

DYSTOCIA

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Introduction

In the general horse population, the incidence of dystocia varies from breed to breed. In Thoroughbreds the incidence is approximately 4% and in draught breeds the incidence is approximately 10%. The long foetal limbs and neck predispose the mare to foaling problems. Dystocia is a true emergency where prompt intervention can make the difference between a live and a dead foal. Familiarity with the normal foaling process will alert attendants to the development of dystocia.

Normal parturition

The first stage of parturition is characterised by the development of co-ordinated uterine contractions. The increased uterine pressure pushes the chorioallantoic sac into the gradually dilating cervix. These internal changes are manifested by restless behaviour similar to that of mild colic. The mare will look at her flanks, frequently lies down and gets up, stretches and passes small amounts of faeces. Patchy sweating may develop. A radiographic study by Jeffcott and Rosedale (1979) demonstrated that the full-term equine foetus is generally lying in dorso-pubic position with the head caudally and the neck, head and forelimbs flexed. As the first stage of parturition begins, the foetus makes purposeful movements, rotates the front of its body through 180° and extends the head and forelimbs. The mare probably assists the foetus to re-position itself by getting up and down and by rolling. The length of this stage of parturition is variable lasting from a few minutes to several hours. Also mares appear to be able to interrupt this stage if disturbed. The first stage of parturition concludes with the rupture of the chorioallantoic membrane and the release of the allantoic fluid.

The second stage of parturition is characterised by strong abdominal contractions. Most mares assume lateral recumbency once active straining commences. Many get up and down once or twice in what is believed to be a further attempt to position the foetus correctly. The presence of the translucent, fluid-filled amnion at the vulval lips can be expected to occur within 5-10 minutes of rupture of the chorioallantois. One hoof is generally slightly in front of the other and the foal's head should be between the

carpi. The second stage of labour is rapid with the most forceful contractions occurring as the chest passes through the pelvic canal. Forceful straining ceases once the foal's hips are delivered and the mare will often rest at this stage with the foal's hind legs still in the pelvic canal. Most foals are delivered within 20-30 minutes of the chorioallantoic membrane rupturing. Primiparous dams generally require longer to expel the foetus than multiparous dams.

The third stage of parturition involves expulsion of the foetal membranes. This takes typically between 30 minutes and 3 hours.

Veterinary approach to dystocia

Prompt attendance and speedy action are the main requirements of veterinary surgeons dealing with dystocia. Foaling is a rapid process and serious complications can quickly arise. It is essential to have a basic foaling kit ready to take immediately. However, despite the need for speed, a little time should be spent discussing the case on the telephone and any immediate action which the attendant should take can then be described.

General advice

1. In the case of malposture, keep the mare up and walking around the box, as this will reduce straining and the resultant worsening of the situation by impaction of the foal into the pelvic canal.
2. In cases of premature separation of the placenta ('red bag' presentation), instruct the attendant to rupture the chorioallantois and assist delivery.
3. Foals which become stuck at the shoulders or hips should have traction applied in rotation.
4. Allow the mare to get up and down when a foal is presented upside down.
5. With a posterior presentation deliver the foal quickly by traction.
6. When a limb or head projects through the anus, replace the limb in the pelvic canal. If the rectum has already been torn but the foal is alive the attendant should concentrate on delivering the foal rather than worrying about preventing a third degree laceration.
7. Have clean water and adequate help available when you arrive.

Initial veterinary examination

Most mares will tolerate examination and handling very well during foaling, but naturally are restless and uncomfortable and will often try to get down. If possible, the mare should be restrained in a bridle in the centre of the foaling box. Another person should hold the tail to one side to help keep the mare up and in position. At first stand slightly to one side until the mare's reaction to examination is apparent. The following questions need to be answered:

1. Are the presented limbs front or hind legs?
2. Is the foal alive?
3. Is there a possibility of twins?
4. Is the dystocia due to malposture or foal deformity?
5. Is there enough room to manipulate the foal when contractions are taking place?

After the initial assessment there are three broad possible causes of action:

1. Deliver the foal after relatively simple and speedy manipulation to correct abnormalities without need for further restraint. This is carried out in the standing position and the mare should then be let down and left quietly to continue foaling.
2. Deliver the foal alive or dead after more prolonged manipulation, either under sedation, epidural anaesthesia or general anaesthesia. It is better to go for this option at a fairly early stage than to struggle ineffectively, risking death of the foal, damage to the mare and exhaustion of the operator.
3. Caesarean section: this may be the best approach in cases of gross deformity or complicated malpostures. As the foal is often lost in these circumstances, the future breeding prospects of the mare become the primary consideration. Cervical damage is likely to result from prolonged manipulation and is a frequent cause of infertility following a difficult foaling.

Foaling technique

The mare should be restrained in a standing position where possible. This allows the best access for internal manipulation. Generally this involves repulsion of the foetus to allow room for straightening the limbs, head or body. Ropes should be applied to the legs as soon as possible before the canal starts to dry and swell and while the operator is fresh. Plenty of lubrication should be used. Traction should be applied in rotation so that the foal presents the least possible circumference at any time. A maximum of 2-3 people should be used to apply traction. Placement of an additional rope behind the ears and through the mouth is helpful when control of the head is needed. This is especially important with a head and neck flexion. Occasionally it is

necessary to deliver a foal without correcting a malposture, such as a hind leg up along the side of the chest. This requires strong traction. Partial embryotomy is sometimes necessary in order to repel a foal sufficiently to correct a postural abnormality. This must be carried out with great care and where possible, outside the vulval opening. Caesarean section should be considered early if a prolonged manual delivery is anticipated.

