



CLINICAL PRESENTATION OF GALLSTONE DISEASE IN PEDIATRIC POPULATION ATTENDING A TERTIARY CARE HOSPITAL

Surgery

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ABSTRACT

Gallstone disease is a fairly common disease prevalent in the society. Knowledge about the disease in the pediatric population is less. Children have prevalence of about 15-20% in western societies. The study was conducted in departments of Pediatrics and Surgery of ASCOMS and Hospital between November 2019 to October 2020. 100 pediatric patients who were identified having cholelithiasis constituted the study. A detailed medical history, feeding history and family history were taken. Clinical examination and relevant investigations were done. Sonography of abdomen was done for the diagnosis of the disease. A total of 100 children were involved in the study among which 44 were males while 56 were females most of them belonged to the age group of 6-15 years. The most common clinical presentation was right upper quadrant pain which was seen in the 44 children followed by decreased appetite, dyspepsia and nausea, vomiting. On general physical examination pallor was the most common problem detected with 38 children having pallor. The various risk factors were assessed and in 24 cases no risk factors were identified which was followed by being overweight and family history having 21 cases each. Ultrasonography was performed on all these cases. We concluded that gallstone disease is fairly more common in the female children with no risk factor associated being the most common cause followed closely by family history and overweight. The most common presentation being the right upper quadrant pain and on ultrasonography being the presence of gall bladder sludge and multiple calculi in the gallbladder.

KEYWORDS

Gallstone, pain upper quadrant, children.

INTRODUCTION:

Gallstones have been identified in Egyptian mummies dating from the eighteenth dynasty (1592-1220 BC) and have been with us ever since [1]. The word cholelithiasis is derived from the Latin word chole meaning bile and lithia meaning stone and sis meaning process. First described in medical literature in 1507 by Antonio Benivenius [2]. The nature of the disease is different in the pediatric population as compared to the adults with higher proportion of pigmented stone and less cholesterol based stone disease in the pediatric population, especially in those younger than 10 years. The studies have shown a bimodal age peak in the incidence [3-4]. Overall 20-40% of all pediatric gallstones are attributable to hemolytic disease but now obesity is being identified as a new risk factor [5-6]. Asymptomatic gallstones range from 17-50% these are usually detected on the ultrasonography while assessing for the abdominal pathology. A large number of asymptomatic gallstones will never cause problems and indeed 16% and 34% have shown to completely resolve in children and infants respectively [5].

MATERIAL AND METHODS:

The study was conducted in departments of Pediatrics and Surgery of Acharya Shri Chander College of Medical Sciences (ASCOMS) and Hospital, Jammu between November 2019 to October 2020. One hundred pediatric patients who were identified as Gall stone disease constituted the study subjects. A detailed medical history, feeding history and family history was taken. Clinical examination was done in detail. Relevant investigations were conducted. Sonography of abdomen was done in each child for the diagnosis of the gallstone disease. All those identified with the disease were divided into symptomatic and asymptomatic group. A prior consent was taken from parents of the subjects. Clearance from the Institutional Ethical Committee was taken before the start of the study vide reference no. ASCOMS/IEC/RP&T/2018/304.

RESULTS:

A total of 100 children were involved in the study among which 44 were males while 56 were females most of them belonged to the age

group of 6-15 years. The detailed data is depicted in the table 1 and figure 1.

Table 1. Age And Sex Wise Distribution Of Patients.

AGE (IN YRS)	MALE	FEMALE	TOTAL
1-5	6	10	16
6-10	13	20	33
11-15	17	14	31
16-20	8	12	20
TOTAL	44	56	100

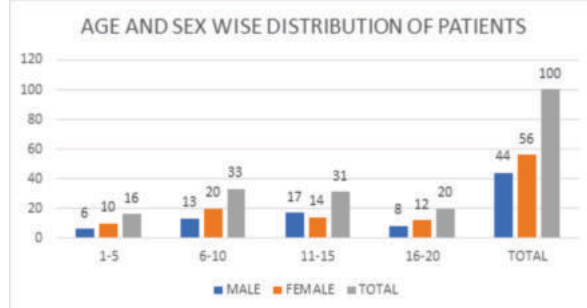


Figure 1. Age And Sex Wise Distribution Of Patients.

