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Paramveer Singh Sangha

Ph.D. Scholar, Department of Veterinary Gynaecology and Obstetrics, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

Bilawal Singh

Department of Veterinary Gynaecology and Obstetrics, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

Harjap Kaur

Ph.D. Scholar, Department of Veterinary Gynaecology and Obstetrics, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

Shahbaz Singh Dhindsa

Department of Veterinary Gynaecology and Obstetrics, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

Corresponding Author

Paramveer Singh Sangha

Ph.D. Scholar, Department of Veterinary Gynaecology and Obstetrics, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

Dystocia in mare with arthrogryposis in all limbs of dead fetus: A case report

Paramveer Singh Sangha, Bilawal Singh, Harjap Kaur and Shahbaz Singh Dhindsa

Abstract

A case of pre-term abortion and dystocia due to congenital contractures in a mare was presented. The dead fetus was delivered successfully by using obstetrical maneuvers i.e. mutation and fetotomy. Fluid treatment (I/V), antibiotics, anti-inflammatory medicines, ecobolics, vitamin supplements, and tetanus toxoid were all administered as part of the post-operative care.

Keywords: Mare, dystocia, arthrogryposis, mutation, fetotomy

Introduction

The gestation period of mare is around 340-350 days and it may extend up to 380-385 days (Davis Morel *et al.*, 2002) [3]. Foaling period is the most critical period for equine breeders, comprising the birth of foal within 30 to 70 minutes after the rupture of chorio-allantoic membrane (Purohit, 2019) [7]. For the equine practitioner, dystocia is one of the most difficult conditions to deal with (Purohit, 2011) [8]. If the first stage of parturition lasts more than 20 minutes after the fetal membranes tear and fluids are released, it may indicate dystocia. (Purohit, 2019) [7]. Reportedly, the incidence of dystocia is around 4% in thoroughbred mares and occurs majorly due to abnormal-posture of head, neck and fetal extremities (Thangamani *et al.*, 2018) [10]. Fetal postural disorders are the most prevalent foetal causes (Purohit, 2011) [8]. Infectious pathogens and placental anomalies have both been identified as causes of late-term abortion. Due to delays in time of discovery, degraded tissue samples, and negative test findings, it is widely known that a considerable number of abortions go undiagnosed. Therefore, thorough examination of the fetus, placenta, and umbilical cord post-abortion and post-delivery may reveal various other causes.

In the present case at hand, the clinician was able to conduct an immediate post-partum examination, which revealed vascular obstruction caused by umbilical cord torsion.

Case History and Observations

A Marwari mare in its fourth parity with 20 days left for parturition, from a village Julamgarh, district Ludhiana was presented in the Teaching Veterinary Clinical Complex (TVCC), Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana (30.8916° N, 75.8001° E) with a history of pain since previous one day. The allantoic sac had ruptured around 7-8 hrs before the case presentation in TVCC. The previous parturitions were reported to be normal. Sedation was done with Inj xylazine @ 0.5-1 mg/kg body wt. Per-vaginal examination revealed a fully dilated cervix; soft in consistency. The foetus was presented in anterior presentation, no foetal movements were present. A dead foetus was discovered in the anterior longitudinal position, with the dorso-sacral position, bilateral carpal bending of both forelimbs, and lateral deviation of the head (Right side).

Treatment

Obstetrical procedures like as mutation, fetotomy, and forcible extraction were used to attempt an aided delivery. By fetotomy of right sided fore limb and providing repulsion to the brisket region and holding the foetus' mouth in the hand, the foetus' postural defects were rectified, and the head and neck were repositioned in a more natural position. The dead foal was brought back to natural position with the help of fetus's hoof and straightening the forelimb. The foetus and the passage were lubricated with liquid paraffin, and traction was given. After providing traction, a dead male foal was delivered vaginally.

Fetus had all fused lower joints called as arthrogyriposis (Roberts, 2004) ^[9] (Fig.1& 2). The mare was given hydration therapy (5 litres of normal saline solution and 3 litres of Dextrose normal saline IV), antibiotic (3.375g of ceftriaxone-tazobactam IV; Intacef-tazo, Intas), and anti-inflammatory medication (10 ml Flunixin IM) after the foetus was

delivered and Tetanus toxoid 5ml (Serum Institute of India Ltd, Pune, India). The owner was advised for taking proper care of the animal. After following the treatment for 5 days, animal was normal; feeding, urination and defecation was completely normal.



Fig 1&2: Dead fetus with arthrogyriposis in all fore and hind limbs

Discussion

Dystocia is when delivery of the foal cannot occur naturally and further require assistance. This occurs due to improper position of the foal thus not allowing the foal to pass through the birth canal. Every case of equine dystocia is a true emergency that necessitates clinical expertise and rapid actions to improve the outcome of both the mare and foal (Norton *et al.*, 2007) ^[5]. Obstetric interventions should be finished as soon as possible considering the condition of mare and foal. Manipulation of a foetus should be limited to a half-hour. Manipulations should not last more than an hour if the foetus has died (Christensen, 2008) ^[2]. Prolonged dystocia causes cervical damage and/or ischemia in the caudal reproductive canal, even if the foetus is dead, resulting in scarring, adhesion formation, and possibly systemic illness (Christensen, 2008) ^[2]. If the uterus is contracted around the foetus, it may be impossible to produce a meaningful yet safer repulsion of the foetus (Perkins & Frazer, 1994) ^[6].

During labour, the foetus in equines shifts from a ventral to a dorsal position. Therefore, ventral and lateral positions are much common in equine dystocia. The lateral displacement of the head should be carefully examined and analysed because it could indicate a congenital abnormality known as wryneck, in which the head and neck are fused together. This is caused by the mare's very powerful expulsive attempts causing significant pelvic impaction, as well as the foals' longer limbs (Arthur, 1989) ^[1]. But in the case presented above, dystocia occurred due to Arthrogyriposis congenital contractures which is characterized by joint contractures in all the limbs, which may include muscle weakness and fibrosis (Marino *et al* 2018) ^[4]. Literature indicated that unknown cause which inhibits normal joint movement before birth can result in joint contractures i.e the tendons connecting to joints are not stretched to their normal length (Marino *et al* 2018) ^[4].

The uterine and vaginal walls must be safeguarded from lacerations and tears produced by the tough nature of the hoof while treating dystocia due to limb postural abnormalities. Dystocia in horses is a serious condition that should be treated as soon as possible. To make the best decision, a clear diagnosis and evaluation of the problem is required. In the

case of a dead foetus and persistent dystocia, a complete fetotomy is suggested. If the foetus is alive and the dystocia cannot be corrected with manipulation or fetotomy, an immediate caesarean can be performed, depending on the female's prognosis.

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