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Case Report

Incidental ultrasound finding of cholelithiasis in an 8-week-old infant: A case report☆,☆☆

Edmund Kwadwo Kwakye Brakohiapa, MD, FWACS, FGCP[a], *Wihelmina Brown, MD*[b], *Emmanuel Kobina Mesi Edzie, MD, MBA, FGCP*[c,*], *Benjamin Dabo Sarkodie, MD, FWACS*[a], *Klenam Dzefi-Tettey, MD, FWACS, FGCP*[d], *Benard Ohene Botwe, PhD*[e], *Philip Narteh Gorleku, MD, PhD*[c]

[a] *Department of Radiology, University of Ghana Medical School, Accra, Ghana*
[b] *Department of Pediatrics, Korle-Bu Teaching Hospital, Accra, Ghana*
[c] *Department of Department of Medical Imaging, School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana*
[d] *Department of Radiology, Korle-Bu Teaching Hospital, Accra, Ghana*
[e] *Department of Radiography, University of Ghana School of Biomedical & Allied Health Sciences, Accra, Ghana*

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ABSTRACT

Infantile cholelithiasis is a rare occurrence. It is often diagnosed incidentally during ultrasonography for other conditions as most cases are asymptomatic and may be self-limiting. A few cases may however present with prolonged neonatal or infantile jaundice.

We report our initial experience with an incidental case of infantile cholelithiasis in an 8-week-old male infant who was brought to our ultrasound unit in Accra, Ghana, for an abdominal ultrasound on account of conjugated hyperbilirubinemia and pigmented stools. The patient had presented initially at the children's emergency unit of the Korle-Bu Teaching Hospital, 2 days after an uneventful delivery, with a history of yellowing of the eyes, noticed on the first day of life, which necessitated the request for the ultrasound examination, leading to this rare finding of infantile cholelithiasis. The availability and use of modern sonographic equipment are likely to result in more effective detection of this incidental finding and its subsequent management.

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* Corresponding author.
E-mail address: emmanuel.edzie@ucc.edu.gh (E.K.M. Edzie).
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Introduction

Infantile cholelithiasis is a rare occurrence [1]. It has been reported during fetal sonography with a variable incidence of 5/1000-1/3000 live births [2]. Asymptomatic cases of cholelithiasis are found incidentally during sonography [3]. Our search in the Ghanaian literature has scanty documentation of infantile cholelithiasis. We present a case of cholelithiasis found incidentally in an 8-week-old infant during ultrasonography at an imaging facility in Accra, Ghana.

Case report

This is a case of an 8-week-old, term male infant, who presented at the Korle-Bu Teaching Hospital (KBTH) Child Health Emergency Room 2 days after an uneventful delivery, with a history of yellowing of eyes, noticed on the first day of life. The pregnancy had also been uneventful. The baby's blood group was A positive, and the mother's blood group was A negative. The mother had received anti-D in all but the index pregnancy. The umbilical cord was noticed to be wet, but not discharging.

At presentation, the child had been severely jaundiced with some neurological deficits (weak suck, partial Moro's reflex, and weak cry). An exchange blood transfusion was done a few hours after admission after his serum bilirubin was noticed to be significantly high, about 57% of total bilirubin. Stools were pigmented.

The white blood cell count was increased, with a high neutrophil count (25.4×10^9/L). During admission, the child had had recurrent episodes of vomiting which could occur during or after feeds, resulting in reduced volumes of oral feed. Abdominal sonography done on the ninth day of life showed only mild hepatomegaly and gallbladder sludge with calculi as shown in Figure 1.

The following working diagnoses were made; severe neonatal jaundice with neurological impairment likely secondary to Rhesus incompatibility, umbilical cord sepsis, and gastroesophageal reflux disease (GERD). He was put on an oral proton pump inhibitor (omeprazole 2.5 mg daily), and intravenous (IV) antibiotics (50 mg/kg 8 hourly of Cefotaxime and 2.5 mg/kg 12 hourly of gentamycin) after a blood culture and sensitivity test revealed multiresistant enterobacteria, and IV fluids (1/5 normal saline in 10% dextrose), and was later discharged when vomiting resolved, improvement of neurological deficits and significant resolution of the jaundice was noticed, on day 22 of admission, and at 24 days of life.

The patient was followed up on an outpatient basis. The laboratory tests showed decreasing white cell counts, and increased platelets. Liver function tests improved with time, though mildly deranged, but total bilirubin normalized about 7 weeks after discharge from the hospital. Clotting profile, glucose-6-phosphate deficiency (G6PD), thyroid function tests, and urine tests (routine examination and culture and sensitivity) were normal. A follow-up scan at the age of 7 and 8 weeks showed the persistence of gallbladder sludge with calculi similar to the image above. Referrals were made, for long-term follow-up by a gastroenterologist and a neurologist. The patient is currently doing well and growing well as per his growth parameters during routine postnatal visits. Parental informed consent was obtained to publish this case report, with assurance of complete anonymity and confidentiality.

