. Most common gall bladder diseases include gallstones (cholelithiasis) and cancer of gall bladder. The prevalence rates in adults in developed countries are 10–15%. There are 20–25 million new cases diagnosed in United States every year. In American Indians, gallstone disease is found in 30% of male and 64% of female. In a study conducted in China the prevalence of gallstones was 13.11% (1240/9455).[1] Gallstones are formed from hardened materials in the bile, which is a fluid present within gall bladder. Types of gallstones include pure cholesterol stones containing about 90% of cholesterol, pigment stones with 90% composition of bilirubin and mixed stones composed of cholesterol, bilirubin and calcium compounds.[2] There are different risk factors for gallstone disease, some are modifiable and some are non-modifiable. Non-modifiable risk factors include female gender, family history, age and ethnicity while modifiable risk factors are obesity, diabetes, dyslipidaemia, sedentary life style, Diet and drugs e.g., Thiazide diuretics, ceftriaxone, octreotide and female sex hormones.[3]

Most of patients with gall stones are asymptomatic and are known as silent stones, while in other patients' symptoms include pain in the right upper abdomen mostly associated with nausea and vomiting. Some may complain of pain under the right shoulder and these episodes of pain usually happen after intake of a large fatty meal.[2] Diagnosis of the gallstone is made by clinical sign and symptoms as well as by ultrasonography. Other investigations include nuclear scanning and cholecystography and occasionally by plain X-ray. Among all of them ultrasonography is the most sensitive and specific method.[4]

Treatment of gallstones is recommended only when they become symptomatic or in some cases prophylactic treatment is given. Cholecystectomy (removal of the gall bladder) is the treatment of choice for symptomatic patients. There are two types of cholecystectomy, first type is called open cholecystectomy, which was used widely and was gold standard treatment for gallstones but now it is replaced in many countries by the second type of surgery known as laparoscopic cholecystectomy, which is less invasive and requires less hospital stay as compared to open cholecystectomy but it takes more time and requires skilled persons who are trained in laparoscopic procedures.[5–7]

The objective of our study was to determine and compare the surgical incidence of gallstones on the basis of gender and age in patients operated in Benazir Bhutto Shaheed Hospital (DHQ) Abbottabad as well as the stratification of type of gall stones.

MATERIAL AND METHODS

This one-year descriptive cross-sectional study was conducted from January to December 2017 in surgical unit of Benazir Bhutto Shaheed Hospital Abbottabad. All patients who had elective and emergency cholecystectomy due to gall stones were included in the study, irrespective of their gender and age. Cholecystectomy due to any cause other than gallstones was excluded from the study.

Categorical variables like gender, type of gallstones and age groups were analysed and presented in tabulated form. The data was entered into computer and analysed by using SPSS Version 16.

RESULTS

A total number of 321 cholecystectomies were performed in the study year, all of them presented in elective/emergency with diagnosis of symptomatic gallstones confirmed on ultrasonography.

In our research study 283 (88%) subjects were females and 38(11.8%) were males. Gender distribution is shown in table-1. The mean age was 35.81±8.12 years. Frequencies in different age groups were from 21-40 years: 45 (16%), 41–60 years: 205 (72%), 61–80 years: 33 (11.6%) and >80 years: (0%), in female patients while frequencies in different age groups were from 21–40 years: 26 (68%), 41–60 years: 10 (26%), 61–80 years: 02 (0.5%) while no male patient was above 80 years of age. Age distribution is shown in table-1.

In our research study frequencies of different types of gall stones were, mixed type of stones 256(80.0%), cholesterol stones 65 (20.0%) and pigmented stones 0 (0%). Frequencies of different types of gall stones are shown in table-2.

Table-1: Gender and age-based distribution of gall stones cases that underwent cholecystectomy

Variables	No of Patients (n= 321)	Percentage (%)
Female	283	88.16
Male	38	11.8
Age: Females:		
21–40 years	45	16
41–60 years	205	72
61–80 years	33	11.6
>80 years	Nil	Nil
Age: Males:		
21–40 years	26	68
41–60 years	10	26
61–80 years	02	0.05
>80 years	Nil	Nil

Table-2: Frequency of types of gall stones

Type of gall stone	Number (Total n=321)	Percentage (%)
Mixed	256	80
Cholesterol	65	20
Pigment	0	0

DISCUSSION

Frequency of cholelithiasis is increasing day by day and it is more marked in developed countries as compared to developing countries.[1,2]

During comparison of incidence of gall stones between males and females, 88–12 ratios was found in this study. In our study 88.16% of studied patients were female while only 11.8% of them were male which indicates that female gender is one of the risk factors for gallstones. Females may be more prone to develop gall stones because of decreased physical activity and obesity. These findings are in accordance with the study conducted by Shaffer EA who also showed female population to be at more risk of developing gallstones.[8] There are other studies which have also shown more prevalence of gallstones in females as compared to males who subsequently underwent cholecystectomy.[9,10] However in another study conducted in China, two groups Uighur group and Han group populations were compared for presence of gallstones it was concluded that gender was a risk factor for Uighur group but not for Han group.[1]

Among the female's gallstones were most common in 4th and 5th decade of life while in males most cases were seen in 3rd and 4th decade. This is in accordance with the study by Sangwan *et al*[11] who also reported that 4th decade is the most common age group for gallstones among both males and females. However, in their study females younger than forty also had high incidence of gallstones which is not the case in our study.

