



Pediatrics Gallstones: A Case Report of Spontaneous disappearance of symptomatic non-hemolytic gallstone in a pediatric patient

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General Note



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ABSTRACT

Biliary system is that part of the digestive tract which can be affected by variety of disorders, considering the most common one is gallstones that medically termed as Cholelithiasis. In pediatrics, cholelithiasis commonly associated with predisposing conditions, such as history of: total parenteral nutrition (TPN), blood type incompatibility, neonatal phototherapy, hemolysis, dehydration, or sepsis.

Keywords: Pediatric surgery, pain, jaundice, procedures, obesity, gallstones

1. INTRODUCTION

Gallstones in pediatrics may present with colicky abdominal pain and jaundice, but most are asymptomatic (Wesdorp et al., 2000). Symptomatic Gallstones in pediatrics is usually associated with morbid conditions, such as hemolytic disorders (Kaye et al., 2008). Other Predisposing conditions associated include neonatal period phototherapy, prior ileal resection, biliary tract abnormalities (Lopez et al., 2012). Cholecystectomy is the treatment of choice in symptomatic cases (Road & Pradesh., 2010). Incidence rate of idiopathic non symptomatic gallstones in pediatrics has been increased (Herzog & Bouchard., 2008; Bogue et al., 2010).

Background

Symptomatic Cholelithiasis in pediatrics is commonly associated with Predisposing conditions, and managed by cholecystectomy. Symptomatic gallstones due to non-hemolytic causes are considered to be rare.

2. CASE REPORT

An otherwise a healthy denarian patient admitted to the department of Pediatric Surgery at Maternity and Children Hospital-KSA, June 2018. The patient didn't have history of hemolytic disorders. The patient complained of sever right upper quadrant abdominal pain, acute, dull, persistent, and unrelated to postural changes. The pain was associated with nausea, three onsets of vomiting and constipation. Review of systems showed no history of, total parenteral nutrition (TPN), blood type incompatibility, neonatal phototherapy, hemolysis, dehydration, or sepsis. A preliminary clinical diagnosis was acute cholecystitis based on imaging findings and clinical presentation.

Vitals

His admission blood pressure was 110/70 mmHg, Heart rate 102 beats per minute, Respiratory rate 20 breath per minute, body temperature 37.3°C, and body weight 24.5kg. The patient was looking ill, conscious, alert, oriented, and had no signs of jaundice. Abdomen was soft and lax with mild upper quadrant tenderness.

Investigations

Laboratory data revealed: white blood cell count $14.5 \times 10^3/\text{UI}$, with 81% neutrophil, Hemoglobin 12.6 g/dl, Aspartate aminotransferase 19U/L, Amylase 46U/L, Alkaline phosphatase 177U/L, Total bilirubin 9.3umol/L, Direct bilirubin 4.5umol/L, Serum creatinine 54.4umol/L, Urea nitrogen 3.7mmol/L.

Imaging

Ultrasonography of the abdomen showed that (figure 1):

- Liver: normal size, smooth surface, acute-angled lower margin, homogeneous, normal vessel structure, no focal lesions detected.
- Gallbladder: shows sludge with tiny calculi, wall thickness 2.0 mm.
- Bile Ducts Normal: intra- and extra-hepatic bile ducts not dilated, no intraluminal lesion detected.
- Pancreas: normal finding, sharply definable.

Comment: Gut loops show some fluid distension.

The patient initially diagnosed as acute calculous cholecystitis, and admitted to pediatrics surgery ward for elective cholecystectomy. On the day of admission patient instructed to be on NPO (nothing by mouth), Patient initially received:

- D5 1/2 NS 65cc/hour.
- Monobasic Sodium Phosphate Dihydrate (22MG), 120ML, Enema, Rectal.
- Lactulose (3.3GM), 15ML, Syrup, Oral daily, ROUTINE.
- Domperidone (1MG), 6ML, Syrup, oral, three times a day, ROUTINE.

