

# Addressing newborn problems

**A number of acute non-infectious conditions are encountered in neonatal foals**

This is a brief, whirlwind tour of a few of the more common non-infectious conditions of neonatal foals that breeders need to be on the look out for. Anyone looking after foaling mares and newborn foals should know how a 'normal' foaling will progress, what a 'normal' newborn foal looks like and how it should behave. Every foal must receive adequate good quality colostrum within 12 hours of birth and this can be even more important if the foal is compromised by any one of these non-infectious conditions.

## Neonatal Maladjustment Syndrome (NMS)

Neonatal foals are particularly susceptible to the effects of low blood oxygen and birth trauma, so anything which shortens or prolongs the birth process, such as red bag or dystocia (difficult foaling), can affect the foal. Often the 'incident' is not recognised and the birth may appear normal. However, very soon after birth the foal will start showing signs of abnormality. These can vary enormously and may include appearing a bit slow or sleepy (dummy foal) or excessively agitated. There may be a poor or non-existent suck reflex, inability to stand or persistent aimless walking/circling.

Occasionally the foal will convulse and a few will vocalise abnormally, hence the old name 'barker' foal. These foals require urgent veterinary attention and should, where possible, be given oxygen while you wait for the vet. They will initially be given anti-convulsants, anti-inflammatory medication (corticosteroids) and antibiotics, and may also require intravenous fluids and feeding by stomach tube. Treatment and nursing may be necessary for several days. Every year a few foals require intensive, 24/7 hospital treatment and nursing, and there is no guarantee of survival, even with the very best care.

## Prematurity/dysmaturity

While we assume a 'normal' gestation is 340 days, there is actually a wide range of 'normal', i.e. 315 to 365 days, depending on the mare. Anything that causes a mare to foal early (for example surgery, severe or chronic pain, infection or other stressful event) will usually result in the birth of a 'premature foal'. If the foal is too premature, it will have virtually no chance of survival.

In other mares, the foal's maturation in the uterus is impaired and this results in a foal that



**A newborn foal receiving treatment in an intensive care unit**

is not 'ready' to be born, even if it is carried to term. These are called dysmature foals.

In both of these groups the normal physiological mechanisms needed to allow life outside the uterus have not been properly 'switched on' and the foal may simply not be ready for life in the outside world. These foals often have a very fine coat and soft ears. They may be unable to stand unassisted, have soft (incompletely ossified) bones and may be very small and weak, although some are of average size.

In some mild cases, all these foals need is to be fed, either by bottle or stomach tube and provided with basic nursing care until their systems have a chance to catch up. Others may require more intensive treatment, including assistance to stand and suck, more intensive nursing care such as tube or intravenous feeding, surfactant and oxygen administration, and hormonal support just for starters. The foals must be kept warm. If the foal is too severely impaired it may not be possible to save it. Twin foals are often either premature or dysmature and can be very difficult to save.

## Haemolytic anaemia

The antibodies in colostrum are derived from the mare's own blood and concentrated in the colostrum in the weeks before birth. The mare

produces these in response to antigens she has been exposed to in her environment and via vaccination. It is essential that foals receive these antibodies soon after birth to help them fight infection in the first weeks of life.

However, in a small number of foals, some of the antibodies they receive from their dam actually attack the foal's own red blood cells, causing them to rupture (haemolysis) because of an incompatibility between the blood types of the mare and the stallion. The resulting anaemia may be life threatening. The foal appears normal at birth but within a few days will become weak, rapidly tire and appear depressed. Respiratory rate increases, the urine appears dark or reddish and the gums will appear paler than normal.

Diagnosis is based on clinical signs and blood results. The foal may require transfusion of washed red blood cells, normally from its dam and ideally after cross-matching. More than one transfusion may be required and affected foals must be closely monitored for secondary problems such as infection, and for second and third 'waves' of haemolysis. Other supportive treatment is needed and a few foals will die, despite treatment. Mares who produce one haemolytic foal are likely to have others, although the risks can be reduced by covering with compatible stallions and testing the mare

in the month prior to foaling.

These mares must be attended at foaling and the foal prevented from sucking from the mare. The colostrum should be stripped from the mare (this can be started prior to foaling) and discarded until it has become 'normal' milk (usually around 24 hours). The foal should be given donor colostrum which has been sourced prior to the foaling, and then mare's milk or replacer until it is safe to allow it to suck from the mare. If no donor colostrum is available, a plasma transfusion should be given using commercial plasma or plasma from a cross-matched donor.

## Ruptured bladder

Symptoms of ruptured bladder (normally just a small tear) are usually not seen until several days after birth. Colt foals are more frequently affected than fillies. The foal will usually appear normal at birth and may even be seen to urinate normally during the first few days but will then start showing signs of illness. Symptoms include reduced appetite, dullness, straining to urinate, abdominal distension and laboured respiration. Some may show signs of colic.

