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# Laparoscopic cholecystectomy in a 2 year old male child with cholelithiasis and recurrent right hypochondrial pain: Case report and review of literature



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## ABSTRACT

**INTRODUCTION:** Gallstone disease has been considered an uncommon entity in children and infants, but its incidence is reportedly increasing which may be attributed to widespread use of diagnostic imaging (ultrasonography).

**PRESENTATION OF CASE:** An apparently healthy 2 year old male child presented to our Outpatient department with chief complaint of recurrent abdominal pain. The episodes of pain were acute in onset and associated with vomiting. As per the complete examination and findings, a diagnosis of chronic calculous cholecystitis was made. A four port laparoscopic cholecystectomy was done.

**DISCUSSION:** The incidence of gallstones in children in India has not been sufficiently studied. The incidence of gallstone disease in India was found to be 0.3% with the incidence in age group 0–10 being less than 0.1%. In contrast to adult gallstone disease, it has been found that there is no female preponderance in gallstone diseases of infancy. Also, the majority of children having increased haemoglobin turnover develop pigment stones only after 5 years of age.

**CONCLUSION:** The probability of gallstone disease in infants and young children should not be ignored. Gall stones should always be considered as a differential diagnosis when young patients present with complaints of abdominal pain.

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## 1. Introduction

Gallstone disease has been considered an uncommon entity in children and infants, but its incidence is reportedly increasing which may be attributed to widespread use of diagnostic imaging (ultrasonography) [1]. Gallstones found in adults are primarily cholesterol stones or mixed stones but in children pigment stones formed as a consequence of hemolytic diseases like sickle cell anemia, thalassemia and hereditary spherocytosis are more common. In India, gall stone disease are 7 times more common in northern than southern India. Also, it has been reported that gall stones in northern India are predominantly cholesterol or mixed stones while that in southern India are pigment stones [2,3].

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## 2. Presentation of case

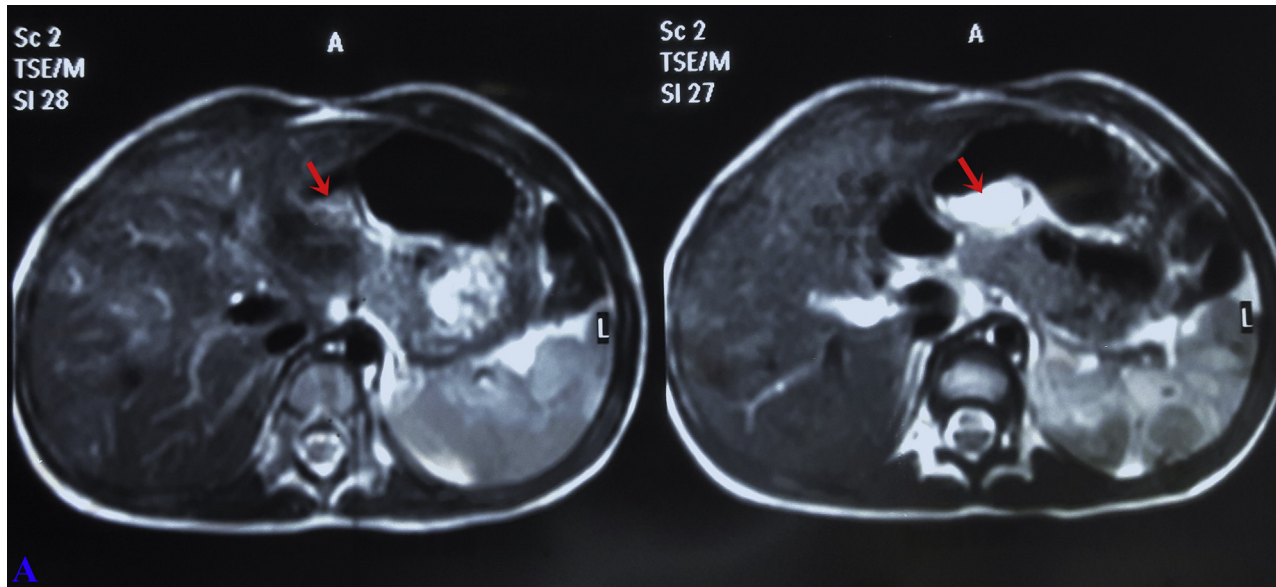
An apparently healthy 2 year old male child presented to our outpatient department after having consulted several other facilities. The chief complaint was on and off abdominal pain. The episodes of pain were acute in onset and associated with vomiting. The pain aggravated after consumption of food. This pattern of pain had caused loss in appetite.

