

Original Article

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Profile and Associated Factors of Patients with Gall Bladder Disease - Gall Stone Disease and Gall Bladder Polyp

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Abstract:

Background: This study has been designed to see the profile and associated factors of patients with gallbladder disease—gall bladder stone disease and gall bladder polyp.

Material and methods:

Study design /type: Retrospective

Place of study: Sylhet Women's Medical College Hospital, Sylhet, Bangladesh

Study period: this study was done from March 2022 to July 2025.

Data of consecutive patients having gall bladder stone disease and gall bladder polyps were retrieved. Their epidemiological information and laboratory data were recorded in a predesigned data sheet. Statistical analysis was done using SPSS Version 20. Mean and standard deviation were calculated for continuous data and percentage were calculated for categorical data.

Result: Total 418 patients age ranging from 14 to 95 years (Mean 46.99 and SD ± 16.09) were included. Of them 199 (47.6%) and 219 (52.4%) were male and female respectively. Among them 141 (33.7%) and 60 (14.3%) were current tobacco leave chewers and smokers respectively. About three fourth of patients were from rural community while 233 (55.6%) patients had per month household income above 21,500 BDT. About three fourths of patients (77.3%) were sedentary workers, 126 (30.1%) were hypertensive and 102 (24.3%) were diabetic. Gall bladder disease was more common among females. Incidence of gall bladder disease was higher at 21 to 40 years age group (37.71%) followed by 41 to 60 years age group (33.25%).

Sonological examination showed 294 (70.33), 76 (18.18) and 26 (6.22) patients had gall stones, biliary sludge and gall bladder polyps respectively. Regarding gall stone disease incidence of gall stone disease was higher among female (n=209; 53.32 vs n=183; 46.68%) while incidence of gall bladder polyp was higher among males (n=16; 61.54 % vs n=10; 34.46%). Gall bladder mass lesion and gall stone with fibrosed gall bladder were found in 8 (1.91) patients. About three fifth (59.8%) of patients were in normal or underweight group.

Conclusion: Incidence of gall bladder stone disease is higher among females and gall bladder polyp is higher among males. Incidence is high among patients age 4th to 6th decade. Higher household income, rural community, tobacco & betel nut chewing and smoking are other associated factors.

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Introduction:

Cholelithiasis or Gall stone disease (GSD), a frequently encountered condition, is one of the common hepatobiliary diseases in the world^{1,2}.

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Its common complications are cholecystitis, cholangitis and pancreatitis³. Reports also show that about 85% of patients with carcinoma of gall bladder have cholelithiasis⁴. And report from Japan also described carcinoma of gall bladder as a complication of gall stone disease⁵. A large number of patients with gall stone disease remain asymptomatic, so true prevalence may not be possible to determine. Reported prevalence of gall stone disease varies between countries and ethnicity. In the USA about 10-15% of adults have been suffering from gall stone disease^{6,7}. Prevalence of GSD in Europe varies from 5.9% to 21.9%. In Asia GSD prevalence is between 3.2% and 15.6%⁶. Reported Prevalence of GSD from Japan⁸ and China⁹ are 3.4% and 2.52% respectively. In India reported prevalence is 4.15% with female predominance¹⁰. In our country reported prevalence of GSD in rural population in southern part was 5.4%¹¹ and another report showed prevalence to be 6.0% in North East part¹².

Recognized risk factors for GSD are older age, female gender, number of parities, diabetes, high fat diet, obesity, family history of gallstone disease and sedentary life style^{8, 13-17}. While rapid reduction of body weight is also associated with gallstone formation¹⁷.

Ultrasound examination is a reliable cheap and easily available imaging modality for diagnosis of GSD¹⁸. In experience hand its sensitivity is 96% and specificity 93%. USG can be performed by physicians even at bedside with sensitivity 96% and specificity 88%¹⁹. With this background this study was designed to see the epidemiology and risk factors for GSD in north east part of Bangladesh

Material and Method:

Consecutively detected patient with gall stone disease and gall bladder polyp, attending OPD and indoor of department of gastroenterology, were included. Their epidemiological information, anthropometric data, clinical and laboratory data were retrieved and recorded in a predesigned data sheet. Identity of patients were concealed.

Statistical analysis:

Statistical analysis was done using SPSS 20. Mean and SD were calculated for continuous data and percentage was calculated for

categorical data. Chi-square test was done to relations between variables and P value less than 0.05 was considered as significance of differences.

Result:

Total 418 patients (table 1), male 199 (47.6%) and female 219 ((52.4%) were included in this study (table 1). Age of them varied from 14 years to 95 years (mean 46.99 and SD $\pm$ 16.097). In this series 184 (44.02%) were with none to class five educational background (table 2). Most of them 326(78.0%) were from rural community and 324 (77.3%) had sedentary life style. In this study, 60(14.3%), 141 (33.7%) and 174 (41.5%) were current smoker, tobacco leaves chewers and tobacco leaves, betel leaves and betel nut chewers respectively. Of them 126 (30.1%) and 102 (24.3%) were hypertensive and diabetic respectively. In this study more than half of patients (n=233; 55.6%) had monthly household income more than 21500 BDT. Eighty-one patients (19.3%) had family history of gall stone disease and only two (0.5%) had history of gall bladder neoplasm. Among them 46 (11.0%), 122 (29.2%) and 200 (47.8%) were obese, over weight and normal weight respectively. Common presentations (Table 2) were abdominal pain (n=322; 77.0%) and incidental (n= 66; 15.8%).