On the second day of admission, patient received:

- Metronidazole (500MG), 250MG, Solution for injection, intravenous, Q8 hours.
- Ceftriaxone sodium (100 MG), 250MG, Solution for injection, intravenous, Q8 hours.

US on the 4th day of admission done, US showed that (figure 2):

- Liver showed normal size, normal homogenous echo texture with regular outline and no focal lesions. Portal vein is patent and of normal caliber.

- Gallbladder showed normal capacity and normal wall thickness with hyper-echogenicity inside measuring 30 x 9 mm casting posterior shadow.

Impression

Gallbladder stone was subjected for clinical correlation and further investigations. Patient treated conservatively with antibiotics for 5 days, the patient clinically was improving, cholecystectomy postponed, patient discharged, outpatient clinic follow up appointment given after one month to fix an appointment for elective cholecystectomy. On the first OPD follow up, patient supposed to be booked for cholecystectomy, US done showed (figure 3):

- Liver shows normal size, normal homogenous echo texture with regular outline and no focal lesions. Portal vein is patent and of normal caliber.
- Gallbladder shows normal capacity and normal wall thickness with no stones or mud inside.

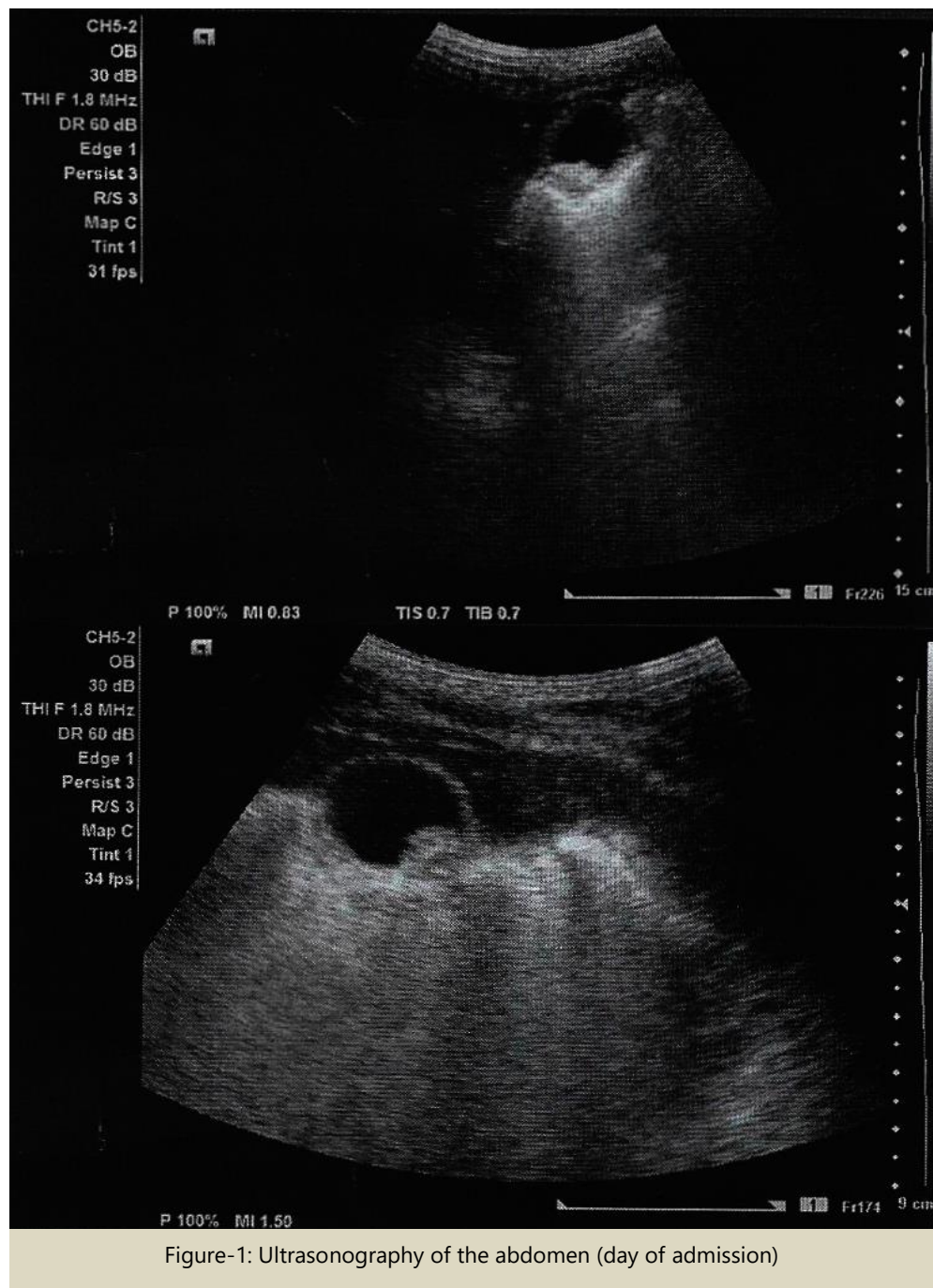


Figure-1: Ultrasonography of the abdomen (day of admission)



Figure-2: Ultrasonography of the abdomen (4th day of admission)



Figure-3: Ultrasonography of the abdomen (first OPD follow up)



Figure-4: Ultrasonography of the abdomen (2nd OPD follow up)



Figure-5: Ultrasonography of the abdomen (3rd OPD follow up)



Figure-6: Ultrasonography of the abdomen (4th OPD follow up)

Impression

Normal US and Gallstone resolved completely after 1 month following his presentation. There was no new complain, since patient discharged from the hospital, patient tolerating oral feeding, no abdominal pain or any complain post meals.

On examination (Abdomen soft and lax, no distention or tenderness):

Cholecystectomy cancelled, and we decided to follow up the patient for 1 year with the repetition of US in every OPD visit. Patient continued to follow up in OPD, by 3 months interval US, results in all the last three visits revealed normal abdominal US (figure 4, 5, 6). So, no further follow up was needed, patient discharged from OPD, family advised to bring the child to the ER if any new complain has been noticed.

