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Case report

Melena *neonatorum*

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Abstract

A male infant was born at 39 weeks of gestation of a healthy 24-year-old woman with good prenatal care. He was born by eutocic delivery with bloody amniotic fluid noted and suspicion of marginal placental detachment.

At his second hour of life, the newborn eliminated grossly bloody meconium. He had no signs of illness, was hemodynamically stable and physical examination was unremarkable. A nasogastric tube was introduced, and gastric aspirate had no signs of bleeding. Blood tests and abdominal ultrasonography showed no alterations. The APT test was performed, and the result was suggestive of swallowed maternal blood.

The presence of blood in the gastrointestinal tract or stools of neonates poses important differential diagnoses. It is essential to determine whether blood results from swallowed blood of maternal origin or if it is secondary to disease in the newborn in order to obviate unnecessary exams and interventions if the maternal origin is proven.

Keywords

Newborn, hemorrhage, melena, meconium, hemoglobin, amniotic fluid.

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Introduction

The presence of blood in the gastrointestinal tract or stools of neonates can be threatening and poses important differential diagnoses, including life-threatening conditions [1, 2]. However, the most common cause is swallowed maternal blood from a cracked nipple, followed by ingestion of the mother's blood during delivery [2, 3].

Case report

A male infant was born, at 39 weeks of gestation, of a healthy 24-year-old woman with good prenatal care. She was rubella immune, and other serologic screens were negative. Ultrasound evaluations reported no pathological findings.

The rupture of membranes occurred 2 hours before birth. The bloody amniotic fluid raised the suspicion of marginal placental detachment. He was born by eutocic delivery, and Apgar scores of 8 and 10 at 1 and 5 minutes were recorded, respectively. No resuscitation steps were required. Birth weight was 2,650 g, length 46 cm, and head circumference 32.5 cm (all measures within the 3rd-10th percentile). There were no apparent malformations. One mg of intramuscular vitamin K was administered, and eye disinfection was performed.

At his second hour of life, the newborn eliminated grossly bloody meconium (**Fig. 1**). He had no signs of illness, no pain or grunting. His blood pressure was 76-41 mmHg, and his pulse was 120 bpm. The remaining physical examination was unremarkable, namely in the abdominal examination. There was no evidence of another active source of bleeding. Considering the hemorrhagic disease of the newborn, vitamin K administration was repeated.

He was admitted to a Neonatal Intensive Care Unit. A nasogastric tube was introduced, and gastric aspirate had no signs of bleeding. Blood tests were performed, and results were within the normal range (hemoglobin 20.3 g/dL, platelets 325,000/uL, prothrombin time 18.7/11.6 seconds, activated partial thromboplastin time 64/29 seconds and no elevation of inflammatory parameters).

During hospitalization, the newborn remained stable, and enteral feeding was started with tolerance and without clinical worsening. He continued to eliminate bloody meconium for 2 days. Blood tests reevaluation remained normal, without anemia. Abdominal ultrasonography examination had no evidence of intestinal ischemia, invagination or diverticulum. The APT test was performed at the bedside, and the result was suggestive of swallowed maternal blood (**Fig. 2**).

Figure 1. Bloody stools of the newborn.

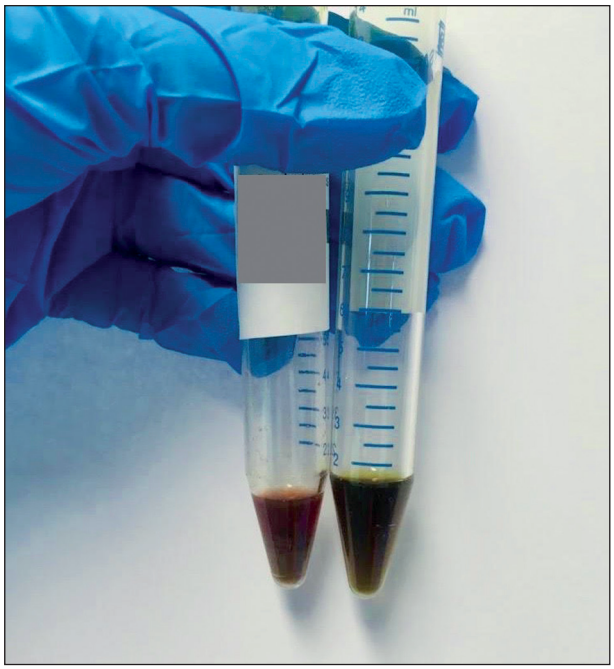

Figure 2. APT test result. The left tube is the control with newborn's blood, and the right tube is the one with bloody stools which turned to yellow-brown after mixture with 1% sodium hydroxide, proving the maternal origin of the blood.

Discussion

The presence of blood in the stools of a neonate is an alarming sign and needs to be promptly approached as it can be caused by life-threatening conditions that need an urgent approach [1, 3]. On the other hand, since the most frequent cause in the neonate is ingested maternal blood during childbirth or breastfeeding, the healthcare provider must, therefore, be able to promptly differentiate internal bleeding from ingested maternal blood, in order to obviate unnecessary tests and invasive procedures if the maternal origin is proven [2-6].

When gastrointestinal bleeding is noted, blood tests (hemogram, prothrombin time and activated partial thromboplastin time) should be performed, and abdominal radiography and/or ultrasonography should be considered. If there are normal results and in the absence of alarming clinical signs of acute blood loss (such as tachycardia, pallor, shock, cyanosis, poor perfusion or acidosis), the APT test should be performed [7, 8]. An algorithm for the initial evaluation of a newborn with bloody stools is presented in **Fig. 3**.

