



HANNIBAL LIVES – Preventing Jaundice Foal Syndrome

Patrick M. McCue

DVM, PhD, Diplomate American College of Theriogenologists

A 12-year-old American Quarter Horse mare, with a history of having had 3 previous foals, presented for foaling approximately 2 weeks prior to her due date. An ultrasound examination was performed as part of standard pre-foaling management and the fetus was observed to be alive and active. A blood sample was collected from the mare and submitted to a diagnostic laboratory for routine analysis for the presence of antibodies against red blood cell (RBC) antigens. The results indicated that the mare had a strong positive reaction for antibodies against Aa blood group antigens. The immune system of the mare must have been exposed to 'foreign' RBC antigens by leakage across the placenta during a previous pregnancy or foaling.

Since the mammary gland sequesters and concentrates antibodies from the blood into colostrum, the presence of a high titer of anti-RBC antibodies in the blood of the mare meant that an even higher amount would be present in colostrum. As a consequence, if the unborn foal has an Aa blood type, ingestion of the mare's colostrum would potentially be fatal. The antibodies in the colostrum would be absorbed into the bloodstream of the newborn foal after nursing and destroy the foal's red blood cells.

The medical condition of concern is called neonatal isoerythrolysis (NI) or Jaundice Foal Syndrome. It is important to note that the foals are normal at birth and are only affected if they ingest colostrum with anti-RBC antibodies directed against their own red blood cells. If the foal has the same blood type as its dam, there will not be a problem. However, clinical disease will occur if the foal inherits the blood type of its sire *and* if the offending antibodies are directed against that blood type. Affected foals usually begin to show clinical signs, such as jaundice, weakness, increased respiratory rate, and passage of red-colored urine within 24 to 72 hours after ingestion of 'toxic' colostrum. Severely affected foals may die if untreated.

In the current case, a plan was designed for management of the foal after birth. The mare foaled uneventfully at 2:50 in the morning. The foaling was attended and a blood sample was collected from the foal immediately after birth. A Jaundice Foal Agglutination Test was performed using colostrum from the mare and blood from the foal. Agglutination of foal RBC's indicated a positive reaction; the foal should not be allowed to ingest colostrum from his own mother.

The foal was allowed to stay in the same stall as the mare, but suckling of colostrum

was prevented for 36 hours by use of a foal-sized leather muzzle, resulting in his nickname 'Hannibal'. The problematic colostrum was hand milked from the mare and discarded every hour for the same 36-hour period.

It was imperative that the foal receive normal equine antibodies for immune protection soon after birth. Consequently, a unit of high-quality frozen colostrum that had been harvested from a mare determined to be free of anti-RBC antibodies was thawed. A nasogastric tube was passed and the thawed colostrum was administered along with a commercial equine IgG preparation when the foal was still less than one hour old. A second unit of colostrum was administered 2 hours later. Blood samples were collected from the foal at 12 and 24 hours of age to test for passive transfer of antibodies. By 24 hours of age the foal's IgG was >800 mg/dl, a level considered to be adequate for immune protection against infectious diseases.

The colt was bottle fed a commercial mare milk replacer every hour for 36 hours. Finally, after 36 hours of medical management, the foal was allowed to nurse from the mare. By this time, the mare did not have any more colostrum in her mammary gland and the foal could no longer absorb any antibodies ingested. Fortunately, the maternal instincts of the mare were strong and the foal eagerly suckled once the muzzle was removed. The mare and her healthy foal were sent home five days after foaling.

Take home messages:

1. NI is a life-threatening condition of newborn foals.
2. Pre-foaling screening of mare's blood can detect a potential problem.
3. Prevent ingestion of 'toxic' colostrum.

4. Provide an alternative source of antibodies.



Photo of "Hannibal"



Photo of "Hannibal"