Diagnosis

Patient diagnosed as acute calcular cholecystitis.

Interventions and outcomes

The patient clinically improved and symptoms resolved after conservative management with antibiotics, patient discharged home, and OPD follow up arranged after one month to fix an appointment for cholecystectomy.

Lessons

This case suggests that symptomatic non-hemolytic gallstone in pediatrics can resolve completely without the need for cholecystectomy.

4. DISCUSSION

Gallstones are more common in adult patients than pediatrics. Infants and children were uncommonly to be affected by asymptomatic gallstones, but recently the incidence have been increased, and the main reason for that is approaching most of abdominal pain cases with ultrasonography, as a consequence, proportion of pediatrics diagnosed with asymptomatic gallstones have been increased (Friesen & Roberts., 1989).

Cholelithiasis in infancy typically related to many risk factors including - neonatal period phototherapy, prior ileal resection, biliary tract abnormalities (Lopez et al., 2012); prematurity, total parenteral nutrition use, abdominal surgery, and sepsis (Friesen & Roberts., 1989; Lopez et al., 2012; Roslyn et al., 1983).

A previous case report of 16-day-old girl was born at full term via normal vaginal delivery without prenatal complications. She presented with a 24-hour history of non-bilious vomiting. Ultrasound scan showed cholelithiasis, there was no maternal history of diabetes or eclampsia during pregnancy. Because there were no predisposing factors to gallstone formation, the patient initially treated conservatively, with the supposition of spontaneous resolution of the gallstone. Repeated ultrasound scan, showed a large gallstone at the neck of the gallbladder, a suggestion of several smaller stones, and intrahepatic ductal dilatation. Based on the clinical picture and the evidence for secondary effects on the liver, this infant underwent laparoscopic cholecystectomy with an intraoperative cholangiogram (Michael & Diana., 2004).

