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A Study on Gallstone Disease in Relation to Different Ages

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ABSTRACT

Know gallstones and all else will come to you in biliary surgery. This old dictum has been proved today by scientific and clinical means to be largely true. Though the disease had been known from ancient time, the mechanism of formation of gallstones is not yet established and is still a matter of dispute. It is frequently encountered in a woman in her middle age though the incidence is increasing in male sex and in both extreme of age. The old concept that only 'fatty, fertile, flatulent female of forty or fifty' suffers from cholelithiasis, does not always hold true as gallstones can be seen in the extreme of ages in both sexes and thinly built persons as well as in non-fertile female too. Pain is the principal presenting symptom associated with or without flatulent dyspepsia, nausea and vomiting, fever and right upper quadrant tenderness. Radiation / referral of pain showed a peculiar finding that though commonly it refers to the right shoulder. The different ages of gallstone diseases are recorded and statistically analysed. The recorded data were then statistically analysed using Student's T-test. P value d" 0.05 is considered as statistically significant. The data obtained in this study will help surgeons for diagnosis of the disease clinically.

Keywords: *Gallstone disease, clinical, epidemiological evaluation, ages*

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INTRODUCTION

Disease of the gall bladder is rare unless it is associated with gallstone. So the natural history of gallstone is virtually the natural history of gall bladder disease.[1]With the exception of acute appendicitis, biliary tract disorders are the commonest abdominal condition that the surgeons, gastroenterologists and radiologists encounter. Benign gall bladder conditions including gallstone disease are increasingly becoming common in developing countries including India.[2]The old concept that only 'Fatty, Fertile, Flatulent Female of Forty or fifty' suffers from cholelithiasis[3], does not always hold true as gallstones can be seen in the extreme of ages in both sexes and thinly built persons as well as in non-fertile female too. Except 10% of patients with gallstones, almost all the others complain of some kind of symptoms like dyspepsia, nausea, vomiting or abdominal pain and sometimes more severe symptoms like right upper quadrant pain, fever, jaundice and lump abdomen may be the presentation. These 10% of cases are termed as asymptomatic gallstones cases, 10% stones are radio-opaque and incidentally detected in radiological examination of abdomen done for other abdominal conditions.[4] Cholecystectomy is one of the commonest biliary surgeries performed in Medical Colleges in Assam.

OBJECTIVES

(i) To determine the predominant age of gallstone diseases in males and females and

(ii) To find out any difference in predominant age of gallstone disease in males and females.

MATERIALS AND METHODS

The study comprises 1300 cases of gallstone disease selected at random who were admitted and operated in the department of surgery of three medical college & hospitals of Assam, two govt. civil hospitals- Kanaklata Civil Hospital, Sonitpur, Dhubri Civil Hospital, Dhubri and Nemcare Hospital Pvt. Ltd. Guwahati, during a period of four years.

Diagnosis: The diagnosis had been made on the basis of symptomatology, ultrasonography and operative findings. The study included the observation of the incidence of age, sex, weight, parity, clinical features, investigations and operative findings, symptom relief during follow up, complications and histopathological reporting of gallstone disease.

Inclusion and exclusion criteria: All cases with clinical sign and symptoms of gallstone disease with pre-operative USG finding of gallstone disease were included. Endoscopic study of upper GIT in clinically suspected peptic ulcer disease with gallstone were also included. Cases with history or investigations suggesting carcinoma of gall bladder were excluded.

