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Clinico-Etiological Study On Cholelithiasis In Children Of Kashmir: Northern Most India

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Abstract

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Introduction

In contrast to adults, little is known about the epidemiology and the best therapeutic regimen for cholelithiasis and sludge in children. Cholelithiasis and choledocholithiasis were considered to be uncommon in infants and children but have been increasingly diagnosed in recent years due to wide-spread use of ultrasonography [(1)]. However, there is not much of information from India and no consensus among Indian paediatricians and paediatric surgeons regarding management of gallstones in children. The aim of this study was to describe the clinical presentation, predisposing factors and to evaluate management and outcome of patients between 2018 to 2023 in a referral children's hospital in Kashmir, northern state of India.

Patients And Methods

A prospective study was performed in children from birth to 18 years with a diagnosis of cholelithiasis between May- 2018 and jan-2023 in the paediatric and surgical department of government medical college Srinagar. Data on age at diagnosis, gender, clinical presentation, predisposing factors, ultrasonographic findings, management, follow up duration, and outcome recorded. We defined gallstones as echogenic foci in the gallbladder or bile ducts that produced posterior acoustic shadowing in ultrasonography. Related laboratory tests were done when needed. Follow up was performed with ultrasonography focusing on persistence or resolving of gallstones. The data was analysed by SPSS version 18 and a P-value

Results

Cholelithiasis was detected in 68 patients, including 36 males and 32 females. There was no significant difference in the gender distribution (P=0.1). The median age at diagnosis was 5.2 years (range: 6 months to 17 years). The most common predisposing factor for cholelithiasis was ceftriaxone therapy for sepsis (8 cases, 11.7%). Other risk factors are shown in **Table 1.** The associated conditions were haemolytic diseases in **4** cases (5.8%); hepatobiliary diseases in **3** (4.4%) ; Obesity was present in 2 and Cystic fibrosis in one patient. However, in other 50 (73.5%) patients, no associated condition was detected. Ultrasound was used for diagnosis in all the patients. Twenty-two (22) patients had no cholelithiasis associated symptoms and 46 patients were symptomatizing. The most frequent symptoms were abdominal pain, either with or without vomiting or jaundice. Forty-five patients

underwent elective surgery (cholecystectomy). One patient needed ERCP removal of CBD stone.

Abdominal pain was the most common initial symptom (43 patients, 63%) that led to abdominal ultrasonography and detection of gallstones. Other symptoms or signs included vomiting in 31 (45%), fever in 6 (8.8%), diarrhoea in 12 (17.5%), agitation in 22 (32%), hepatomegaly or splenomegaly in 5 (6%), jaundice in 3 (4.5%). One patient presented with pancreatitis. Seven (10.6%) patients were asymptomatic and their gallstone was incidentally found in ultrasonography. In 2 cases of ceftriaxone induced cholelithiasis, the stones dissolved. In all cases, ultrasonographic stone location was in gallbladder, simultaneous occurrence of stone in common bile duct (CBD) was seen in 4 patients. Three patients had hepatolithiasis. One patient had gall stone pancreatitis.

Ursodeoxycolic acid treatment was received by 56 (82%) patients. cholecystectomy was done in 45 (66%) patients. All patients had Ultrasound follow up during 3 years. spontaneous resolution of stone was seen in 6 patients (1 with CF, 1 With PFIC, 2 - ceftriaxone induced and 2 idiopathic). There was no death during follow up.

Table 1: Predisposing risk factors for Cholelithiasis in children.

PREDISPOSING FACTOR	frequency
Ceftriaxone therapy	8 (11.7%)
Haemolytic disease (Hereditary spherocytosis)	4 (5.8%)
Hepatobiliary disease PFIC Mutation = 2 Portal biliopathy=1	3 (4.4%)
Cystic fibrosis	1 (1.4%)
Obesity	2 (2.94%)
Idiopathic	50 (73.52%)

Discussion:

Previous studies about paediatric cholelithiasis in our state are limited. This study reviews the experience with 68 children with gallstones during a 5-year period. It is not possible to determine the incidence of gallstones in childhood because the total number of patients who had abdominal ultrasonography in this period is not available. In most studies, the mean age of diagnosis ranges from 5 to 10 years [1,2,4-8]. In our study the mean age of diagnosis was 5.2±4.5 years. Some previous studies have shown a female predominance [9,10,11], while some others found a gender ratio of equal to 1 particularly in children less than 12 years age [3,4]

In the present series 52.9% of patients were males and 47.1% females, this difference is not statistically significant. In our study, the most common (11.2%) predisposing factor was ceftriaxone whereas in a multicentre study in Italy, ceftriaxone was responsible for only 6% of cholelithiasis cases [3]. This can be related to the widespread use of ceftriaxone in treatment of paediatric infectious diseases in our area. Haemolytic diseases were the second predisposing factor (5.6%), however, in most

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studies the haemolytic diseases were the main risk factor for inducing cholelithiasis [4,5,12,13,14]. Cystic fibrosis (CF) was responsible for only one (1.8%) of patient with cholelithiasis in our research, whereas, in previous studies CF was the significant risk factor for gallstones in children [10,15] while in more recent studies, CF was not a common risk factor [11,12]. In some studies, and in our study, idiopathic gallstones were more common than other causes of cholelithiasis [5,16]. In a multicentre study in Italy, haemolytic diseases, obesity and family history were common predisposing factors for inducing cholelithiasis [3] whereas in our study obesity was responsible for only 1.4% of patients and family history of cholelithiasis was present in 10.4%. In our experience, abdominal pain was the most common (63%) complaint same as in other studies [4-9,13,16,17]. 10% of our patients were asymptomatic whereas in a multicentre study 33.3% of patients were asymptomatic [3] compared to 80% of asymptomatic adult patients [18,19]. We found stones located mostly in gallbladder as seen in ultrasonography, whereas 9% of the patients had stones simultaneously in the common bile duct (CBD) and none had stone in cystic duct. In other studies, gallstones were the most common finding in ultrasonography [5] whereas 15.8% of patients had stones in the CBD [20]. One (1.47%) patient with PFIC mutation had concurrent hepatolithiasis. Guidelines for management of cholelithiasis are available for adults, but little is known about management of childhood cholelithiasis [16,20]. Cholecystectomy is recommended for symptomatizing patients [5]. For non-symptomatizing patients, conservative management with periodical clinical and ultrasound follow up is recommended [20]. In our study, 45 (66.1%) patients underwent cholecystectomy and 59(89%) patients received UDCA that dissolved gallstones only in 4(5.8%) during follow up. In a study, 7.2% of patients responded to UDCA initially but in 50% of them stone recurred and cholecystectomy was performed on 35% of patients [3]. In another study, most of the children underwent cholecystectomy (13 of 19 patients) [5]. In a study 3.1% of asymptomatic patients and 59% of symptomatic patients necessitated cholecystectomy [4], and in our study, most of the patients needed surgical management because the most predisposing factor for inducing cholelithiasis was idiopathic where resolving stones was not possible.

Conclusion:

In conclusion, ceftriaxone therapy, haemolytic diseases and hepatobiliary disease and CF were the common predisposing factors of cholelithiasis, and in most of patients, no predisposing factor was detected. In our series, cholecystectomy was required in a majority of patients.

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