

CASE IMAGE

A case report of hepatic subcapsular hematoma: Newborn with an autoimmune hemolytic condition

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Yantai 264001, China.Email: zhangw0535@163.com**Key Clinical Message**

We report a case of hepatic subcapsular hematoma in a newborn baby detected with an autoimmune hemolytic condition due to ABO incompatibility. Magnetic resonance imaging could be helpful in differentiating hepatic subcapsular hematoma from other abdominal masses.

KEYWORDS

hemolysis, hepatic subcapsular hematoma, magnetic resonance imaging, neonate

At 39+ 3 weeks gestation, a male infant was delivered normally with a birth weight of 3420 g. The Apgar scores at 1, 5, and 10 min were all 10. On Day 1 of life, the infant developed jaundice that mainly appeared on his face at first and gradually spread to the rest of the body. Percutaneous bilirubin values of the forehead, face, and chest were 11.8, 13.2, and 11.5 mg/dL, respectively. The direct anti-globulin test, the free antibody test, and the antibody release test were all positive. The laboratory test results were as follows: total bilirubin 240.50 μ mol/L, direct bilirubin 4.20 μ mol/L, indirect bilirubin 236.30 μ mol/L, alpha-fetoprotein >1210.00 ng/mL, carcino-embryonic antigen 1.74 ng/mL, white blood cell 6.71×10^9 /L, hemoglobin 159.70 g/L, platelet 182.00×10^9 /L, and neutrophil percentage 24.80%.

Abdominal ultrasound was examined on Day 2 of the infant, and a cyst-like solid mass with defined margin in right lobe of the liver was showed. The echo of the mass was heterogeneous, solid part in hyperechoic and cystic part in anechoic. No blood flow was observed in the lesion, but blood flow existed in the surrounding. The maximum dimensions of the lesion were 5.7×3.0 cm² (Figure 1). Magnetic resonance imaging (MRI) was performed after 2 days, which revealed that the mass was isointense on T1WI, hypointense on T2WI and DWI in the hepatorenal

space. Patchy areas of increased signal intensity were observed on T2-weighted fat-suppressed images. There was no clear demarcation between the mass and the hepatic, and cambered high signal around the lesion was found on T2WI. The dimensions of the lesion were $4.0 \times 4.5 \times 4.4$ cm³ (Figure 2). CT showed a $3.0 \times 1.6 \times 1.5$ cm³ low-density lesion with regular margins below the right hepatic lobe in Day 10 of the infant. The average CT value of the lesion was 51 HU (Figure 3). The case was managed by conservative methods. Ultrasound examination at Day 15 follow-up showed an obvious regression of the hepatic subcapsular hematoma (HSH), with maximum measured dimensions of 3.3×2.2 cm².

Although HSH is rarely seen in clinical practice, several cases of HSH have been reported worldwide. The proposed predisposing factors in most cases of neonatal HSH include traumatic labor, coagulopathies, premature delivery, very low birth weight, and hypoxia.¹ Hemolytic disease of newborn is a kind of immune hemolytic disease of newborn caused by incompatibility of blood type of mother and infant. Clinically, the most common is ABO hemolysis, which refers to neonatal hemolysis caused by incompatibility of ABO blood groups between mother and child. Neonatal hemolytic three tests including the direct anti-globulin test, the free antibody test, and the

antibody release test, which have significance to the diagnosis of hemolytic disease of newborn, and the positive rate correlated with the inspection period. Subcapsular hematoma of the liver is defined a collection of blood under the Glisson's capsule. It can be detected by abdominal ultrasound, MRI, and computed tomography (CT). In ABO hemolytic disease, acute massive bleeding may be observed in the immediate neonatal period with signs of hypovolemic shock. Slowly progressing hematomas manifest with pallor, jaundice, irritability, or respiratory distress. This case manifested gradual jaundice without poor feeding, lethargy, or fast breathing, which was suggestive of antenatal slow bleeding. Clinicians performed relevant examinations according to their clinical experience.

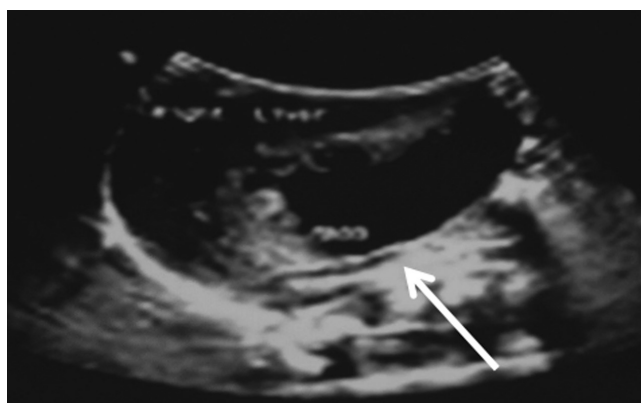


FIGURE 1 Ultrasound image of the right lobe of the newborn's liver shows a heterogeneous mass-like lesion on Day 2.