Table 2. Sex Wise Distribution Of Different Clinical Presentation In The Children.

CLINICAL PRESENTATION	MALE	FEMALE	TOTAL
RIGHT UPPER QUADRANT PAIN (RUQ) PAIN	21	23	44
EPIGASTRIC PAIN	3	5	8
NON SPECIFIC ABDOMINAL PAIN	3	5	8
DYSPEPTIC	3	7	10
NAUSEA/VOMITING	5	7	12

JAUNDICE	0	1	1
FEVER	0	1	1
DECREASED APETITE	6	14	20
INCIDENTAL FINDING ON USG	10	14	24

The most common clinical presentation was right upper quadrant pain which was seen in the 44 children followed by decreased appetite, dyspepsia and nausea, vomiting. The other symptoms seen were epigastric pain, non-specific abdominal pain, jaundice, fever etc. 24 among them were incidental finding on a USG scan. The detailed data is given in the table 2 and figure 2.

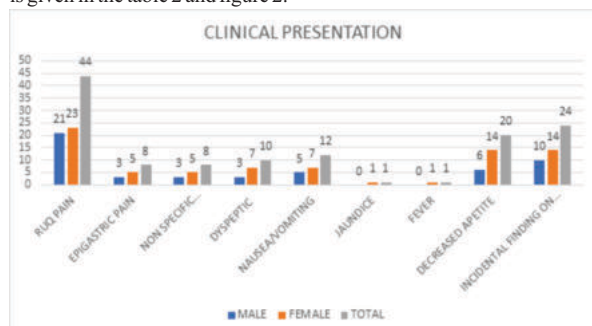


Figure 2. Sex Wise Distribution Of Different Clinical Presentation In The Children.

On general physical examination pallor was the most common problem detected while only 1 female was icteric. The data is shown in table 3.

Table 3. Sex Wise Distribution Of Findings Of General Physical Examination In The Study Group.

GPE	MALE	FEMALE	TOTAL
PALLOR	12	26	38
ICTERUS	0	1	1
LYMPHADENOPATHY	0	0	0
NORMAL	32	29	61
TOTAL	44	56	100

Most of the children were having a normal BMI while 21 were overweight and 6 were obese with only 2 falling under the category of underweight. The detailed data is given in table 4 and figure 3.

Table 4 Sex Specific BMI Data Of The Study Group.

BMI	MALE	FEMALE	TOTAL
UNDERWEIGHT	1	1	2
HEALTHY WEIGHT	30	41	71
OVERWEIGHT	11	10	21
OBESE	2	4	6
TOTAL	44	56	100

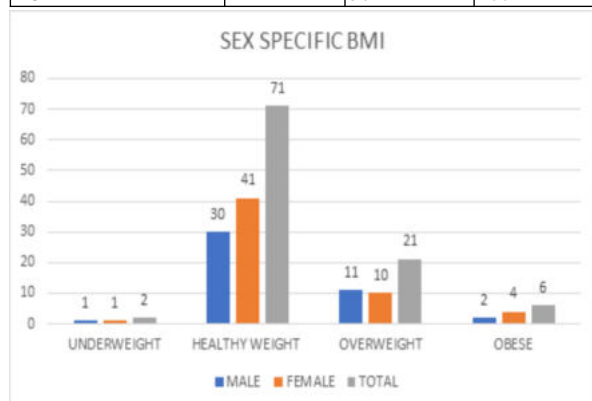


Figure 3 Sex Specific BMI Data Of The Study Group.

The sex wise hemogram is depicted in table 5 and figure 4.

Table 5. Sex Wise Data Of Hemogram Of The Study Group.

