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## Simple hepatic cyst presenting as huge abdominal lump in a newborn baby: A rare case report

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### Abstract

Congenital hepatic cyst is a rare and nonsymptomatic condition in infants and children. Its incidence is 2.5% in the postnatal life with a much lower incidence in the prenatal period. Incidental finding on antenatal imaging is the most common presentation. We present a case of a newborn in whom fetal ultrasound detected a cyst within the fetal liver. Postnatal imaging revealed a liver cyst in the right lobe of the liver, with no other intrahepatic structure affected. Liver function tests were abnormal, but the patient was asymptomatic. Posterior follow-up imaging showed a minor decrease in size. Management of congenital hepatic cyst is usually conservative, done with periodic ultrasound monitoring. However, surgical treatment is the mainstay of treatment when hydrops, progressive enlargement, hemorrhage, torsion, or compression of adjacent structures occurs. Malignant transformation can occur, but it is extremely rare. Partial or total removal of the cyst is the preferred treatment in neonates with a large lesion. Here we present a very rare case of newborn male with huge liver cyst causing compression over the surrounding bowel managed successfully in Tripura medical college and DR.BRAM teaching hospital.

**Keywords:** Liver cysts in children, congenital hepatic cyst, congenital liver cyst, fetal liver ultrasound

### Introduction

Congenital hepatic cysts are comparatively rare, but with the routine use of prenatal ultrasound, liver cysts are being diagnosed earlier and more often. Liver cysts in newborns often pose significant diagnostic challenges. Solitary liver cysts can be further subdivided as simple liver cysts (SLCs) and solitary intrahepatic biliary cysts (SIBCs), depending on the biliary connection<sup>[1, 2]</sup>. Some SLCs are symptomatic in childhood, even in newborns<sup>[3]</sup>, while they are commonly found in adults incidentally. It is imperative to be aware of the characteristics of liver cysts in infants to ensure that any intervention is appropriate.

Some paediatric congenital hepatic cysts have been reported, but most descriptions have been case reports. Here, we report a series of eleven infant patients diagnosed with hepatic cysts at our department whose clinical features and surgical treatments are described in detail. We discuss the possible aetiological basis and review the common manifestations and surgical options for congenital hepatic cysts in infants.

### Case report

A 24days old baby boy was referred from a govt medical college to the pediatric department of Tripura medical college and Dr. BRAM teaching hospital as a case of huge mesenteric cyst with hemorrhage. The baby was admitted in the SNCU of TMC and was referred to pediatric surgery unit for better management. The baby was examined clinically and it revealed a huge cystic swelling originating in the right hypochondrium but almost occupying whole of abdominal cavity. On ultrasonography of whole abdomen, it revealed a huge cyst arising from liver. CECT (W/A) was done to rule out any biliary communication. The baby was planned for exploratory laparotomy and excision of the cyst under general anaesthesia after thorough pre-anaesthetic check-up. Intra-operatively, a huge 7cm x 6cm cystic swelling was noted arising from segment 5 of liver. The cyst was initially aspirated and the fluid was clear yellowish in colour. After meticulous dissection, the cyst was excised safeguarding all major blood vessels and common bile duct. After securing proper hemostasis the abdomen is closed in layers. Post-operatively the baby developed surgical site infection which was

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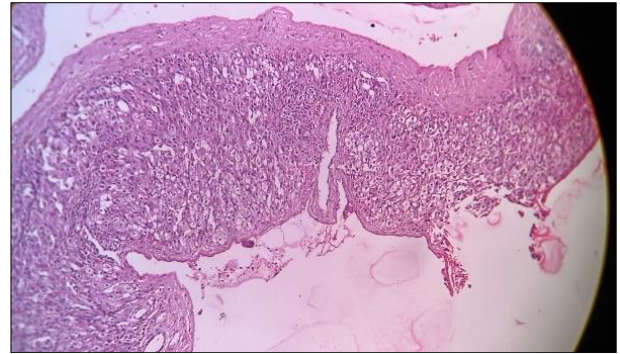
managed by daily dressing. The baby was given oral feeds by post-operative day 4 and was discharged successfully on post-operative day 10.



