Neonatal isoerythrolysis and alloimmune neutropenia in the foal of a primiparous mare
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Isoerythrolysis is the most common cause of jaundice and hemolytic anemia in equine neonates. Ingestion of offending colostral antibodies produced following sensitization to incompatible red cell antigens induces this potentially lethal hemolytic event. Initial exposure usually occurs during pregnancies in which the foal has inherited incompatible antigens from the sire. Thus, foals of pluriparous mares are at risk.

A five day old colt of a primiparous Thoroughbred mare presented severely anemic and leukopenic. The colt had been non-responsive at birth requiring oxygen supplementation and plasma infusion. Marginal improvement was followed by rapid deterioration and an acute episode of dyspnea. Upon presentation the colt was depressed, tachycardic and tachypnic with icteric mucous membranes and a PCV of 11%. A packed red blood cell transfusion was performed and prophylactic antibiotics initiated. Following transfusion a complete blood count (CBC) showed neutropenia and anemia, although hematocrit was improved. Serum chemistry showed hypoproteinemia, hypoalbuminemia and hyperbilirubinemia. Clinical diagnosis of neonatal isoerythrolysis was based on anemia, positive minor cross-match and positive Coomb’s test. Abdominal and thoracic ultrasound and blood culture ruled out regional infection and septicemia as causes for continued neutropenia. Positive agglutination of neutrophils with mare’s serum supported diagnosis of alloimmune neutropenia later confirmed via flow cytometry. During hospitalization CBC’s were repeated regularly. Neupogen was administered as needed until neutrophil counts stabilized within normal reference ranges.

Neonatal isoerythrolysis has not been reported in the foal of a primiparous mare and there is only one reported case of alloimmune neonatal neutropenia. This case is a unique presentation of these conditions concurrently. Presumably, sensitization to foreign red blood cell and neutrophil antigens occurred simultaneously via a single exposure event. Previous blood transfusion, normal late gestation placental microhemorrhage or previous conception with subsequent abortion are potential scenarios which may have lead to colostral antibody production in this case.

Keywords: Neonatal isoerythrolysis, alloimmune neutropenia

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