There was no other associated history like fever, icterus, pruritus or bleeding tendencies. The general physical examination was done and found within normal limits and unremarkable.

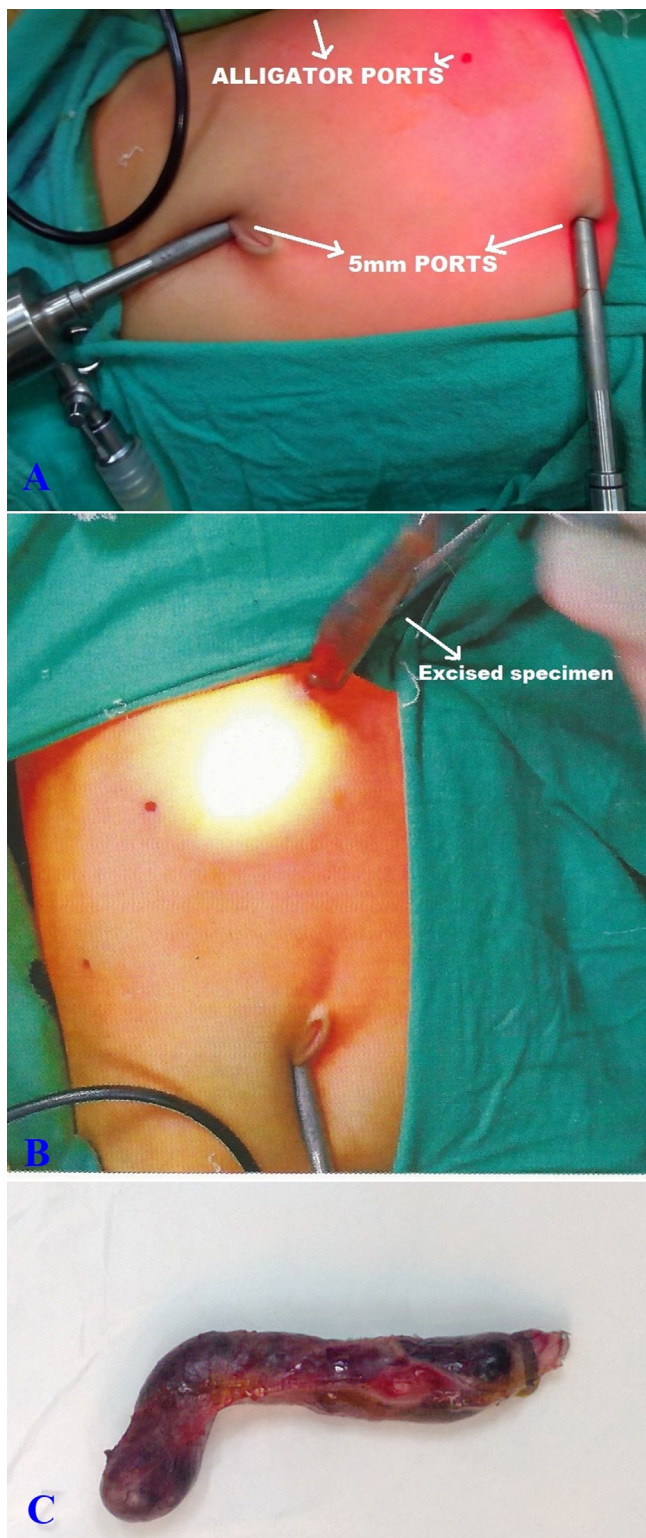
The patient was afebrile and vital signs were within normal limits.

