

SYMPTOMATIC CHOLELITHIASIS IN CHILDREN: A HOSPITAL-BASED REVIEW

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Cholelithiasis is an uncommon condition in childhood.¹ The tendency of many authors to include adolescents and teenagers up to age 18 years in the pediatric age group has led to an overestimation of the disease in children. In this article, cases of cholelithiasis diagnosed at the University Hospital in Jeddah over a 10-year period are reported and compared to similar cases in the literature.

Patients and Method

Histopathology reports and files of all patients under 12 years of age who had undergone cholecystectomy between January 1986 and July 1996 at the University Hospital in Jeddah were reviewed. Any possible risk factor that could contribute to gallstone formation was also determined. Using *Medline* search for the same period, all articles dealing with the subject of gallstones in children were reviewed. Articles not written in English were excluded, and only cases of children 12 years of age and under were included in the review.

Results

The result of the search yielded only eight cases in the records of the University Hospital over the 10-year study period, and all of them were with complications of gallstones (Table 1). The 88 cases reported in the literature showed 59 cases of asymptomatic gallstones (67%) discovered during abdominal ultrasound. Twenty-six cases (29%) presented with obstructive jaundice, two cases (2.2%) with biliary pain, and one case with acute pancreatitis (1.1%). A comparison of the two groups of cases is shown in Table 2.

Discussion

Cholelithiasis is infrequent in patients under the age of 16 years (<1%), and rare in the 12-year-and-under age

group.² In this review, the age of 12 years was chosen as the upper limit of childhood.³ Only 88 cases of gallstones in children were published in the English literature between January 1986 and July 1996. In a large pediatric referral facility, only 59 cases of cholelithiasis were diagnosed over a 20-year period (between 1973 and 1993).⁴ In our hospital, only 20 cases were diagnosed over a 10-year period (between 1986 and 1996).

Gallstones in children usually occur as a result of predisposing factors, such as total parenteral nutrition (TPN), immunosuppression, and hemolytic anemias. In TPN, a high ratio of nonprotein Kcal/mL increases the risk of gallstone and biliary sludge formation. This can be prevented by administering the appropriate amounts of fat.⁵ The correlation between immunosuppressive drugs and cholelithiasis in children is difficult to establish (because there can be no similar cohort of patients not on immunosuppressive drugs), but it could be due to the alternation of bile compositions, or the direct hepatotoxic effect of the drugs leading to lithogenicity of bile.²

Spherocytosis and sickle cell anemia are the most common conditions associated with cholelithiasis. The incidence of gallstones in hereditary spherocytosis ranges from 4% to 63% of cases.⁶ The incidence of gallstones in children with sickle cell disease increases with age, being 12% between two and four years, and increasing

TABLE 1. Details of the eight diagnosed cases (no family history in all cases).

Age/sex	Presentation	Associated disease*	Histology
11y/F	Obstructive jaundice	Sickle cell anemia; TB lymphadenopathy	Chronic cholecystitis
11y/M	Obstructive jaundice	Nil	Chronic cholecystitis
5y/F	Biliary pain	Asthma	Chronic cholecystitis
2y/M	Obstructive jaundice	Choledochal cyst	Chronic cystitis; choledochal cyst
10m/M	Biliary pain and jaundice	Thalassemia	Chronic cholecystitis
12y/F	Biliary pain and jaundice	Sickle cell anemia	Chronic cholecystitis
6m/F	Obstructive jaundice	Nil	Congested gallbladder
5m/M	Obstructive jaundice	Nil	Fibrotic inflamed gallbladder

*There was no family history in any of the cases.

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TABLE 2. Comparing the two groups of patients.

Presentation	Patients from Jeddah (8)	Patients from the literature (88)
Asymptomatic	0	59 (87%)
Acute pancreatitis	0	1 (1.1%)
Biliary pain	3 (37.5%)	2 (2.2%)
Obstructive jaundice	5 (62.5%)	26 (38.5%)
Associated diseases	4 (50%)	52 (59%)

thereafter.⁷ Other risk factors associated with gallstone formation in children include prematurity, with a variety of associated illnesses, such as immaturity of organ systems, necrotizing enterocolitis, feeding intolerance, decreased bile acid output, shortened erythrocyte lifespan, phototherapy for physiological jaundice, and maternal use of furosemide and morphine.^{4,5,8,9}

The most common presentation of cholelithiasis in children is biliary pain and obstructive jaundice due to choledolithiasis, which in most cases requires an endoscopic retrograde cholangiopancreatography (ERCP) and papillotomy or open exploration of the common bile duct.^{9,10} Because of the high incidence of complications of gallstones in children, most surgeons are of the opinion that children of any age with symptomatic cholelithiasis, and children over three years who have asymptomatic cholelithiasis should undergo open or laparoscopic cholecystectomy.¹¹ Since a large number of gallstones in children are asymptomatic, and since the complication rate is high,^{4,9,12} it is advisable to screen all children with risk

factors for developing stones (especially those with hemolytic anemia), and consider them for cholecystectomy even if they are asymptomatic cases.

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