OBSERVATION & RESULTS

The results and observations of the present study is tabulated and graphed as follows:

Table 1 Number of cases of gall stone disease

Age in years	Number of cases	
	Male	Female
0 to 20	24	38
21 to 40	272	410
41 to 60	210	253
Above 60	43	50
Sum	549	751
Mean	137.250	187.750
SD	±122.690	±178.001
SEM	±61.345	±89.000

In the present study it is seen that the number of male cases according to different age group ranges from 24 to 273 with a mean value of 137.252, Standard Deviation ±122.690 and Standard Error of Mean ±61.345 and the number of female cases according to different age group ranges from 38 to 410 with a mean value of 187.750, Standard Deviation ±178.001 and Standard Error of Mean ±89.000 as evident in **Table 1** and **Figure 1**

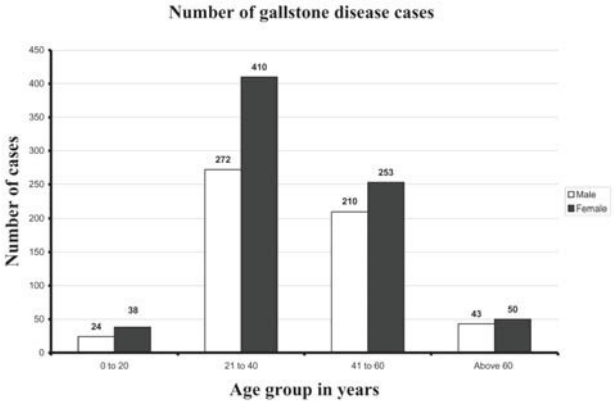

Figure 1 Number of cases in male and female

The percentage of male cases of gallstone disease ranges from 4% to 50% for different age groups as shown in **Figure 2** and the percentage of female cases of gallstone disease for different age group ranges from 5% to 34% as shown in **Figure 3**

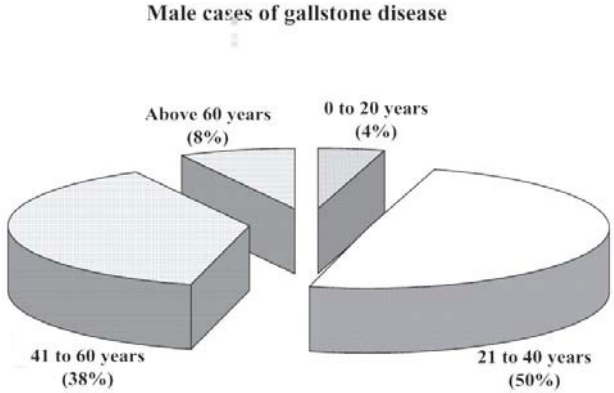

Figure 2 Percentage of male cases

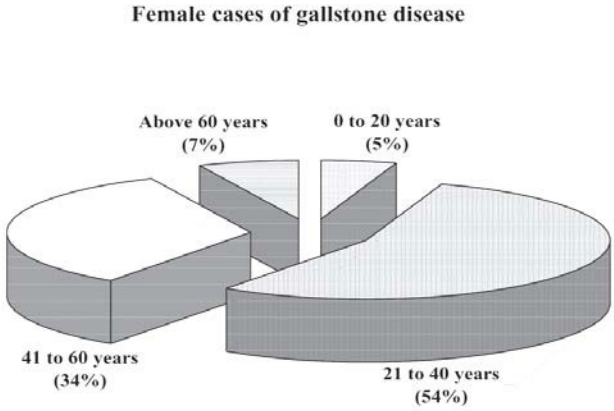

Figure 3 Percentage of female cases

Table 2 Frequency, relative frequency & percentage of gallstones in male

Class interval of age	Male cases		
	f (frequency)	fr (relative frequency)	f% (percentage)
0 to 20 years	24	0.043	4.300
21 to 40 years	272	0.495	49.500
41 to 60 years	210	0.383	38.300
Above 60 years	43	0.079	7.900
Sum	**549**	**1.000**	**100.000**

Table 2 shows that highest number of male cases of gallstone disease are found in the class interval of '21 to 40 years' with a relative frequency of 0.495, simple frequency of 272 and a percentage of 49.500. The lowest number cases are found in the class interval of '0 to 20 years' with a relative frequency of 0.043, simple frequency of 24 and a percentage of 4.300 as evident in **Figure 4.**