The APT test is a qualitative test to identify the source of blood present in the stool of newborns for differential diagnosis of gastrointestinal bleeding [9]. It allows distinguishing between maternal and infant's hemoglobin, based on the fact that fetal hemoglobin (HbF) is more resistant to denaturation with alkali than adult hemoglobin (HbA) [1, 4, 6, 10]. The sample should be mixed with water, centrifuged, and then the supernatant should be exposed to a strong alkaline reagent [2, 4]. If the blood is of maternal origin, the mixture turns yellow-brown after several minutes, and if it is fetal blood, it remains pink [4]. The stools need to be analyzed immediately after collection because exposure of the stool sample to air for more than 30 minutes will cause fetal hemoglobin to have the same color change as adult hemoglobin, resulting in a false-positive result [3].

When the APT test is inconclusive, another possible test to perform is the quantification of fetal hemoglobin by spectrophotometric assay or chromatography [3, 9]. HbF > 50% indicates fetal blood, and HbF < 10% suggests maternal blood [3]. However, these tests are not readily available in

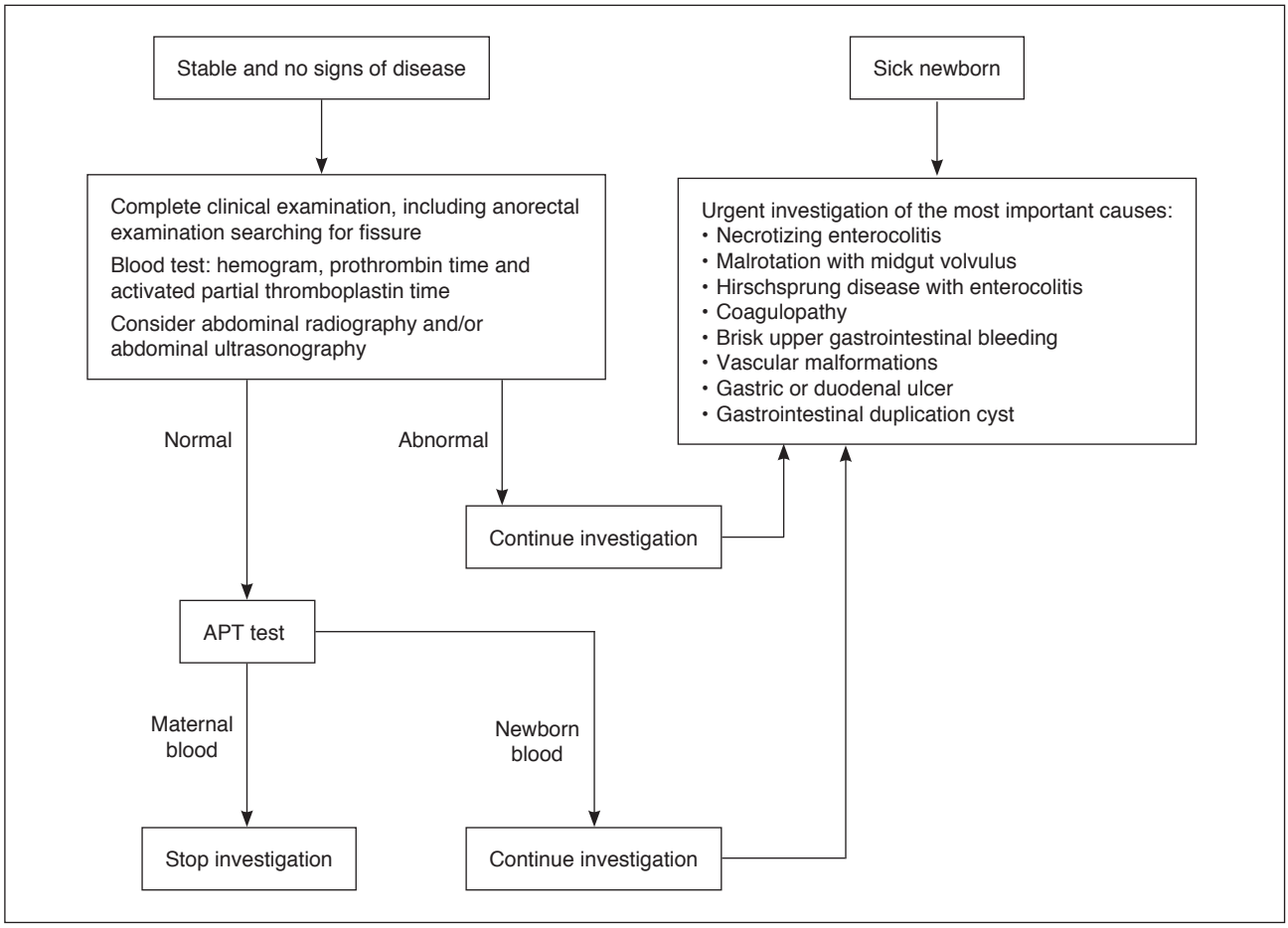

Figure 3. Algorithm for the initial evaluation of a term newborn with bloody stools [3, 4].

every hospital, and the need for a rapid result in this clinical situation limits its use.

The appearance of grossly bloody stools in a neonate born following a marginal detachment of the placenta, who otherwise appears well, without anemia, and with standard clotting times, is consistent with the melena *neonatorum* diagnosis [6]. However, the absence of blood in the gastric aspirate, and the high quantity of blood in the stools, make this a very particular case, reinforcing the importance of clinical wellbeing and APT test to distinguish between maternal and infant's blood.

Consent for publication

Consent for publication was obtained. The Authors declare that they have followed the protocols of their work centre on the publication of patient data.

Declaration of interest

The Authors declare that there were no conflicts of interest in conducting this work. There were no external funding sources for the realization of this paper.

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