HEMOGRAM	NORMAL	LOW
MALE	32	12
FEMALE	30	26

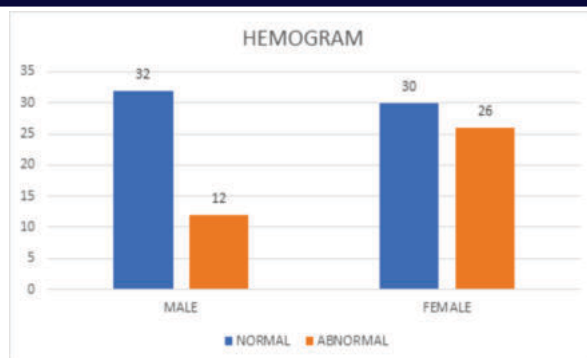


Figure 4. Sex Wise Data Of Hemogram Of The Study Group

Most of the study participants had a normal urine routine examination while 5 males and only 1 female were reported with having more than 5 pus cells in their urine samples. The data is given in table 6.

Table 6. Sex Wise Distributed Result Of The Urine Routine Examination Of The Study Group.

URINE	MALE	FEMALE	TOTAL
NORMAL	39	55	94
PUS CELLS(>5)	5	1	6
TOTAL	44	56	100

The various risk factors were assessed and in 24 cases no risk factors were identified which was followed by being overweight and family history having 21 cases each. 10 and 12 cases were reported with antibiotic intake history and hypercholesterolemia. Other minor risk factors like obesity and prematurity were also identified. The data is given in the table 7.

Table 7.sex Wise Distribution Of The Frequency Of The Risk Factors In The Study Group.

RISK FACTORS	MALE	FEMALE	TOTAL
FAMILY HISTORY	11	10	21
ANTIBIOTIC HISTORY	3	7	10
HYPERCHOLESTROEMIA	5	7	12
OVERWEIGHT	11	10	21
OBESEITY	2	4	6
PREMATURITY	2	4	6
NO RISK FACTOR	10	14	24
TOTAL	44	56	100

Ultrasonography was performed on all these cases and most common finding was of the GB sludge in 38 cases followed closely by having multiple calculi in 37 cases. While, 24 had a solitary calculus and 1 case presenting as acute cholecystitis. The data is given in table 8.

Table 8. USG Finding Of The Study Group.

USG ABDOMEN	MALE	FEMALE	TOTAL
GB SLUDGE	14	24	38
MULTIPLE CALCULI	18	19	37
SOLITARY CALCULUS	12	12	24
ACUTE CHOLECYSTITIS	0	1	1
TOTAL	44	56	100

DISCUSSION:

The spectrum of cholelithiasis clinical presentation varies from symptomatic to asymptomatic. In our study we found out that the right upper quadrant pain was the most common presentation among the study group and this fact is being proved by other studies as well[7-10]. Obesity is recognised as a key factor in the development of the gallstone and is now concerning as the increase in the number of children with severe obesity has increased by >300% from 0.8% in 1976 to 2000 in 3.8% in 2004[11-12]. As such there is no direct predictive value of the hemoglobin levels but it has been recorded that the pigment stones are formed due to the hemolysis but is found to be age dependent process and the same result was found in our study as well as no causal relation of a great magnitude was found and moreover the pigmentary stones are rather rare in the childhood. Although presence of genetic hemolytic disease contribute to the early development of the gallstone disease. Among the inherited disease the risk of gallstone disease is more with hereditary spherocytosis than with the thalassemia and is demonstrated in a number of studies so

far[13-15].Urine routine as such has no significance in the diagnosis of the gallstone disease and no such studies are performed to establish the same and at the same time any relationship to exist between the two is highly unlikely. The frequency of risk factors can be varied ranging from family history to no risk factor being present and hence it is better to perform ultrasonography on any children presenting with the complain of abdominal pain because the incidence if incidental finding of gallstone disease is very high to be neglected. Gall stone appear as an hyperechoic foci with the gallbladder or the ducts.[16-19]. The area of pediatric gallstone and knowledge about the disease occurrence though very vast in the adult population is still less in pediatric age group and the lack of meta-analysis is felt at each step of the study. The study has the limitation that the size of the study population is not large and also the difference between the risk factors between the various ethnicity was not studied, a lot has to be studied to complete the void in the knowledge of the gallstone disease in the childhood.

CONCLUSION:

We concluded that gallstone disease is fairly more common in the female children with no risk factor associated being the most common cause followed closely by family history and overweight. The most common presentation being the right upper quadrant pain and on ultrasonography being the presence of GB sludge and multiple calculi in the gallbladder.

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