Routine laboratory examination was done which were within normal limits also. Peripheral blood smear examination reveals reduced number of red blood cells with normal morphology in addition to normal amount and number of white blood cells, platelets and reticulocytes.

On Ultrasonography, the gall bladder was found partially distended with multiple calculi in gall bladder lumen. Common Bile Duct was normal in caliber. The findings were suggestive of Chronic cholecystitis with cholelithiasis. On MRI (Magnetic resonance imaging) whole abdomen with Magnetic Resonance Cholangiopancreatography(MRCP), multiple small calculi were seen suggestive



**Fig. 1.** Magnetic Resonance Cholangiopancreatography Image depicting multiple small calculi seen in gall bladder (red arrow). Common bile duct and common hepatic duct appear normal.



**Fig. 2.** (A) Intraoperative photograph showing a 5 mm supraumbilical camera port and a 5 mm epigastric port (long white arrow) with site of alligator port insertion in the midclavicular line and anterior axillary line marked by the smaller two white arrows. (B) & (C) Depicting removal of gall bladder specimen and gross gall bladder specimen respectively.

of cholelithiasis (Fig. 1). Common bile duct and common hepatic duct were found normal.

As per the complete examination and findings, a diagnosis of chronic calculous cholecystitis was made.

A four port laparoscopic cholecystectomy was planned as in a similar case reported earlier [4]. After appropriate preoperative investigations and discussion with paediatrics and anaesthesia team, Laparoscopic cholecystectomy was done under general anaesthesia using two 5 mm ports and two alligators (Fig. 2A & B). Partially distended gall bladder with multiple calculi was removed. It showed changes suggestive of chronic cholecystitis (Fig. 2C). The anatomy of Calot's triangle was found normal. Cystic duct and cystic artery were identified, ligated and cut down. The calculi were pigment type (Fig. 3).

Postoperative stay was comfortable and patient was allowed oral feeds after four hours. Thereafter patient was discharged on postoperative day one. On follow up patient was comfortable, accepting feeds with no complaint of vomiting or abdominal pain and the appetite of the patient had improved.

### 3. Discussion

The incidence of gallstones in children in India has not been sufficiently studied. As per a study conducted by Ganesh R et al. the incidence of gallstone disease in India was found to be 0.3% with the incidence in age group 0–10 being less than 0.1% [5]. According to Poddar et al. the etiologies of cholelithiasis in the Indian pediatric population are hemolytic (20–30%), idiopathic (30–40%) and other causes like total parenteral nutrition, congenital biliary disease, ileal disease (40–50%) [3]. Majority of these patients present with typical biliary symptoms (50%) [3]. In a series of 18 pediatric laparoscopic cholecystectomies from South India, 75.2% cases were idiopathic [6]. In contrast to adult gallstone disease, it has been found that there is no female preponderance in gallstone diseases of infancy. Also, the majority of children having increased haemoglobin turnover develop pigment stones only after 5 years of age [7,8]. Since the patient did not have any bleeding tendencies or family history of gallstone disease of infancy, the exact pathogenesis cannot be outlined. In some earlier studies, it has been documented that female children are more at risk for developing gall stones making this case even rarer [9].

Very few cases of laparoscopic cholecystectomy have been described in children younger than 2 years. A thorough literature search revealed 3 cases of laparoscopic cholecystectomy in children younger than 2 years [10–12]. All three cases had idiopathic gall stone disease.

The standard treatment for symptomatic gall stone disease is Laparoscopic cholecystectomy [13]. Though infants with symptomatic gall stone disease can be managed expectantly in the hope of spontaneous resolution, children aged 2–12 years are less likely to respond to expectant management. These patients will require surgical intervention [14,3]. Cholecystectomy is recommended in children with typical biliary symptoms and prophylactic cholecystectomy is recommended in children with haemolytic disorders [3].

### Conflicts of interest

No conflict of interest.

### Funding

None.

### Ethical approval

No ethical approval needed.