Table 3 Frequency, relative frequency & percentage of gallstones in female

Class interval of age	Female cases		
	f (frequency)	fr (relative frequency)	f% (percentage)
0 to 20 years	38	0.051	5.100
21 to 40 years	410	0.545	54.500
41 to 60 years	253	0.337	33.700
Above 60 years	50	0.067	6.700
Sum	**751**	**1.000**	**100.000**

Table 3 shows that highest number of female cases of gallstone disease are found in the class interval of '21 to 40 years' with a relative frequency of 0.545, simple frequency of 410 and a percentage of 54.500. The lowest number cases are found in the class interval of '0 to 20 years' with a relative frequency of 0.051, simple frequency of 38 and a percentage of 5.100 as evident in **Figure 4.**

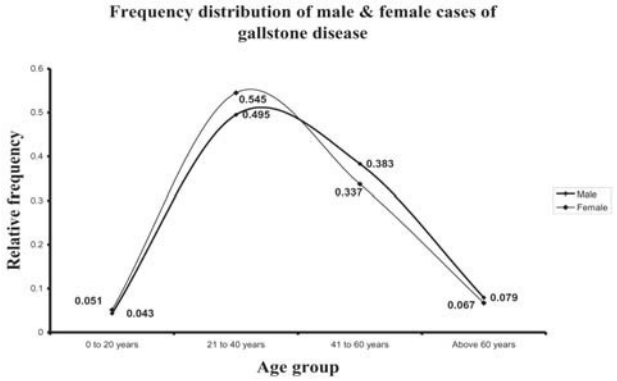

Figure 4 Relative frequency

DISCUSSION

In this study the average age of the patients was 40 years. Records from various workers showed that children were rarely affected.[5, 6, 7, 8] It has been reported that the percentage of positive bile culture ranges between 23-43%.[9] Positive bile culture increased from age of 40 years and highest percentage of positive culture was recorded in the age group of 81 to 90 years which has a similarity with this study.[10] The disease was also more common in female than male.[11] In this study 97.23% cases had the history of pain abdomen during the course of the disease ranging from mild dull-ache to colicky type with or without radiation.[12] There is interscapular radiation in 32.7% of cases and radiation to right scapular region in 30.8% cases.[13] Maximum cases of gallstones are found in 4th and 5th decade of life.[14, 15] Our study is mostly consistent with these universal observation.

Gallstone disease in different age groups been seen in matched sets of observation using the null hypothesis: Reject H_O if $P \leq t_a$ when $t_a = t_{0.05}$ setting the level of confidence at 95% probability signifying that if the differences in observation between the matched groups is significant at the level of $P < 0.05$, the hypothesis will be rejected establishing differences of different age groups of gallstone disease between the tested groups. In the present study null hypothesis has been rejected in the 2nd part while seeing the differences between male and female cases of gallstone disease.

Table 4 Level of significance of differences

Sl No	Comparison of mean between	"t"	P
1	t between male cases of '21 to 40 & 41 to 60 years' and'0 to 20 & Above 60 years'	15.485	P<0.001
2	t between female cases of ' 21 to 40 & 41 to 60 years' and'0 to 20 & Above 60 years'	3.651	P <0.05
3	t between male and female cases	0.822	P >0.05

CONCLUSION

The number of male cases of gallstone disease in the age group of '21 to 40 years' & '41 to 60 years' combined together is higher than that of '0 to 20 years' & 'Above 60 years' with very high significance (P <0.001). Likewise the number of female cases of gallstone disease in the

age group of '21 to 40 years' & '41 to 60 years' combined together is higher than that of '0 to 20 years' & 'Above 60 years' with significance (P <0.05).

On the other hand if we consider all age groups together i.e. '0 to 20 years', '21 to 40 years', '41 to 60 years' & 'Above 60 years' then though the number of female cases are higher than that of male cases it is without any significance (P >0.05).

Finally, it can be concluded that the incidence of gallstone disease are much more from 2nd decade to the end of 5th decade of life than other period of life and there is no significant differences between male and female incidence.

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Declarations:

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