

## Hemoperitoneum Secondary to Splenic Rupture in a Neonate

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Hemoperitoneum is an uncommon but serious complication of birth trauma. The well recognized causes include hepatic, splenic and adrenal hemorrhage of which hepatic hemorrhage is the most common followed by splenic rupture. The mortality is very high whatever be the cause of hemoperitoneum. We report a case of hemoperitoneum secondary to splenic rupture.

### Case Report

A term baby was born to a second gravida mother by cesarean section for fetal distress. The baby was referred to our hospital at 2½ h of age for management of birth asphyxia and meconium aspiration syndrome. There was no problem during extraction of the baby.

The baby weighed 3070 g and was hypothermic, lethargic and pale. Grunting was present, heart rate was 150/min, respiratory rate was 90/min and the pulse volume was low. The baby was neurologically

depressed and there was a palpable spleen. A provisional diagnosis of birth asphyxia, meconium aspiration syndrome and anemia was made. The cause of anemia was thought to be hemolytic anemia or hemorrhage. Initial investigations were essentially normal except blood gas analysis which showed hypoxia and metabolic acidosis. Within 8 h of admission and institution of resuscitative measures the baby's color was pink, pulse volume became normal and tachypnea and grunting settled.

At 28 h of age, the baby had an episode of convulsion after which the baby was noted to be pale and tachypneic. The pulse volume was low and the abdomen was distended. The ultrasound scan of the abdomen showed presence of fluid in the peritoneal cavity with splenomegaly. A plain X-ray abdomen showed free fluid. The ultrasound scan of the brain was normal. A diagnostic peritoneal tap was done which confirmed hemoperitoneum. Investigations done at this stage showed hematocrit of 14, prothrombin time 1', partial thromboplastin time 2', thrombin time 36" and plate count 33,000/cu mm.

The baby underwent a single volume exchange transfusion, received whole blood and fresh plasma transfusions. By 60 h of age the coagulation parameters had returned to normal. Repeated ultrasound scan showed resolving fluid in the peritoneal cavity with perisplenic collection, and the baby was discharged on the 17th day of life with a PCV of 54%.

The baby was readmitted 7 days later with fever and poor feeding. The splenic size had increased, pallor was present and the baby was febrile and irritable. Ultrasound scan showed collection of 19 ml of fluid medial to the lower pole of spleen and multiple intrsplenic hematomas (Fig.). The baby was subjected to laparotomy. The

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Fig. Ultrasound Scan abdomen showing multiple intra-splenic hematomas.

operative findings were perisplenic hematoma, infarction and intraparenchymal hemorrhage of spleen. A splenectomy was done as it was not possible to conserve the spleen. The baby was discharged on the 15th post-operative day. Pneumococcal vaccine was given before discharge.

### Discussion

About 40 cases of hemoperitoneum secondary to splenic rupture have been reported in neonates(1). The rupture may occur in a normal spleen but more often occurs in a pathologically enlarged spleen. The mechanism is believed to be due to tear of the lienorenal ligament and is usually associated with difficult delivery. However, in our case the child was born by cesarean section and there was no difficulty during delivery.

Liver injury is the most common cause of hemoperitoneum accounting for 62% of cases and splenic rupture accounts for 10% of cases(2). As in our case it is almost always associated with consumptive coagulopathy. Diagnosis is by ultrasound or CT Scan and a diagnostic paracentesis as in our case.

Recognizing the fact that overwhelming

sepsis may occur following splenectomy in neonates(1,3,4) the method of treatment is conservative with the aim of retaining the spleen. If, however, this is not possible autotransplantation is recommended. It is recommended that if splenectomy is done, pneumococcal vaccine should be given to protect the child against pneumococcal infection(5).

In our case the first clue to a visceral hemorrhage was pallor. We feel any neonate presenting at birth with pallor should be investigated to rule out hemolytic anemia or hemorrhage. A quiescent period, as in our case, is well known both in liver and splenic injury as the bleeding may be controlled by the capsule. One must be aware of this and any neonate with a suspected bleed should be promptly investigated.

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