Regarding the types of gallstones, frequencies of different types of gallstones in our study are as follows. Mixed type of stones was present in 256 (80.0%) of patients, cholesterol stones were present in 65 (20.0%) patients while no patient had pigmented stones. These findings are in accordance with study by Nagi and Arora[12] where mixed stones were seen in 84% of cases followed by cholesterol and pigment stones. While Sharma *et al*,[13] found pigment stones to be dominant gallstones type in their study. Another study was conducted in India in which Pigment stones were present in 75 (45.7%) of patients and cholesterol stones were present in 89 (54.3%) of patients. This difference may occur due to the reason that pigment stones are usually present in patient with liver diseases, anaemia and use of some drugs like oral contraceptive medicines.[14] Also some studies conducted in western countries have shown

cholesterol stones as the most common type of gallstones.[15] Another study was conducted in California the results of which show that 90% of cholesterol or mixed stones while only 10% were pigment stones. This result is consistent with our study.[16] The difference in various types of gallstones found in different regions may be due to different dietary habits and lifestyle of particular regions. There are numerous factors inside the formation of gallstone, inclusive of gender, genetic elements, environmental factors, nutritional conduct of individuals, and existence of individuals.

CONCLUSION

Gallstones are more common in females as compared to males especially in fourth decade of life. Among various types mixed stones are most prevalent followed by cholesterol stones in this region. This may be due to dietary habits and lifestyle. Even though it is not viable to exchange genetic factors, the other factors like obesity, physical inactivity and food choices are preventable.

AUTHORS' CONTRIBUTION

Data was provided by Dr. Muhammad Nawaz, article write up and literature research was done by Sara Jadoon, Data interpretation and analysis was assisted by Sumaira Javaid and Humaira Imtiaz and proof reading was done by Omair Jadoon and Alruba Taimoor.

REFERENCES

1. Zhu L, Aili A, Zhang C, Saiding A, Abudureyimu K. Prevalence of and risk factors for gallstones in Uighur and Han Chinese. World J Gastroenterol 2014;20(40):14942–49.
2. Njeze GE. Gallstone. Niger J Surg 2013;19(2):49–55.
3. Stinton LA, Shaffer EA. Epidemiology of gallbladder disease: cholelithiasis and cancer. Gut Liver 2012;6(2):172–87.
4. P, Moschetta A, Petruzzelli M, Palasciano G, Di Ciaula A, Pezzolla A. Symptoms and diagnosis of gallbladder stones. Best Pract Res Clin Gastroenterol 2006;20(6):1017–29.
5. Hayes N, Saha S. Recurrent gallstone ileus. Clin Med Res 2012;10(4):236–9.
6. McSherry CK. Cholecystectomy: The gold standard. Am J Surg 1989;158(3):174–8.
7. Wetter LA, Way LW. Surgical therapy for gallstone disease. Gastroenterol Clin North Am 1991;20(1):157–69.
8. Acalovschi M. Cholesterol gallstones: from epidemiology to prevention. Postgrad Med J 2001;77(906):221–9.
9. Adnan N, Khan JS, Ahmed M. Cholecystectomy-Diagnostic Stratification on the basis of age and sex. J Rawal Med Coll 2016;20(2):100–2.
10. Tayeb M, Rauf F, Ahmad K, Khan FM. Is it necessary to submit grossly normal looking gallbladder specimen for histopathological examination? Asian Pac J Cancer Prev 2015;16(4):1535–38.
11. Kumar Sangwan M, Sangwan V, kumar Garg M, Singla D, Thami G, Malik P. Gallstone disease menacing rural population in north India: a retrospective study of 576 cases in a rural hospital. Int Surg J 2015;2(4):487–91.
12. Nagi GS, Arora R. Incidence of various types of gallstones in patients of cholelithiasis in north India. J Evol Med Dent Sci 2015;97(4):16213–4.
13. Sharma R, Soy S, Kumar C, Sachan SG, Sharma SR. Analysis of gallstone composition and structure in Jharkhand region. Indian J Gastroenterol 2015;34(1)29–37.
14. Goktas SB, Manukyan M, Selimen D. Evaluation of factors affecting the type of gallstone. Indian J Surg 2016;78(1):20–6.
15. Park Y, Kim D, Lee JS, Kim YN, Jeong YK, Lee KG, *et al*. Association between diet and gallstones of cholesterol and pigment among patients with cholecystectomy: a case-control study in Korea. J Health Popul Nutr 2017:36(1):39.
16. Ahmed A, Cheung RC, Keeffe EB. Management of gallstones and their complications. Am Fam Physician 2000;61(6):1673–80.

Submitted: September 25, 2020	*Revised: --*	*Accepted: December 26,2020*

Address for Correspondence:

Dr. Sara Jadoon, Department of Anatomy, Ayub Medical College, Abbottabad-Pakistan
Cell: +92 336 563 8723
Email: sarashafqat@hotmail.com