

Acute Cholecystitis in paediatric patients in Khartoum, Sudan

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Abstract

Introduction: Acute cholecystitis in children is a rare presentation, especially acalculary type. Many cases of acute cholecystitis in paediatrics were reported in western literatures, but few reports were published from tropical countries.

Purpose: The objectives of this study are to reflect on frequency of acute cholecystitis, its risk factors, diagnostic methods and outcome in children.

Patients and methods: A prospective data collection of five (2.5%) patients, one female and four males, with acute cholecystitis, collected among 200 paediatric patients presented with acute surgical abdomen over six months, between August 2006 through January 2007 in Khartoum teaching hospital plus another three elective cases (one male and 2 females) collected from private centre over two years.

Result: Five (2.5%) patients had acute cholecystitis and three elective cases. Five boys and three girls. Their ages ranged from 6 to 11 years. They were five cases of calculary cholecystitis. Thickened gallbladder wall, non shadowing echogenic materials or sludge in four patients, and pericholecystic fluid collection in two patients. No identifiable causes were found in four patients, one patient with acalculary cholecystitis discovered to have Salmonella infection and 2 children with sickle cell disease.

Conclusion: Acute cholecystitis in pediatric is not common. High index of suspicion is required for correct diagnosis



Introduction

Acute cholecystitis is unusual pathology in children. Its diagnosis needs high index of suspicion. The vast majority of published papers are from western countries; with no major difference in clinical presentation whether its calculary or acalculary cholecystitis¹. Acalculous cholecystitis usually occurs in critical ill old patients and those admitted to the intensive care units. It is rare in pediatric patients². The common symptoms and signs are upper quadrant pain, nausea, vomiting, fever, jaundice and upper quadrant mass³.

The ultrasonographic criteria of acute acalculary cholecystitis consisted of thickening of the gallbladder wall (>3.5mm), gallbladder distension, non shadowing echogenic materials or sludge, and pericholecystic fluid collections⁴.

Complications of acute cholecystitis in children are life threatening. Avoidance of these complication demands prompt diagnosis and proper treatment⁵

Patients and methods

A total of 200 pediatric patients with acute surgical abdomen presented to paediatric surgical department, in Khartoum Teaching Hospital in the period August 2006 through January 2007. Another three cases of gallbladder disease were diagnosed in a Fedial Private Medical Centre. They were reviewed prospectively and only for features of gallbladder disease. Their demographic data, symptoms, clinical examination, radiological and laboratories findings were analyzed, as well as their treatment

Findings were analyzed, as well as their treatment and the outcome.

Purpose

The objective of this study is to review the frequency, risk factors, diagnostic methods and outcome of acute cholecystitis among children.

Results

Five (2.5%) out of 200 children with acute abdomen were diagnosed as acute cholecystitis (Two calculary and three acalculary cholecystitis). Their ages ranged from 6 to 9 years. They were two acute calculary cholecystitis patients, with no evidence of haemolytic diseases. Three patients with acalculous cholecystitis with no identifiable predisposing factors, one of these three patients presented with generalized peritonitis, Although the gallbladder was acutely inflamed but it was not perforated (Fig 1,2 and 3). The microbiological screening of her peritoneal fluid showed Salmonella infection, and her Widal test was positive. The duration of symptoms of children who presented as acute abdomen was 2 to 4 days. The most frequent signs and symptoms were right upper quadrant pain in 4, nausea in 5, vomiting and fever in 5, while right upper quadrant mass and jaundice each in a single child. All patients had leukocytosis. Liver function tests were normal in four patients.

Four patients had abdominal ultrasound at presentation. Gallbladder was thickwalled with nonshadowing echogenic materials or sludge in four patients, and pericholecystic fluid collection in two patients.

Emergency cholecystectomy was performed in the patient who had signs of generalized peritonitis. The other four patients were appointed

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for interval cholecystectomy 6 to 8 weeks following conservative management. All patients were discharged in less than ten days, and subsequently were followed in the outpatient department.

