

CASE REPORT

DIZZIE RASCAL – a $\frac{3}{4}$ ID x WB foal born on the 21st Jan 2011 that required a Plasma transfusion.



TIZZY is a maiden mare, she was bred to Mourne Mountain Star by natural cover at the start of March last year. She was scanned with a positive pregnancy at 18days and again and at 24days to check for a heartbeat of the foetus. Everything had gone smoothly through most of the pregnancy but she developed a large accumulation of fluid under her belly (abdominal oedema) approx 4 weeks prior to foaling. This can be common in some mares of late gestation especially in maiden mares. Although she did start to run milk (premature lactation) for 3 weeks before she foaled. This can sometimes be indicative of a potential problem with the mare or unborn foal and these mares should be monitored closely and if worried veterinary checked if they are less than 320days of gestation.

TIZZY went onto foal in the early hours of Friday morning 21st Jan without complication and DIZZIE progressed within all the normal parameters that we expect a normal healthy foal to do in the first few hours of life.

- Sat up (sternal) by 5mins old
- Up onto his feet by 2hrs old
- Suckling by 3hrs old
- Up nursing approx 5 times/hour with sleeps between feeds
- Urinated within 8hrs for a colt (8-11hrs for fillies)
- Meconium (first faeces) passed within 12hrs.

We examined him in the first 24 hours to check all of his parameters including mouth and umbilicus, heart and lungs, temp eyes and all limbs. At this stage we give an antibiotic and a tetanus toxoid injection.

Colostrum is the first milk a mare produces and contains all the vital components that enhances the efficiency of the naïve immune system of the foal. It provides essential antibodies (immunoglobulins) mainly IgG and other electrolytes and factors essential for

the foal's immune system. The colostrum is produced in the last 2-4wks of pregnancy and typically mares produce 1-2litres of good quality colostrum.

The foal is **immunologically competent** at birth but **immunologically naïve**.

This means that despite having all the major components of a functional immune system present and the ability to respond to infection it is born without antibodies so must obtain protective antibodies from the mare via the colostrum ingested shortly after birth. This transfer of antibodies requires the mare to produce colostrum of sufficient quality and quantity immediately after parturition for the foal to ingest enough at the right time for the absorption to take place. Failure at any of these steps results in inadequate transfer and puts the foal at high risk of infection or septicæmia.

Due to the premature lactation we suspected that the colostrum of the mare would be of very poor quality therefore would not have given sufficient protection to her newborn foal.

It was therefore essential that we assessed if Dizzie had received enough colostrum within the first 12hours of life. The immunoglobulins in the colostrum are absorbed by a specialised mechanism through the small intestine into the blood circulation of the foal. After 12 hours this specialised mechanism declines until 24 hours when it is no longer permeable to allow the IgG to cross. These antibodies protect the foal for the first few weeks of life until the foal develops its own protective IgG levels around 8weeks old.

We then tested DIZZIE to check his IgG status at 24hrs old. This test is called a Gamma-check-E and we do this at our practice but can only be taken when the foal is 18hrs old or over as this gives enough time for the IgG to pass into the blood and reach maximal levels.

The test involved a blood sample from the jugular vein of DIZZIE'S neck. The blood is added to a specialised tube and the time taken to form a firm clot is recorded.

If a solid clot forms in 10 minutes or less the IgG level is 8G/l or above.

>8g/l of IgG is considered to show a good transfer of antibody from the mare's colostrum.

<8g/l of IgG results in a clot not formed within 10mins and so sub-optimal levels of antibodies. This is known as failure of passive transfer (FPT).

When we tested DIZZIE's blood a clot did not form within 10mins.

We therefore needed to give extra IgG to boost his levels to above 8G/l to provide him with adequate protection. We were able to do this by giving him a product called Hyperimmune-RE Equine Plasma www.veterinaryimmunogenics.com. This comes in 1L bags frozen and is derived from blood taken commercially from donor mares that are pre-vaccinated (including for Rhodococcus equi). This blood is separated out into the red cells and plasma and it is the plasma that contains all the antibodies.

DIZZIE was given a short acting sedative and diazepam to allow a smooth and controlled period to administer the Plasma. An area of his neck was clipped and a catheter was

placed into his jugular vein. A blood giving set was attached and the bag of plasma attached to that and administered slowly initially. He was monitored closely heart and respiration rate and gum colour on a regular basis. It took 30 minutes to administer the 1L of plasma. Within half an hour after that he was up and by an hour later he was suckling again from TIZZY.

24hours later we returned to take a blood sample again to check his IgG status and this time the test was positive- a clot formed within 10mins ensuring adequate antibody levels.

We recommend checking all foals IgG status as you cannot guarantee that the colostrum is of good quality even if the mare has not ran milk and the foal has been suckling well.