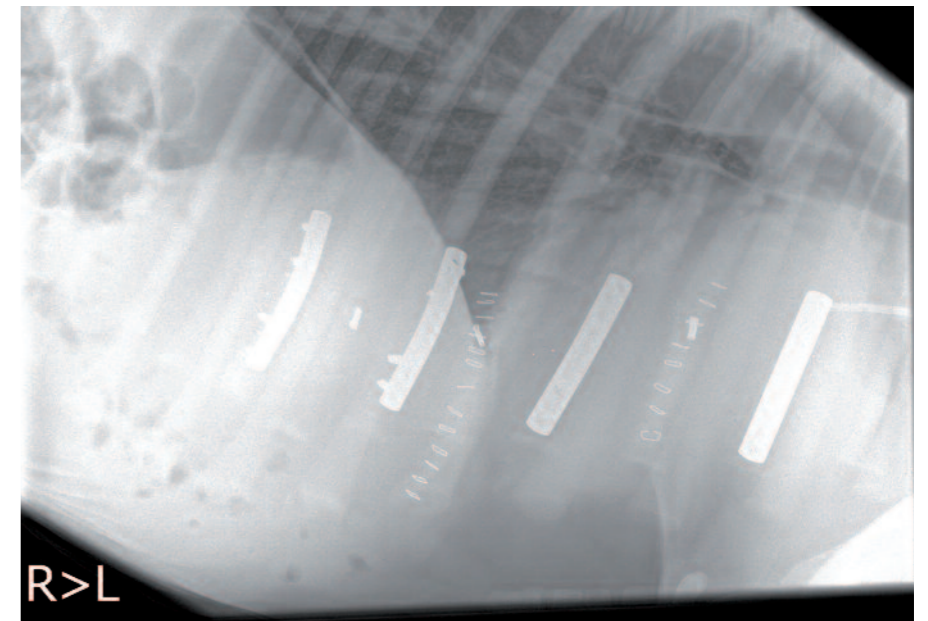
Urine leaks from the damaged bladder into the abdominal cavity, causing pressure on the diaphragm, the accumulation of toxins and potentially life-threatening electrolyte abnormalities.

Diagnosis is based on clinical signs, scans of the abdomen and abdominal fluid and blood analysis. Surgery is necessary to repair the bladder defect but is usually delayed until after the urine has been drained from the abdomen and the electrolyte levels restored to near normal. If caught early enough, most of the affected foals make a quick and complete recovery.

## Severe limb deformities

It is not possible to describe in this short article all of the limb deformities which might be seen in newborn foals. The very severe ones can cause dystocia (difficult foaling) or may result in the foal being unable to stand, let alone walk properly. You should call your vet if the foal has been unable to stand within a few hours of birth. If the foal cannot stand but has a good suck reflex, you should express the colostrum from the mare and feed it to the foal by bottle within the first couple of hours after birth and then every hour or two until your vet arrives.

Some foals will require splinting, either with specially formed plaster or fibreglass splints, or commercially available adjustable devices. Some conditions, for example excessively straight fetlocks, may be improved with a large dose of oxytetracycline that helps to 'relax' the soft tissue structures. Exercise will need to be regulated and adjusted according to the



**An x-ray showing fractured ribs in a young foal which have been repaired surgically**

condition. For example, fetlock contracture can be improved with periods on a level, clean surface as long as the fetlock does not knuckle over when weight bearing. On the other hand, mild carpal (knee) contracture may get worse if the foal is allowed too much exercise and becomes tired. Short periods of exercise a few times a day are better than one longer period. Ask for advice early in the foal's life, as these conditions are easier to manage the earlier they are seen.

## Meconium impaction

Within a few hours of birth all foals should be seen to pass their first droppings or 'meconium'. This is usually soft and moist but in some foals it is dry and pebbly. In a few, and it is usually colts again, the meconium becomes 'stuck' within the pelvic canal or rectum. The foal will strain unsuccessfully and may stand stretched out with the tail held rigid. In a few cases, the foal will develop colic signs and these may be severe.

Treatment is usually by administration of an enema (either commercial buffered phosphate or specially prepared acetyl cysteine) but analgesia may be required until the blockage is cleared. In very mild cases a dilute solution of dishwashing liquid can be effective, but care must be taken during administration to avoid damaging the delicate rectal lining.

## Rib fractures

Some larger foals or those that are born after a difficult or rapid foaling might suffer from fractured ribs. These may not be immediately apparent, especially if there are only one or two ribs involved. Usually, only one side of the chest is involved but up to seven or eight ribs may be

affected. The foal may not show any signs of abnormality but the fractures might be detected by close palpation of the chest in the days after birth.

In the more severely affected foals, they will show laboured respiration and the affected area of the chest will collapse during inspiration rather than expand like a normal chest. Most affected foals do not require further treatment but in a few cases surgery is necessary to repair some of the ribs and stabilise the chest wall. Sadly, in a few cases, the fracture ends damage the lungs or heart and the foal may either die or require euthanasia.

## Atresia ani/coli

I have included this because, although pretty rare, it can cause symptoms similar to meconium impaction. In affected foals, the anus or part of the colon (large bowel) is missing or incompletely formed. The most obvious feature is that no faeces will be passed. If the anus is affected, there may simply not be an opening under the tail. Simple surgical treatment may be possible in some of these cases. In atresia coli, the foal may appear completely normal initially but will develop signs of colic. It may be necessary to perform a barium enema or exploratory surgery to make a correct diagnosis. Depending on the location and extent of the malformation, it may be possible to correct it, but in most cases this is sadly not an option.

Fortunately, most foals are carried to term and are born uneventfully. There are few events more exciting than the birth of a normal foal but early recognition of any abnormality will provide the best opportunity for a successful outcome.