ROSSDALES
VETERINARY SURGEONS

Dystocia – an equine emergency

Dystocia simply means difficulty foaling, occurring either in the first or second stage of parturition. During a normal foaling the mare will become restless as stage one starts, her contractions begin and the fetus changes position so that its head and forelimbs are in the birth canal. This can last between 1 – 4 hours. Stage I ends when the waters break.

Fig 1: During normal first stage labour, the head and forelimbs enters the birth canal.

Stage II is the delivery of the foal, this usually lasts less than 40 minutes. The mare will have active abdominal contractions, she may choose to stand or lie down for the birth. The final stage is the passing of the placenta, usually within 3 hours.

Dystocia can be due to problems with the foal such as:

- Position
- Size
- Malformation
- Twins

Or, due to problems with the mare:

- Premature placental separation
- Conformational – for example, abnormal pelvic conformation as a result of a previous injury
- Exhaustion or uterine inertia
- Infection such as Equine Herpes Virus: This can cause abortion in late pregnancy and usually there are no warning signs of the impending abortion.

EQUINE EMERGENCY

Dystocia is life threatening for both the mare and foal so action must be taken as soon as a problem is detected. There is a very clear relationship between the duration of Stage II labour and foal survival: a study investigating dystocia and foal outcomes in a large US farm performed by Professor McCue showed that a delay beyond 40 mins resulted in a dramatic increase in stillbirth and mortality of foals shortly after birth. It is important to get the foal out as quickly as possibly but care needs to be taken not to damage the foal in the process or tear the mare's uterus and birth canal.

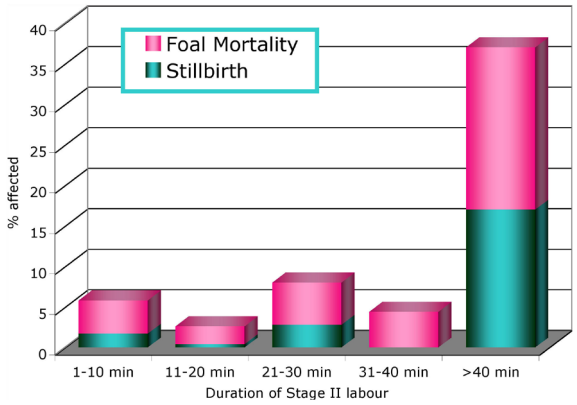

Fig 2: Data from a study by McCue and Ferris shows that there is a dramatic increase in foal death if stage II labour is longer than 40 mins.

CONTROLLED VAGINAL DELIVERY

If the dystocia cannot be resolved quickly on the farm, it is generally advisable to take the mare to a hospital where the mare can be anaesthetised, so that she can be lifted in a hoist, to provide easier access and more space to reposition the foal. Lifting the mare's hind end can help as the foal can be repulsed into the abdomen for repositioning and the mare's abdominal compressions are reduced so that she is no longer fighting against the foaling personnel.

Fig 3: A endotracheal tube has been placed in the foal's windpipe to allow delivery of an air using an Ambu bag, a compressible balloon designed for this purpose. This provided oxygen for the foal during delivery with the mare under general anaesthesia.

Time is vital in this situation as the foal will probably have reduced access to oxygen. Depending on the foal's position, it may be possible to place a tube into

the foal's windpipe whilst it is still in the mare, so that oxygen can be provided, buying a bit of extra time to get the foal out.

Once the mare is anaesthetised the position of the foal is assessed again to see if it is possible to do a controlled vaginal delivery. The team will start this procedure but, progress is re-assessed at five minute intervals and while attempts are being made to deliver the foal, at the same time a nursing team is simultaneously preparing the mare for abdominal surgery. If after 10 minutes of repositioning and pulling, the foal it is still not out, then a caesarean section will considered.

CAESAREAN SECTION

The main goal of Caesarean section is to save the mare's life. Having said that, where once there was almost no expectation of achieving a live foal with emergency caesarean section, in recent years, this situation has improved. At Rossdales Equine Hospital, analysis of 48 recent dystocia cases were admitted to the hospital showed 46% had controlled vaginal delivery under general anaesthesia and 54% had caesarean section. The survival rate of mares was similar with each procedure at just over 80%. Foal survival was better with controlled vaginal delivery with which 41% foals survived. Following caesarean section, 19% of foals lived.