Three patients were diagnosed over two year's time at Fedail Private medical Centre. They were two girls and a boy. Their age ranged from 4-11 years. Two of them had intermittent colicky abdominal pain and the third had recurrent urinary tract infection. Ultrasound showed gallstones in all the three patients. Two of them were known cases of sickle cell disease. Laparoscopic cholecystectomy was performed in these two patients while the third was considered asymptomatic and advised to come for follow up



Fig1: child with acute Cholecystitis



Fig2: severe necrosis in mouse of gallbladder

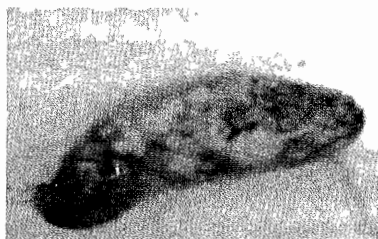


Fig3: Fibroinous exodates in gallbladder

Discussion

Although acute cholecystitis is straight forwards clinical diagnosis in adult, the diagnosis and management in pediatric patients represent real challenge to the treating physician. There are many reports in the literature that describe the clinical presentation and outcome of management

of acute cholecystitis in children. The largest series is by Tsakayannis DE et al from USA, who reviewed retrospectively twenty five children with acalculous cholecystitis between 1970 and 1994. 19 out of these 25 patients had abnormal gallbladder function tests, noted by radionuclide hepatobiliary scan or cholecystography. Such facilities are not available in our hospital where we rely on clinical diagnosis supported with ultrasonic scan.

Three of our patients had surgery (one laparotomy for acute acalculous cholecystitis and two laparoscopic cholecystectomy for elective cases). Cholecystectomy is an effective treatment for gallbladder disease but, there is place for initial conservative treatment in some cases⁶. Occasionally, in cases of perforation the diagnosis may not be easy to be made preoperatively, careful history taken and examination supported by abdominal ultrasound, and radionuclide hepatobiliary scan or cholecystography is crucial in diagnosing hepatobiliary disorders in children⁷.

Our findings in cases of acute acalculous cholecystitis are well matched with the observations reported by Yulevich A et al⁸, who reported one case of acute acalculous cholecystitis due to salmonella infection in a six years old girl, with a signs of diffuse peritonitis, treated with cholecystectomy and intravenous ceftriaxone¹. Gallbladder dyskinesia as a cause of abdominal pain in children was investigated by Cay A, et al from Turkey⁹. Patients with gall bladder dyskinesia, present with biliary pain with no evidence of gall stone in ultrasonography. In such situation Cholecystokinin-stimulated hepatobiliary scan (CCK-HBS) will establish the diagnosis. He recommended CCK-HBS early in any patient with biliary colic who shows negative sonographic findings, but we do not have facilities for ERCP and manometry for the biliary system.

We considered a girl of four years of age with gallstone as asymptomatic. This is in keeping with conclusion of Russo EM et al¹⁰ in Italy who investigated three paediatric patients with cholelithiasis and concluded that the disease is rare and often asymptomatic.

We had an urgent laparotomy in a six year old girl presented with generalized secondary to acalculous cholecystitis but we couldn't find perforation in the gallbladder. This goes well with the fact that perforation of the gall bladder complicating acute acalculous cholecystitis is a very rare complication. It may present as generalized peritonitis, pericholecystic abscess, cholecystoenteric fistula in its chronic

presentation, and very rarely the gallbladder may perforate¹¹. We had 3 clear predisposing factors for gallbladder disease (one with Typhoid and two with sickle cell disease).

Conclusion

Proper history and physical examination are very important for diagnosis of gallbladder disease in children. Prompt medical treatment is important, and surgical treatment should be carried out immediately when it is appropriate.

In our current setup there are many areas for future investigations concerning the etiological factors of acute cholecystitis in pediatric patients. A number of difficulties still exist such as the lack and limitation of special investigatory tests.

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