Abdominal ultrasound may sometimes be unsuccessful in differentiating hematomas from neoplasms. This case was also misdiagnosed initially as neoplasms. Owing to the paramagnetic effect of methemoglobin, MRI is more suitable than CT for the detection and characterization of hemorrhage. Hematoma has attenuation identical to pure fluid in chronic cases.² Early diagnosis in HSH is essential, because the subcapsular hematoma may result in catastrophic hemorrhagic shock.³ MRI could provide more accurate information for the differential diagnosis of HSH from abdominal mass, which are important for appropriate clinical treatment and subsequent follow-ups.

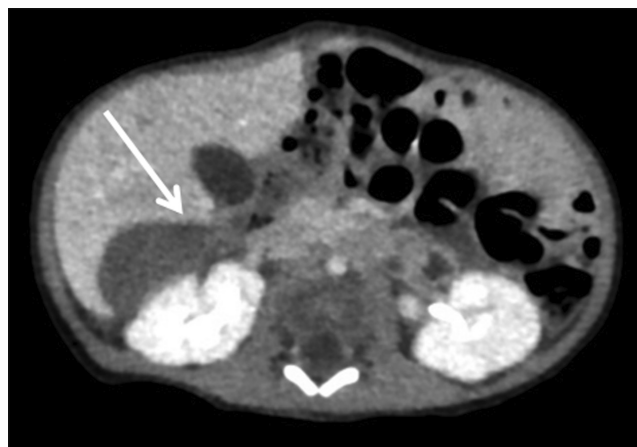


FIGURE 3 CT on Day 10 shows a 3.0 cm × 1.6 cm × 1.5 cm low-density lesion below the right hepatic lobe.

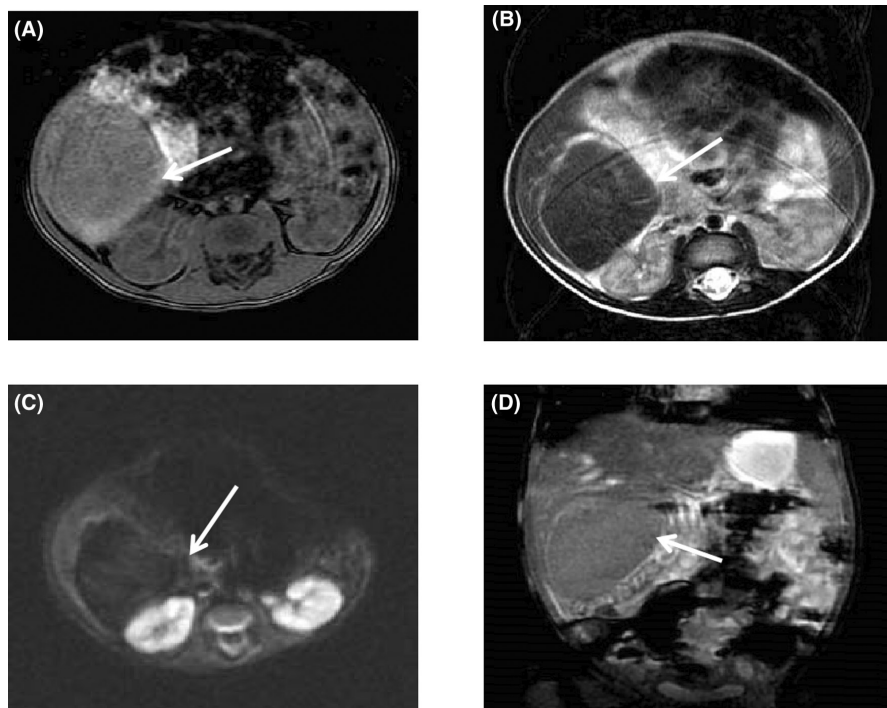


FIGURE 2 MRI on Day 4 shows the abdominal mass isointensity on (A) T1-weighted and hypointensity on (B) T2-weighted and (C) DWI in the hepatorenal space. (D) Coronal fat-suppressed T2-weighted showed no clear demarcation between the mass and the liver, and a cambered hyperintensity was found around the lesion on T2-weighted.

AUTHOR CONTRIBUTIONS

Yunxin Li: Conceptualization; writing – original draft. **Aijie Wang:** Writing – review and editing. **Ranran Huang:** Writing – review and editing. **Guowei Zhang:** Writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

ETHICAL APPROVAL

Not mandated for case reports.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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