Restraint

It must be remembered that all tranquilisers used on the mare will also affect the foal. The initial examination is best done without sedation where possible. If sedation is required, a small dose of detomidine and butorphanol is often effective. Alternatively a twitch can be applied. The time involved in administering an effective epidural anaesthetic usually makes this form of restraint impractical if a live foal is to be delivered. Furthermore an epidural anaesthetic does not prevent the mare's myometrial contraction. Short-term general anaesthesia is indicated when postural abnormalities are present and the maternal expulsive efforts make correction difficult. This should be carried out in a hospital environment. The hind limbs of the mare can then be hoisted to assist foetal repulsion and manipulation. If correction is not possible, then the mare can be prepared for caesarean section.

Causes of dystocia due to malposture

Malpostures are the commonest cause of dystocia. Following the initial examination and assessment, basic principles should be applied to correct the malposture and deliver the foal by traction. Common causes of malposture include the following:-

1. *Incomplete elbow extension.* This should be suspected if the foetal hooves lie at the same level as the muzzle. The foetal trunk should be repelled and the forelimbs extended to allow delivery.
2. *'Dog sitting' or 'hurdling' posture.* On examination, a single hind foot (hurdling posture) or both hind feet (dog sitting posture) are caught on the brim of the pelvis. Traction is unproductive. Due to the lack of room for manipulation this is very difficult to correct and early election for a general anaesthetic or caesarean may be the best option. Occasionally with a unilateral malposture the limb can be extended alongside the chest and the foal delivered by firm traction. This is a traumatic procedure and may damage the cervix.
3. *Foot nape posture.* In these cases one or both of the foetal legs is displaced over the head and pushed up against the roof of the vagina. If not corrected, the mare's straining can cause the foetal hoof to lacerate the vaginal roof and

can result in a recto-vaginal fistula or a third degree perineal laceration. To correct this malposture, the foetus must be repelled and the forelimb replaced under the head.

4. *Carpal flexion.* This may be uni- or bilateral and typically the affected carpus is located in the pelvic canal. The foetal body must be repelled and the hoof cupped in the palm of the hand and drawn forward into the pelvic canal. It should be noted that the commonest congenital deformity of the forelimb is contracture of the knee, which is often bilateral. In these cases it is very difficult to extend the limb sufficiently to allow a vaginal delivery and a caesarean section may be required. If the foal is dead an embryotomy incision through the carpus will allow vaginal delivery.
5. *Head and neck flexion.* A head rope should be placed around the ears and through the mouth. The foal's trunk should then be repelled and the neck straightened and the nose engaged in the pelvic canal. Continued gentle traction should be kept on the head while the foal is being delivered. Occasionally the foetal nose is below the pelvic brim (poll posture). This is generally relatively easy to correct by cupping the nose in the hand and drawing upwards.
6. *Shoulder flexion.* This can be unilateral or bilateral. Correction of this malposture is performed in two stages. Initially the shoulder flexion is converted to carpal flexion by drawing the radius forward. The carpal flexure is then corrected as above.
7. *Posterior presentation.* A foal in posterior presentation places pressure on the umbilical cord which can rapidly lead to asphyxia. Less than 1% of foals are presented posteriorly. If this is detected, the foal should be delivered by traction as soon as possible. Occasionally the hocks and the hips will also be flexed in posterior presentation. The flexion should be corrected before traction is applied.
8. *Transverse presentation.* This is a rare complication. Correction is possible but in general these complications are best dealt with by Caesarean section.

Other causes of dystocia

1. *Length of gestation.* For practical purposes, foaling within one month either side of the average gestation period of 340 days may be regarded as normal. Foals born more than one month before term are likely to be weak and require careful nursing. Those earlier than 6 weeks from term seldom survive. Dystocia may be a problem with abortion of larger dead foals because of lack of positioning movements by the foal. Foals carried over time are often disappointing individuals and no larger than those of average gestation. Duration of pregnancy

does not therefore affect the ease of foaling except in the occasional case where overdue foals do become exceptionally large.

2. *The presence of twins.* Complications sometimes arise when twins are carried to term and present together. As twins are smaller than single foals, it is usually relatively easy to correct such malpresentations and deliver the foals without damaging the mare. The incidence of twinning is now very low due to the widespread use of ultrasound scanning.
3. *Failure to get down.* Occasionally mares will foal in the standing position. Sometimes this is due to musculo-skeletal problems or may be associated with a nervous, excitable disposition. Others have a repeated history of this behaviour without any obvious underlying cause. If it becomes clear that a mare is not going to get down to foal, then the weight of the foal should be supported during delivery and for a few minutes afterwards to prevent premature severance of the cord. Straining in the standing position is not usually so forceful and some traction may be helpful.
4. *Weak contractions.* This can vary in degree and may be related to a circulatory, respiratory, abdominal or orthopaedic problem. Again there may be no underlying cause. A condition seen at foaling which leads to very weak contractions is rupture of the caecum or colon due to a blow from the foal's foot. Signs of colic are often minimal in these cases. Whatever the cause, foaling should be aided by controlled traction.
5. *Pelvic deformities.* Some distortion of the pelvic canal often follows pelvic fracture. However even quite pronounced changes do not generally impair foaling but affected mares should be watched closely at their first foaling and the possible indication for Caesarean section borne in mind.
6. *Relative over-size.* This is seen sometimes in first foaling mares and tends to result mainly from inadequate relaxation of the pelvic ligaments with lack of room for passage of the foal. It is often difficult to decide whether help is really necessary and any traction must be carefully applied to avoid damage to the foal. The ribs are especially vulnerable. When first-foaling mares strain powerfully without adequate relaxation there is also a danger of recto-vaginal fistula formation.
7. *Hydrocephalus.* This is a relatively rare complication. In some instances the foal's skull can be crushed manually to allow delivery. In most cases however, they are best dealt with by Caesarean section.

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