Of all patients with gallbladder disease, 183 (43.78%), 111(26.55%), 79 (18.90%), 26 (6.22%) patients had multiple stones, single stones and biliary sludge and gall bladder polyps respectively (Table 3). Incidence of gall stone disease and gall bladder polyps were higher in 21 to 40 years age group followed by 41 to 60 years age group. Incidence of gall stone disease was higher among females (209; 53,32% vs 183; 46.68%). But incidence of gall bladder polyp was higher among males (16; 61.54% vs 10; 38.46%).

In this group 242(57.8%) were above 40 years age group. Gall bladder disease was more common among patients with history low intake of fish and meat (table 1). In this series, blood group of 142 patients were known and 57 (40.14%) of them possessed blood group O positive.

Among females, history of parity of 128 patients were known. Of them 24 (18.75%),

57 (44.53%), and 47 (36.71%) had one to two, three to five and parity above five parities respectively.

Discussion:

Incidence of gall bladder stone disease in this study is higher among females which is consistent with reports from Japan⁸, Bangladesh^{11,12}, Taiwan¹³, Saudia Arabia¹⁴, India²¹, Pakistan²² and Spain²³. Common age group in this study was 21 to 40 years which is consistent with one report from our country²⁸. It is also consistent with reports from India^{29,30} and Ethiopia³¹. Mean age of patients in this series was 47 years which is similar to that of India²¹. Most of the patients in this study were engaged in sedentary works. Similar reports were published from South Korea^{24, 25} and India²⁶. Four fifth of patients in group were from rural community which is consistent with report from Uttar Pradesh, India³², but contradict with one previous report from Dhaka²⁷. This may be due differences in study design, sample size and study population.

In this study education level is inversely proportional to incidence of gall stone disease and similar result was published from China³³. Incidence of gall stone disease was found higher among higher income group which is consistent with reports published by Diehl AK. Et al³⁴, report published in World Gastroenterology Bulletin³⁵ and report by achalovschi M et al³⁶. About three-fifth of patients in this series were of normal or underweight group which is consistent with reports from India²¹ Mexico³⁷, The USA³⁸, but contradicts with previous report from Dhaka²⁷. This different may be due to difference in study population and study design. In this series patients with history of low fish and meat intake were more affected which is consistent with previous report from our country²⁷. From available records incidence of gall stone disease was higher among patients having O blood group. Incidence of gall stone disease is common among patients with blood group O in Finland⁴² and India⁴³.

Common presenting symptom in this series was pain abdomen which is consistent with report²⁷. Higher incidence of multiple stone in gall bladder was seen in this study group which is also consistent with one report from Dhaka Bangladesh²⁷.

In this study, 6.22% of total patients of gall bladder disease had polyp in gall bladder (GBP). Studies showed prevalence of gall bladder polyp ranging from 4.3 to 12.3 %⁴⁴. GBP is more common among males which is consistent with other studies⁴⁴⁻⁴⁶. Common age of patients with GBP was 3rd and 4th decades in this series which is also consistent with report from Denmark⁴⁴. In this series GBP was more prevalent among normotensive which contradicts report from Qatar⁴⁷. Difference in sample size and study population might play a role here. Diabetes and obesity are risk factors for GBP⁴⁷⁻⁴⁹. But in this study incidence is higher among nondiabetics. And no variation of incidence of GBP was seen between normal and higher BMI categories in this series. These may be due to differences in population and their life style under study, and sample size.

Limitations: Blood groups of all patients were not known. Parity of all females were not known.

Table 1: Distribution of age of patents

Variables and number (%)		Age range (y)	Mean	SD
Total patients	418 (100)	14 to 95	46.99.5	16.0977
Male	199 (47.6)	14 to 95	49.33	17.56
female	219 (52.4)	14 to 81	45.00	16.15

Table 2: Epidemiological data and presenting features

Variable	No.	Percentage
Age		
up to 20 years	18	
21-30	72	
31-40	86	
41-50	66	
51-60	73	
61 y – 70 y	74	
71-80	23	
>80	6	
Education		
No institutional education	89	21.29
class 1 to class V	95	22.73
class 6 to SSC	112	26.70
HSC and above	123	29.42
Current smoker	60	14.3
Current tobacco leaves chewer	141	33.7
Current betel leaves and betel nut users	174	41.5

