CASE REPORT

Hepatic subcapsular haematoma in a premature newborn

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SUMMARY

Subcapsular haematoma of the liver rarely occurs in neonates and the diagnosis is often missed or delayed. It is a catastrophic condition that can be caused by maternal, placental or fetal factors. A high index of suspicion is essential for early identification and stabilisation of babies with such a pathology. In a newborn with hypovolemic shock and abdominal distension, haemoperitoneum should be suspected and, along with exclusion of other aetiologies, supportive therapy should be instituted. The hepatic subcapsular haematoma has a non-specific presentation, and should be considered in very low birth weight infants with hypovolemic shock. Abdominal ultrasonography is the investigation of choice. It can delineate the lesion well, differentiate it from neoplasms, rule out rupture and aid in serial follow-up. We report a premature newborn who had this uncommon condition in the early neonatal period and survived without sequelae.

BACKGROUND

Collection of blood between the liver and its capsule is a rare complication in newborns. The diagnosis is frequently made at autopsy. In an analysis of 755 perinatal autopsies by Singer *et al*¹, hepatic subcapsular haematomas (SHL) were encountered in 21 neonates (2.8%).

SHL is more common in oversized infants, infants born by breech delivery and premature infants.² SHL should be considered in all very low birth weight newborns with unexplained hypovolemia or anaemia. Systemic non-specific symptoms are followed by sudden circulatory collapse when the haematoma ruptures through the capsule and blood enters the peritoneal cavity. The abdomen may become distended, rigid and dull to percussion, occasionally with a bluish colouration of the overlying skin, which may extend over the scrotum in male infants.³ Abdominal ultrasound allows the diagnosis.⁴ Conservative therapy is the treatment of choice.¹⁻⁵

CASE PRESENTATION

The authors report a case of a male newborn, second child of a 30-year-old mother with controlled essential hypertension prior to gestation.

The pregnancy was monitored, uneventful until 23 weeks when an ultrasound showed fetal intrauterine growth restriction, and the mother was hospitalised with pre-eclampsia and made a full induction of lung maturation with dexamethasone.

Caesarean delivery occurred at 27 weeks because of inverted flows in the umbilical artery and haemodynamic redistribution.

At birth he had a weight of 753 g and the Apgar score was 5/7/9. He needed endotracheal surfactant administration in the delivery room and invasive ventilation. Total parenteral nutrition was started in the first day of life through an umbilical venous catheter.

In day 3 of life he had a clinical worsening characterised by the presence of hypotension, tachycardia associated with the simultaneous appearance of anaemia, thrombocytopenia and coagulopathy. He required bolus of crystalloids, packed red blood cells, platelets and fresh frozen plasma. The umbilical catheter was removed and a percutaneous silastic central venous catheter was inserted. Hypotension persisted after administration of fluids, initiating inotropic support with dopamine. Associated with the hypovolemic shock he developed abdominal distension and a bluish colouration of the abdominal wall was noted (figure 1).

INVESTIGATIONS

Abdominal ultrasound showed blood in the peritoneal cavity and hepatic subcapsular haemorrhage. Analytical evaluation without infection parameters and the blood cultures were performed. He had an elevation of activated partial thromboplastin time (aPTT) with normal thromboplastin time (TP).

TREATMENT

With the institution of supportive therapy, and maintenance of total parenteral nutrition, vitamin K therapy and inotropic support, there was progressive hemodynamic stabilisation allowing the suspension of dopamine infusion on day 7 of life. He remained invasively ventilated until day 13 and non-invasively ventilated with until day 30 of life.

He maintained parenteral nutrition until day 25 of life, with slowly progressive introduction of enteral nutrition with breast milk from day 14.

OUTCOME AND FOLLOW-UP

Abdominal ultrasound repeated on day 80 of life revealed a discrete thickening of the hepatic capsule. Neonatal metabolic screening performed in day 14 was unchanged.

He repeated aPTT and TP on day 75 of life, with normal times. He also had normal values of clotting factors VIII, XII, IX and von Willebrand antigen.

He was discharged from the neonatal intensive care unit with 82 days of life, tolerating breast milk with good weight progression and without supplemental oxygen.

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Figure 1 Abdominal distension and a bluish colouration of the abdominal wall.

DISCUSSION

SHL is a collection of blood under the Glisson capsule. This should be distinguished from an intrahepatic haematoma, where bleeding is usually less extensive and occurs within the liver parenchyma. Proposed predisposing factors for a subcapsular haematoma include traumatic labour, coagulopathies, prematurity, very low birth weight, hypoxia, sepsis, pneumothorax and umbilical venous catheterisation.³ Prematurity, very low birth weight and umbilical venous catheterisation were risk factors present in our clinical case.

Acute massive bleeds can present in the immediate neonatal period with signs of hypovolemia and shock. Slowly progressing haematomas manifest with pallor, jaundice, irritability or respiratory distress. They can rarely present as abdominal masses without clinical signs of bleeding and may mimic tumours.⁴ Abdominal ultrasonography is the investigation of choice because it can delineate the lesion well, differentiate it from neoplasms, rule out rupture and aid in serial follow-up.^{4 5}

The neonatal liver has limited ability to achieve spontaneous haemostasis, because of the weaker parenchymal connective tissue framework and poor contractility of hepatic veins. In addition, compression of the thoracic cage during delivery may lead to stretching and damage of the coronary ligament of the liver, which is attached to the inferior surface of the diaphragm.

Severe haemophilia and vitamin K deficiency are important causes of bleeding in the neonatal period that have to be excluded. Even in the absence of a positive family history, haemophilia should be suspected in neonates with unusual major bleeding manifestations as new mutations account for 30% of patients.⁶ Although other forms of bleeding like muscular haematoma following injections and bleeding from venipuncture sites have been reported, subcapsular haematoma of liver has seldom been identified as a manifestation of haemophilia in neonates.^{6–8}

Early diagnosis is essential because the subcapsular haematoma may progress and rupture and result in catastrophic haemorrhagic shock.

Awareness of the varying spectrum of severity and the diverse aetiology will help in clinical suspicion of a hepatic subcapsular haematoma.

Management is mainly conservative, including blood transfusion, correction of coagulopathies and avoiding excessive handling of the baby. Timely surgical intervention for infants who fail to respond to conservative management may improve the prognosis of the ruptured SLH.^{2 4 9} In this case, timely suspicion and use of appropriate investigative modalities were essential to minimise morbidity and mortality from this rare entity.

Learning points

- ▶ The hepatic subcapsular haematoma has a non-specific presentation, and should be considered in a newborn with hypovolemic shock and abdominal distension.
- ▶ Predisposing factors for a subcapsular haematoma include traumatic labour, coagulopathies, prematurity, very low birth weight, hypoxia, sepsis, pneumothorax and umbilical venous catheterisation.
- ▶ Early diagnosis is essential because the subcapsular haematoma may progress and rupture and result in catastrophic haemorrhagic shock.
- ▶ Management is mainly conservative, but timely surgical intervention for infants who fail to respond to conservative management may improve the prognosis of the ruptured of hepatic subcapsular haematoma.

Competing interests None.

Patient consent Obtained.

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