

Cholelithiasis in children: A characteristic study

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ABSTRACT

Introduction: Pediatric cholelithiasis (PC) is relatively rare when compared to adult cholelithiasis. This study is aimed to describe the clinical characteristics of pediatric cholelithiasis treated at Hasan Sadikin General Hospital (HSGH), Bandung, Indonesia.

Materials and Methods: This is a descriptive study of children aged 0–18 years who were diagnosed with and treated for cholelithiasis at the HSGH over 4–5 years. Variables collected during this study were sex, age, chief complaint, previous medical history, diagnostic test, definitive management, and clinical outcomes.

Results: There were 12 cases of pediatric cholelithiasis during the study period, including those of 5 boys (41.7%) and 7 girls (58.3%). The mean and median age of the patients was 10.75 years and 12 years, respectively. The most prevalent complaint of the patients was abdominal pain (75%), followed by jaundice (16.6%) and abdominal distension (8.4%). Thalassemia was the most frequently associated disorder among the patients (25%). Ultrasonography was diagnostic imaging used on 66.6% of patients. Fifty-eight percent of patients have performed the surgery. The most frequently used surgical technique to manage the patients included laparoscopic cholecystectomy (33.3%), followed by laparotomic cholecystectomy (16.7%).

Conclusion: PC is an uncommon disorder, but easier to diagnose reasonably with the development of imaging study. Minimally invasive procedures using laparoscopic cholecystectomy were the most frequently performed surgical treatment in this study.

KEYWORDS:

cholelithiasis, characteristics, pediatric surgery

INTRODUCTION

Cholelithiasis is a gallbladder disease commonly reported in adults. The incidence of cholelithiasis in children is relatively rare. An increasing trend of cholelithiasis in children has been noted.¹⁻³ Ultrasonography (USG) had been recommended for the diagnosis of cholelithiasis under clinical settings.⁴ The worldwide prevalence of cholelithiasis in children was approximately 0.15%–0.22%. Ganesh et al. had reported a lower prevalence of PC in Kanchi Kamakoti Child Trust Hospital; from 13,675 children treated at the institute, 43 (0.3%) were diagnosed with pediatric

cholelithiasis. The gallbladder stones were of size <5 mm, and 56% of the cases involved solitary stones. Only 2 out of 43 children (5.7%) diagnosed with cholelithiasis presented with symptoms.⁵ The publications for the epidemiology of PC remains unknown. This is partly because of the lack of symptoms in most cases. Thus, the present study was aimed to describe the characteristics of pediatric patients diagnosed with cholelithiasis.

MATERIAL AND METHODS

This is a descriptive retrospective study of pediatric patients diagnosed and treated for cholelithiasis at the Pediatric Department of HSGH during January 1, 2016 to July 30, 2020. Secondary data was collected from medical records. Relevant data were collected for this study, which included sex, age, symptoms, medical history, diagnostic tests, and definitive management of patients.

RESULTS

A total of 12 patients with cholelithiasis were treated during this period. The subjects included 5 boys (41.7%) and 7 girls (58.3%). The mean age of the patients was 10.75 years (0–18 years). Nine patients (75%) reported upper abdominal pain as the chief complaint. There were 2 patients (16.6%) who were admitted to the hospital for jaundice and 1 patient (8.4%) presented with abdominal distension.

According to their past medical history, 3 patients had thalassemia (25%), 2 had a past history of abdominal tuberculosis (16.5%), 1 had a past history of cholangitis (8.4%), 1 was obese (8.4%), and 1 had chronic bronchitis (8.4%). A total of 4 patients (33.3%) had no medical history.

Patients diagnosed with cholelithiasis underwent further supporting examination. Complete blood count and abdominal USG were performed in 8 patients (66.6%), and complete blood count without abdominal USG and computed tomography (CT) was performed in 3 patients (25%). One patient (8.4%) underwent an abdominal CT scan and complete blood count examination.

Varying definitive management was noted in the study. There was a total of 7 patients (58.4%) who had received surgical treatment, 5 patients (41.7%) had received laparoscopic cholecystectomy, and 2 patients (16.7%) had received open cholecystectomy. There was a total of 5 patients (41.6%) who refused to undertake any definitive treatment.

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Table I: Characteristic Demography Patients

Parameter	n (%)	Mean	Median (Min-Max)
Gender			
Boy	5 (41.7%)		
Girl	7 (58.3%)		
Age		10.75	12 (0-18)

Table II: Chief complaint and previous medical history

Parameter	Proportion %
Chief complaint	
Abdominal pain	75%
Jaundice	16.6%
Abdominal distention	8.4%
Previous medical history	
No past medical history	33.3%
Thalassemia	25%
TBC abdominal	16.5%
Cholangitis	8.4%
Obesity	8.4%
Chronic bronchitis	8.4%

Table III: Characteristic Diagnostic Examination

Parameter	Proportion %
complete blood count, USG	66.6%
complete blood count, USG + CT Scan	25%
complete blood count + CT Scan	8.4%

Table IV: Management

Parameter	Proportion %
Surgical	58.4%
Laparoscopic cholecystectomy	33.3%
Open cholecystectomy	16.7%
Conservative treatment	41.6%

DISCUSSION

In all there were a total of 12 patients who were diagnosed with cholelithiasis, predominantly girls. The data in the present study was different from those of previous study by Gunawan et al.⁶ the latter study recorded a higher ratio of boys to girls (2.3:1) in cases of PC. The mean age of the patients was 10.75 years (0–18 years). The age demographics of this study were similar to those of a previous study by Bhasin et al.⁷ who reported a mean age of pediatric patients with cholelithiasis as 10.1 years.

Upper right abdominal pain was the most commonly reported clinical symptom in our study. Bhasin et al.⁷ recorded several symptoms associated with pediatric cholelithiasis: the recurrent upper right abdominal pain with or without nausea was recorded in 75% of the study population with the remaining subjects showing varying symptoms, such as jaundice and failure to thrive. Thalassemia and anemia were commonly recorded in patients with PC, accounting for 25% of all patients.⁷ Tannuri et al.⁸ noted that 62.3% of the pediatric patients with cholelithiasis were previously diagnosed with a hemolytic disorder such as sickle cell anemia or thalassemia.

The most commonly used diagnostic tool to confirm cholelithiasis in our study was USG, with 83.2% of the patients diagnosed with it. Real-time USG examination is highly accurate, reaching 96% in diagnostic accuracy, for the diagnosis of gallbladder and liver disorders. Cholelithiasis is readily diagnosed with a relatively high degree of accuracy by USG.⁴

Surgical treatment was the mainstay of management for cases of PC in this study. In our study, 58.4% of the patients received cholecystectomy, while 33.3% received laparoscopic cholecystectomy. Over the last decade, laparoscopic cholecystectomy has attained the status of the standard for definitive management of cholelithiasis.⁴ Lugo-Vicente et al. reported that 71% of all infants and children with cholelithiasis received laparoscopic cholecystectomy, while the remaining received conventional or open cholecystectomy. There are several advantages in opting for laparoscopic intervention for the treatment of cholelithiasis, including the minimally invasive nature of this procedure that reduces the risk of postoperative pain, reduces the length of stay, and creates only small surgical wounds.^{9,10}

CONCLUSION

Cholelithiasis is often asymptomatic; occasionally, some cases may present with visible symptoms that require surgical treatment. Most cases can be diagnosed with USG. Minimally, invasive procedures using laparoscopic cholecystectomy demonstrate fewer morbidities when compared with the conventional approach.

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