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Black Stools in a Preterm: A Diagnostic Dilemma

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Abstract: ***Background: Melena in newborn period is relatively uncommon but clinically significant presentation that requires prompt evaluation to rule out life - threatening causes. Case discussion: Here, we present a case of late preterm, small- for- gestational - age, low - birth - weight male infant, born through meconium - stained liquor, who had multiple episodes of bloody stool starting at 4 hours of life. The baby received 1mg of vitamin K at birth. He was admitted in newborn intensive care unit in view of respiratory distress, but had no signs of bleeding. Nasogastric tube aspiration was meconium - stained mixed with streaks of coffee - ground - color aspirate. At 14 hours of life, he developed anemia (10.9gm/dl) requiring one aliquot of packed red cell transfusion. Further workup was done to rule out life threatening conditions like sepsis, enterocolitis, coagulopathy and surgical causes. All investigations were normal. The baby remained clinically stable post transfusion. After 48 hours, his bloody stool stopped and he started passing greenish stools. He was discharged after five days. Further follow - up did not reveal any recurrence of bloody stools. Conclusion: In this case, the baby had evidence of perinatal stress, as indicated by the fetal tachycardia, meconium - stained liquor, metabolic acidosis at birth which may have been a risk factor for melena.***

Keywords: melena, preterm newborn, bloody stools, perinatal stress

1. Introduction

Neonatal melena is characterised by the passage of black tarry stools in newborn period. Causes of bloody stool in neonates can range from benign, such as swallowed maternal blood, milk protein allergies, or anal fissures[1–3] to life-threatening, such as sepsis, gastrointestinal malformations, infectious colitis, necrotizing enterocolitis (NEC), arteriovenous malformations. [2-4] In stable infants, melena can be due to swallowed maternal blood which occurs perinatally, but in sick and unstable cases, serious causes has to be ruled out with detailed investigations. The alkali denaturation (Apt) test [5] is the most appropriate test to determine if blood in stool is a swallowed maternal blood; however, this test is time-consuming and some hospitals do not even offer it in their labs. Perinatal stress is known to cause gastritis in newborns. [6]

2. Case

A male infant was born to a 25- year- old primigravida mother, from a non- consanguineous marriage, at 36 weeks of gestation via an emergency caesarean section, in view of meconium- stained liquor and fetal distress. Antenatal period was uneventful except for the hypothyroidism, managed on oral thyronorm (50mcg), Anomaly scan and interval growth scans were normal with normal Doppler studies. Mother had adequate weight gain during pregnancy, and had Hemoglobin of 13.2gm/dl on the day of admission. She was on daily iron and calcium supplements as recommended. She came to the hospital with spontaneous onset of labor pains. Her non stress test showed reduced variability and fetal tachycardia, artificial rupture of membrane was done which showed thick meconium- stained liquor and hence she was immediately taken for emergency caesarean section.

Baby was born through meconium- stained liquor but was vigorous at birth with APGAR scores of 8 and 9 at 1 min and 5 min of life. He had 2 loops of cord around the neck and his birth weight was 1950gms (less than 3rd centile, according to Fenton's chart). His immediate post- natal period was marked by respiratory distress in the form of tachypnea, low target spo2 for age, sub costal and intercostals retractions, nasal flaring and audible grunt (silvermann Anderson score-6)[7] and, hence was shifted to NICU and started on respiratory support (HHFNC). Blood gas analysis showed mild metabolic acidosis (ph-7.25/pCO2-41.2/pO2-46.7/Hco3- 18/BE- 8.6/lact-6.7). Initial blood investigations revealed- Hb- 13.8gm/dl with total white blood cell counts- 20470/cumm, platelet counts 2.74 lacs. Chest radiograph showed prominent bronchovascular markings.

At birth, the gastric aspirate was meconium stained with coffee ground streaks. At 4 hours of life, baby passed a large amount of black tarry meconium. On physical examination, baby had no signs of bleeding. Except for the signs of respiratory distress, other physical examination was normal.