During adolescence, previous reports identified hemolytic disease as the most common associated comorbidity. Most of the recent data suggest that gallbladder disease related to nonhemolytic risk factors, including Pregnancy in adolescent female, oral contraceptive use, and obesity in both genders, is on the rise (Friesen & Roberts., 1989; Brandt., 2000; Holcomb et al., 1980; Koivusalo et al., 2015).

The prevalence of gallstone disease (GD) in obese pediatrics patients was investigated in a study that include 493 obese pediatrics with body mass index standard deviation score [BMI-SDS] > 2.0p), gender variation demonstrate (218 males, 275 females) and patients ages ranged between 8 to 19, gallstones were detected in 10 of 493 (2.0%; 8 girls, 2 boys) subjects studied. Severe obesity found to be more in patients with GD more than those without GD (BMI-SDS 3.4 +/- 0.5 vs. 2.7 +/- 0.4; P < 0.001) (Kaechele et al., 2006).

Studies all over the years have proven that gallstone disease in pediatrics either in symptomatic or asymptomatic patient, in hemolytic or idiopathic related cases, all had been managed surgically by cholecystectomy. No previous studies confirm the possibility of resolution of gallstones without surgical intervention. A study conducted in Scotland between 1973 and 1985 on 15 children with cholelithiasis who treated at the Royal Hospital for Sick Children, Glasgow. Hereditary spherocytosis found to be associated with gallstones in five patients, only ten patients had gallstones that considered to be idiopathic. Ultrasonography was done on 13 patients. Total of 14 cases approached surgically even that only half of them were symptomatic. cholecystectomy done on nine patients, four patients had cholecystectomy plus negative common bile duct exploration in one patient, choledochotomy with transduodenal sphincterotomy was done only in one patient. Only one patient was asymptomatic and did not have surgery even that a solitary gallstone in gallbladder was confirmed by the ultrasound (Robertson et al., 1988).

Another study conducted in Brazil, between" January 1994 and October 2011" on patients with gallstone disease. According to the symptoms, patients were divided into 5 groups of patients: asymptomatic group, patients with nonbiliary obstructive symptoms, patients with acute cholecystitis symptoms, patients with resolved biliary obstructive symptoms by the time of surgery, and finally patients having ongoing biliary obstructive symptoms. Cholelithiasis diagnosed in 223 patients with comorbidities found in 177 patients (79.3%). In 139 patients, hemolytic disorders were the most common associated comorbidities (62.3%). Number of symptomatic patients was 134(60.0%). Surgical management by cholecystectomy was done in all patients with cholelithiasis including asymptomatic patients either laparoscopically in 204 patients or open in 19 patients (Tannuri et al., 2012).

Unique aspects in our case related to the absence of all mentioned risk factors. Our patient is denarian patient with average body weight, who was born as full-term baby with negative neonatal history of: phototherapy, diagnosed biliary tract abnormalities, surgically free with no history of prior ileal resection, patient medically free, and no history of any hemolytic disorder.

Gallstone in our patient was idiopathic, nonhemolytic, symptomatic, resolved completely with conservative treatment and without any surgical intervention.

5. CONCLUSION

Despite that, spontaneous resolution of symptomatic gallbladder stones relative rarity in comparison to the all cases that needed surgical intervention, conservative and nonsurgical management of pediatrics gallstone disease should considered to be as the initial treatment of choice in such similar cases.

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Authors' Contributions

Asrar F. Mlibari - Abstract, introduction, case report, discussion and conclusion.

Tantawi A. Muhammad - case report, conclusion.

Conflicts of Interest

The authors declare that no conflict of interest.

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Informed consent

This case report does not contain identifiable information's. So, informed consent was not obtained from the patient.

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