**Fig 1:** Intra-operative pictures showing the huge cyst arising from segment 5 of liver



**Fig 2:** Intra-operative fluid aspirated which is dark yellow in colour



**Fig 3:** Picture of HPE showing a thin cyst wall composed of hepatocytes and congested vessels



**Fig 4:** Immediate post-operative picture showing soakage of surgical wound

**Discussion**

The incidence of congenital hepatic cyst in the postnatal life is 2.5%. This incidence is lower during the prenatal period with a few cases described in the literature [4, 5]. They are more common in girls, not associated with cysts in other organs, and rarely communicate with the biliary tree [6]. These cysts do not contain bile and arise from congenital or secondary obstruction of the biliary glands, which normally arise from the ductal plate at the hepatic hilum around the seventh week of gestation and continue to proliferate until adolescence [3].

They are superficially located just under the liver capsule and are coated by a single layer of cuboidal or columnar

epithelium, characteristic of the bile ducts. The cystic fluid is generally clear and rarely contains bile [3]. The research has shown that the epithelium lining the cyst is sensitive to hormones, especially estrogen, and also that the cysts tend to enlarge in patients on hormone therapy [7]. Hepatic cysts related to these disorders may also have a genetic component, and they can appear later in life.

Incidental finding of an asymptomatic lesion on antenatal imaging is the most common presentation of a congenital hepatic cyst. In infants, symptoms consist of abdominal distension, feeding difficulties, respiratory distress, and duodenal obstruction [6]. Cholestasis may also be observed in some cases due to the compression of the hepatic parenchyma and the biliary system by a large cyst. For older patients, symptoms may include abdominal pain, nausea, and vomiting and rarely obstructive jaundice or portal hypertension [8].

The diagnosis is primarily made via radiographic studies. Ultrasonography shows the congenital hepatic cyst as an anechoic unilocular fluid-filled space with a posterior acoustic enhancement. Septations represent bridging of bile ducts and vessels and are commonly absent. Magnetic resonance imaging (MRI) typically reveals a well-demarcated water-attenuated lesion without enhancement after gadolinium with low-intensity signal on T<sub>1</sub> and high-intensity signal on T<sub>2</sub> images [9]. In our case, no MRI was indicated as the infant was asymptomatic and appropriate follow-up was ascertained.

The main differential diagnosis of congenital hepatic cyst includes solitary liver cyst and choledochal cyst. The former may contain bilious or nonbilious fluid and can have connection to the biliary tract [10].

Malignant transformation of a congenital hepatic cyst is extremely rare, and the only recognized risk factor for this transformation is a cyst size greater than 12 cm [6, 8].

Management of congenital hepatic cyst is conservative with periodic ultrasound monitoring to ensure their stability, especially for large cysts ( $\geq 4$  cm in diameter) [7, 11]. Most simple hepatic cysts are benign in nature and have a spontaneous resolution as in our patient [12]. Surgical intervention with aspiration, sclerotherapy, or excision is indicated only for severe cases, such as hydrops, progressive enlargement, hemorrhage, torsion, or if image characteristics prompt diagnostic doubt [6, 11]. Compression of intrahepatic structures due to an increase in the cyst size also prompts surgery; hence, ultrasound follow-up is important [6, 9]. In 2 previous series published, only 2 of 12 infants with simple hepatic cysts required surgical intervention due to gradual enlargement and symptoms, and the others needed no further intervention [6].

## Conclusion

Liver cysts in infants often pose significant diagnostic challenges, and paediatric surgeons should be aware of the characteristics of liver cysts to ensure appropriate treatment. Here, we report a rare case of congenital hepatic cyst in a neonate with compression to surrounding bowels. Additional prospective and large-scale studies are warranted. Accurate diagnosis is important followed by periodic surveillance with ultrasonography for optimal management of large asymptomatic lesions, as many cysts can produce obstructive biliary complications and have malignant potential.

Surgical treatment with partial or total removal of the cyst is the favored treatment in neonates with a large symptomatic lesion, with an objective of excising as much of the cyst wall as possible without causing damage to the surrounding vital organs.

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