Fig 4: Caesarean section is occasionally necessary; at this stage the main goal is to save the mare. However, in 48 recent dystocia cases, 19% of foals survived Caesarean section delivery at Rossdales Equine Hospital

SPECIFIC CAUSES OF DYSTOCIA

Analysis of the same group of cases has shown that 50% of severe dystocias in the hospital were due to malpresentation of the foal, 17% were due to severe contraction of the foals' limbs, 8% were caused by other severe conformational abnormalities, 6% due to fetal oversize and 19% were due to abnormality or disease affecting the mare.

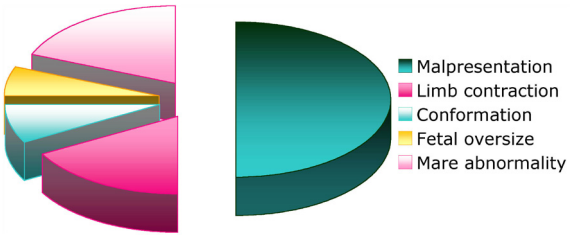

Fig 5: Causes of severe dystocia requiring hospital treatment in 48 mares at Rossdales Equine Hospital.

MALPRESENTATION

The most common reason for equine dystocia is positional error and it is important to note that the statistics above come from foalings in the hospital. There are many less severe positional problems that can be corrected on the farm. Carpal flex is the most common followed by foot nape. These can be easily corrected on the stud but care needs to be taken if the foal is in the foot nape position, not to tear the mare's rectum. If it is a bilateral carpal flexure then a controlled vaginal delivery will probably be needed but you should consider the risk of the foal having carpal contracture that may mean that a caesarean section is required.

With posterior presentation, the foal can be delivered at the stud but as the foal begins to move further out the cord can get trapped, causing the foal to die if delivery is not achieved very quickly.

Positions that are highly likely to require hospitalization should ideally be identified promptly. Shoulder flex is rare but can usually be resolved with a controlled vaginal delivery.

Some foals that have their head in the wrong position can be corrected on the stud but there is a risk that when stimulating the foal's head, it moves and makes the deviation worse at which point, hospitalization is required.

Dog sitting and ventral or dorsal transverse almost invariably need caesarean section.

OTHER COMPLICATIONS ASSOCIATED WITH THE FOAL

If the foal is too large it may struggle to get its shoulder through the birth canal and need to be helped by pulling its forelegs and applying lots of lubricant around the area. Malformation of the foal may cause particular difficulty and is a common reason for Caesarean. Hopefully twins will have been detected early on in the pregnancy but if not then this can cause problems if they are both in the birth canal together.

Fig 6: Carpal Flex, the most common form of malpositioning, can often be resolved in the standing mare

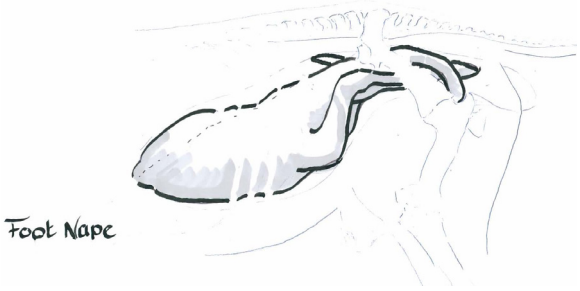

Fig 7: Foot Nape requires care as there is potential to damage the mare's rectum.