Sedentary workers	324	77.3
Income category according to monthly	house hold income in BDT	
Lower income group (below 12900)	48	11.5
Middle income group 12900 - 21500	103	24.6
Higher income group >21500	233	55.6
Not known	34	8.4
Residence -Rural	326	78.0
Urban	92	22.0
Hypertensive	126	30.1
Diabetic	102	24.3
Family history of GB stone	81	19.3
Family history of GB mass	2	0.5
BMI (WHO) cat under weight	50	12.0
Normal weight	200	47.8
Overweight	122	29.2
Obese	46	11.0
For female (N=219)		
Oral contraceptive users	25	11.42
Injectable contraceptive users	4	1.82
Females having h/o pregnancy (N=130)		
Para 1-2	47	36.7
3-5	57	44.5
6 - 10	24	18.8
Parity unknown or nulliparous	91	
Presenting features		
Pain abdomen	322	77.0
incidental	66	15.8
dyspepsia	23	5.5
Vomiting	18	4.3
Jaundice	18	4.3
acute pancreatitis	1	0.2
Right upper abdominal mass	1	0.2

Table 3: Sonological findings with different variables

	Microolith (11)	Single stone 111	Multiple stone 183	sludge 79	GB mass 4	Poly p 26	fibrosed GB with stone 4
Age group							
up to 25 y (42)	1	9	17	12	0	3	0
26-40y (134)	3	39	60	21	0	11	0
41-60y (139)	4	39	59	23	3	9	2
>60 y (103)	3	24	47	23	1	3	2
Sex							
Male (199)	4	46	82	47	1	16	3
female (219)	7	65	101	32	3	10	1
Education							
up to 5 (184)	6	48	86	47	4	6	1
6-SSC (112)	4	26	46	26	0	10	0
Above (123)	1	37	51	23	0	10	1

Current smoker (60)	1	18	23	7	1	8	2
Ex-Smoker (50)	1	8	20	19	0	1	1
Non-smoker (308)	9	85	140	53	3	17	1
Tobacco user (143)	1	45	65	20	2	8	2
Ex-user (43)	0	4	20	12	1	3	0
Non-user (232)	10	59	98	47	1	15	2
Betel leaves & nuts user 174	4	55	76	26	2	8	3
Ex-user (43)	0	7	20	12	1	3	0
Nonuser (201)	7	49	87	41	1	15	1
Sedentary worker 328	9	92	147	51	3	24	2
non-sedentary 90	2	19	36	28	1	2	2
Low-income 48	0	16	20	8	1	1	2
middle 103	2	26	46	22	2	5	0
Higher 233	5	60	105	40	1	20	2
rural 326	10	91	142	56	4	19	4
Urban 92	1	20	41	23	0	7	0
Hypertensive 126	3	33	57	28	0	5	1
normotensive 292	8	78	126	51	4	22	3
Diabetic 104	3	32	50	18	0	1	0
Nondiabetic 314	8	79	133	61	4	26	4
Meat intake/m							
0-5times 221	4	60	107	35	2	10	3
6-10 (65)	1	14	28	15	0	7	0
>10/m 62	4	16	23	13	0	6	0
Not known 70	2	21	25	16	2	3	1
Fish intake/m							
0-5d (275)	9	67	117	59	4	15	4
6-10 d (123)	1	37	57	17	0	11	0
unknown 20	1	7	9	3	0	0	0
Blood group							
O+ve (57)	0	21	19	11	0	6	0
O-ve(4)	0	1	2	0	0	1	0
A+ve (35)	0	6	15	10	0	4	0
A-ve (1)	0	1	0	0	0	0	0
B+ve 35	0	6	15	10	0	4	0
B -ve 2	0	0	0	2	0	0	0
AB +ve 7	0	2	4	1	0	0	0
AB -Ve 1	0	0	1	0	0	0	0
Not known 274	11	68	125	50	4	12	4
Underweight 50	1	15	21	7	2	2	2
Normal 200	6	52	89	37	2	13	1
Over weight 122	3	33	53	25	0	7	1
Obese 46	1	11	20	10	0	7	1
Female							
Para 1-2 (47)	0	15	20	6	2	4	0
Para 3-5 (57)	0	18	27	8	1	3	0
para 6-10 (24)	1	7	9	6	0	1	0

Para unknown (91)	6	25	45	12	0	2	1
Male							
Underweight 20	0	4	8	5	1	1	1
Normal wt (107)	1	28	43	25	0	9	1
Over wt (57)	2	12	24	14	0	4	1
Obese (15)	1	3	6	3	0	2	0
Female							
Under wt (30)	1	11	13	2	1	1	1
Normal wt (94)	5	25	46	12	2	4	0
Over wt (64)	1	21	28	11	0	3	0
Obese (31)	0	8	14	7	0	2	0

Conclusion:

Incidence of gall stone is higher among females and that of polyp was higher among males. Most of the patients of gall bladder disease belong to rural community with relatively higher household income. Most of patients were in 4th to sixth decade with low or normal BMI. Betel nut, tobacco leave chewing and smoking are other associated factors.

Conflict of interest: Nothing to declare

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