At 14 hours of life, baby was looking pale, with tachycardia (180/min), hence blood investigations were repeated. It showed dropping haemoglobin (13.8→ 10.9), and hematocrit 41.6→ 32.6 with rise in serum bilirubin (8.5mg/dl). Suspecting hemolysis, other blood tests were sent. Blood group of the baby was B positive (mother being O positive) Direct coomb's test was negative. Peripheral blood smear showed normocytic normochromic anemia and no evidence of hemolysis. Reticulocyte count was marginally elevated (8.33%). Repeat venous Blood gas was normal (ph-7.46/pCO2-26.8/pO2-54.4/Hco3- 19/BE-3.4/lact-2.6). Coagulation profile was normal. Sepsis screening was negative. Newborn screening report was normal.

Due to the significant amount of bright bloody meconium, abdominal radiograph was done which was normal with no signs of obstruction.

The infant had received 1 mg intramuscular vitamin K as a standard newborn care at birth.

As the baby's haemoglobin dropped, and with ongoing blood loss in stools, he was transfused with 1 pint of packed red cells at 24 hours of life. Post transfusion haemoglobin levels increased to 16.1gm/dl. Over the next 48 hours, baby continued to pass blood stained stools with reduced frequency and reduced staining. Stool routine examination on day 2 of life revealed greenish stools with 15-20 rbcs/hpf. Baby had physiological jaundice till day 5 of life with highest serum bilirubin of 16.1mg/dl on day 3 of life, and received phototherapy for the same.

Baby was weaned off HHFNC to room air after 48 hours. He was started on Expressed breast milk along with breastfeeding after 48 hours of life. There were no further episodes of bloody stools noted after 60 hours of life. Breastfeeding was established and baby was shifted to mother's side for a day followed by discharge next day.

3. Discussion

Melena is passage of dark black tarry stools originating predominanly from upper gastro-intestinal bleed. Causes of melena are numerous and sometimes, warrants extensive work up. Here we presented a case of a late preterm, IUGR male infant with meconium- stained liquor with respiratory distress, passing a large amount of bloody meconium shortly after birth and prior to breastfeeding. Baby was administered one dose of inj vitamin k at birth. Here possibility of vitamin k deficiency was ruled out as melena started within 24 hours of birth, and baby had already received vitamin k at birth. Also possibility of cow milk protein allergy was ruled out as baby was nil per oral. Swallowed maternal blood was ruled out in view of dropping haemoglobin. Other investigations were done to rule out neonatal sepsis, infectious enterocolitis. Surgical causes like malrotation of gut and volvulus were ruled out with abdominal radiograph. Also physical examination did not reveal any anal fissures. As the infant's haemoglobin dropped at 14 hours life, it raised concerns. He was further investigated for haemolytic work up, which showed mildly elevated reticulocyte count. Newborn screening was normal for glucose 6 phosphate deficiency. Although baby needed 1 pint of PRBC transfusion, baby was stable post transfusion. After ruling out the above causes, possibility of gastritis due to perinatal stress was considered. The supporting factors were meconium- stained liquor with small for gestational age and low birth weight baby, metabolic acidosis at birth and nasogastric aspirate showing meconium mixed with coffee ground colored aspirate. The bloody meconium gradually reduced and stopped after 60 hours of life. There was no family history of thrombocytopenia or coagulation disorders.

Here the baby needed NICU stay for low birth weight with respiratory distress, and was shifted to mother's side after 4 days.

4. Conclusion

Melena in a healthy term newborn may be due to benign condition, mostly due to swallowed maternal blood, but melena in a pretem sick baby should raise concerns and warrants detailed work up. In this case, the infant underwent the work up in view of unstable condition with reducing haemoglobin. There were no major findings in the work up and the melena was attributed to the perinatal stress to the baby.

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