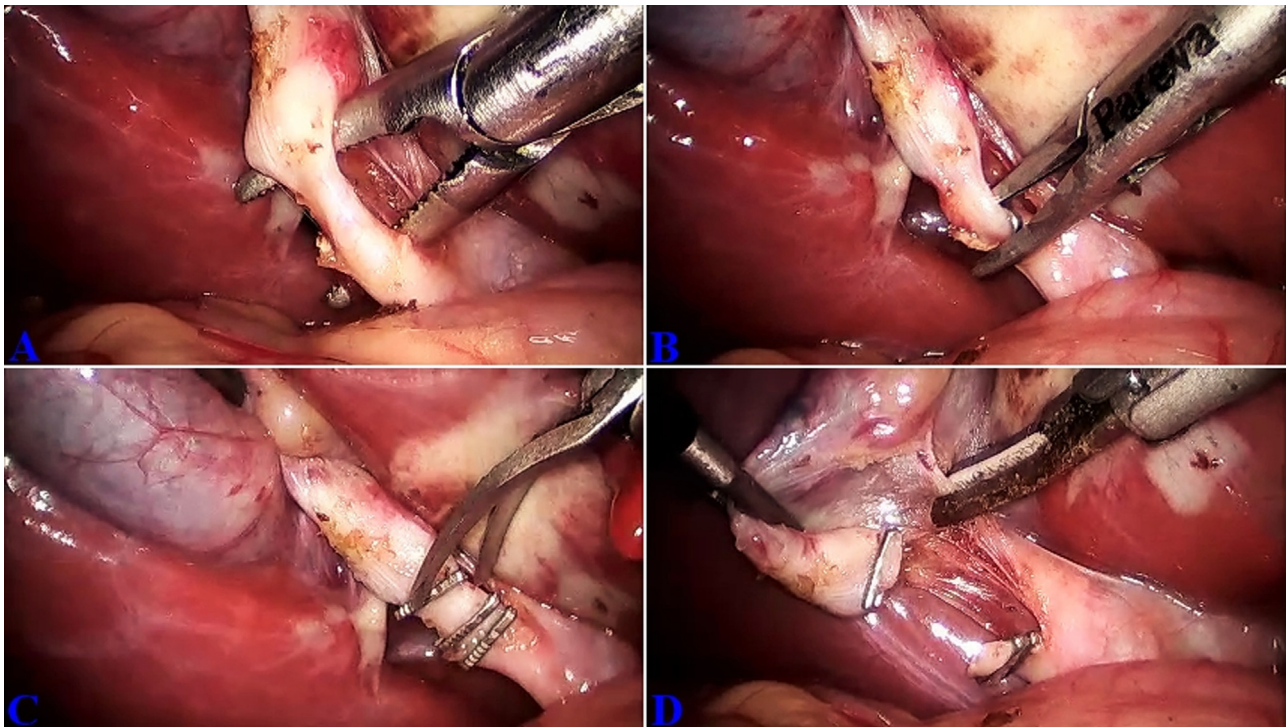


Fig. 3. Showing: (A) Dissection of the Calot's triangle. (B) Clipping of cystic duct. (C) Division of cystic duct. (D) Dissection of gall bladder off the gall bladder fossa.

#### Author contribution

Sanjeev Chhabra helped in conception and design of study, analysis and interpretation of data, drafting the article and final approval of the version to be submitted. Zeeshan Ahmed helped in analysis and interpretation of data, revising the article critically for important intellectual content and final approval of the version to be submitted. Ashish Massey helped in acquisition of data, revising the article critically for important intellectual content and final approval of the version to be submitted. Shanoor Agarwal helped in analysis and interpretation of data, revising the article critically for important intellectual content and final approval of the version to be submitted. Vikesh Vij helped in conception and design of the study, revising the article critically for important intellectual content, and final approval of the version to be submitted. Bharat Agarwal helped in analysis and interpretation of data, revising the article critically for important intellectual content and final approval of the version to be submitted. Jeevan Kankaria helped in acquisition of data, revising the article critically for important intellectual content and final approval of the version to be submitted. R K Jenaw helped in acquisition of data, revising the article critically for important intellectual content and final approval of the version to be submitted.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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#### Guarantor

Dr. Sanjeev Chhabra.

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