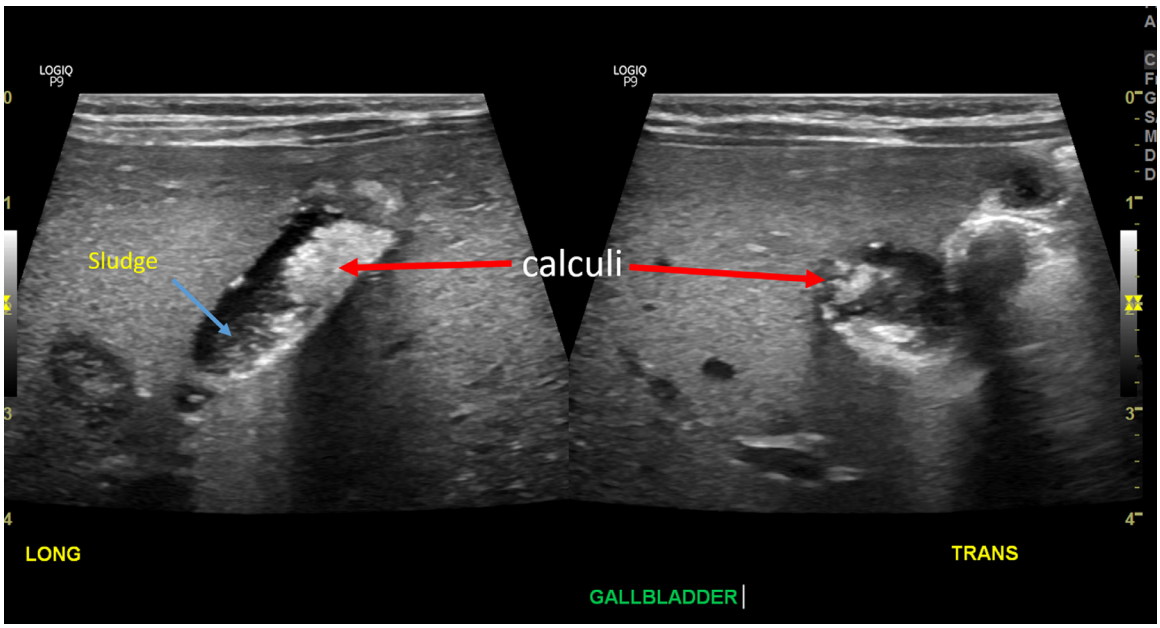

Fig. 1 – Ultrasound images of the gallbladder showing sludge (blue arrow) and calculi (red arrows) associated with acoustic shadows in the longitudinal and transverse planes.

Discussion

Cholelithiasis in neonates and infants is a rare occurrence and cause of cholestasis [1]. It is associated with risk factors such as prematurity, hemolytic conditions, congenital heart disease, total parenteral nutrition (TPN), and disruption of enterohepatic circulation. Cholestasis in infants and young children may be caused more commonly by metabolic disorders, genetic abnormalities, infection, total TPN, but most commonly, biliary atresia [4]. In this case, an infection was documented and treated. The lack of sonographic evidence of significant gallbladder and biliary duct dilatation in our patient favored a diagnosis of cholestasis as the cause of jaundice, rather than obstructive jaundice due to cholelithiasis [4].

The absence of neuronal and hormonal stimulation to the extrahepatic biliary tract is thought to occur during prolonged fasting. Infection and prolonged fasting are thought to contribute to bile stasis, which in the gallbladder is an important factor for stone formation [5].

Though most cases of cholelithiasis may resolve spontaneously by 1 year of age, cholecystitis and choledocholithiasis may complicate persistent disease [6]. Imaging of the infant gallbladder is commonly done by ultrasonography which demonstrates calculi as punctate foci of increased echogenicity with ring-down artifacts, and calculi with diameters greater than 3 mm may be associated with acoustic shadowing [7]. Bile sludge presents on ultrasound as an amorphous, mobile, "low-level echo" layer, not associated with acoustic shadowing, and seen in the dependent parts of a usually distended gallbladder. When clumped together, it may mimic a polypoid tumor, a condition termed tumefactive biliary sludge. The lack of internal vascularity in sludge however distinguishers the latter from a tumor [8]. The use of newer, high resolution, ultrasound equipment is likely to aid in the diagnosis of infantile cholelithiasis.

Since most cases of infantile cholelithiasis have been shown to be asymptomatic, the gallstones are usually detected incidentally during sonography for other indications [9]. This is also in agreement with our index case, whose condition had markedly improved after the treatment for infection, even though the infantile cholelithiasis is still present. It may seem that neonatal cholelithiasis is more common than previously reported and is a temporary, self-limiting entity, affecting more males than females as seen in our patient who is a male [1].

Conclusion

Infantile cholelithiasis is a rare occurrence. The availability and use of modern sonographic equipment are likely to result in more effective detection of this incidental finding so that the parents will be reassured about the possibility of its self-limiting course. However, sonographic monitoring will be necessary in order to keep the parents reassured and identify symptomatic concerns when present.

Patient consent

Informed consent was obtained from the patient's parents and anonymity and confidentiality were ensured.

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