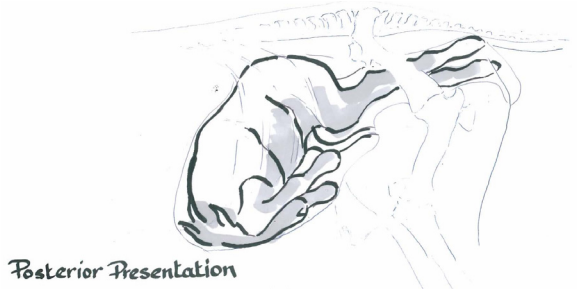

Fig 8: During Posterior presentation there is a risk of compression the umbilical cord the birth canal

Fig 9: Shoulder flex typically can be resolved during controlled vaginal delivery

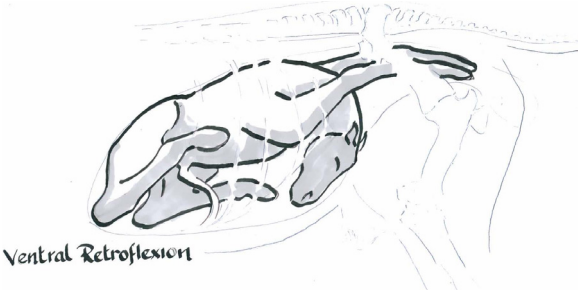

Fig 10: Ventral retroflexion is an example of a condition in which the foal's head is in an abnormal position. The head can also retroflex dorally so that it is looking along its back towards its hindquarters.

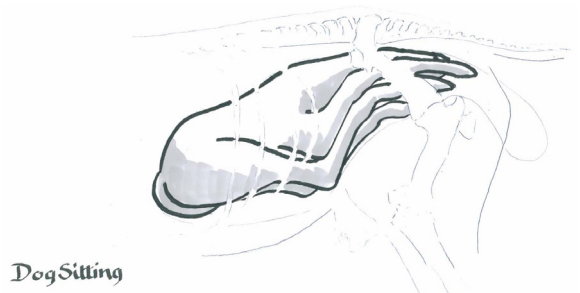

Fig 11: Dog sitting usually requires Caesarean.

Fig 12: With ventral transverse, all four limbs are in the birth canal. With dorsal transverse, all four limbs and the foal's head are towards the mare's thorax, with the foal's hind end upwards. These positions usually require Caesarean section.

COMPLICATIONS ASSOCIATED WITH THE MARE AND HER PLACENTA

During an uncomplicated foaling, the foal will be delivered with the amniotic sac, this breaks as the foal's nose and feet push through the sac, allowing the foal to breathe. The placenta is then delivered after the birth. Premature placental separation results in the foal being born still inside the placenta, commonly referred to as a 'red bag delivery'. When the placenta separates prematurely the foal is not strong enough to break the placenta. As the foal is born, the first thing to be seen is the placenta – a 'red bag'. This must be broken immediately as it is preventing the foal from breathing. A 'red bag' foal should be monitored closely after birth for normal behavior as it may have been starved of oxygen during birth and need veterinary attention to decrease the risk of further deterioration.

If the mare has conformation problems, such as an old injury to her pelvis or previous foaling injuries, which mean that the mare cannot foal naturally, it is sometimes decided that the mare will have elective (i.e pre-planned) caesarean section.

POTENTIAL FOR CONTAGIOUS DISEASE

If the mare is having a difficult foaling but there is no apparent reason for the difficulties, Equine Herpes Virus (EHV) should be considered as a possibility, particularly if the mare is foaling early. EHV foals are often still born but occasionally, there is a live foal with EHV although usually the foal will show signs of severe illness soon after birth, typically respiratory signs and jaundice with very low white blood cell counts. With unexplained stillbirths, the mare should be isolated until the possibility of infection is investigated and you must make sure that you wear overalls, foot covers and gloves. The fetus and placenta can be tested for EHV using PCR techniques that provide a very quick result. Ideally, a separate team should look after the mare and all areas that the mare has been in should be disinfected appropriately to help prevent viral spread.

SUMMARY

With the high number of foalings seen each year there are bound to be some problems. The key is to know what to look out for and to call someone experienced in foaling as soon as a problem is detected. Red bag foalings are common and disaster can be averted if the placenta is broken to allow the foal to escape. A speedy delivery is vital for the foal but, pulling a poorly positioned foal can be fatal for the mare and foal so it is important to make a prompt assessment of the foal's position and realistic assessment of whether hospitalisation is necessary. Controlled vaginal deliveries under general anaesthesia will often result in a live foal. Caesareans are important to save the mare's life, but outcomes for Caesarean foals are more guarded.

All illustrations by Jim Power