

Dystocia due to breech presentation and caesarean under local anaesthesia and sedation in a mare: A case report

**Akshay Sharma^{1*}, Vijender Negi¹, Pururava Sharma¹, Harish Kumar¹, Ananya Sharma¹,
Madhumeet Singh¹, Pravesh Kumar¹**

¹ Department of Veterinary Gynaecology and Obstetrics, DGCN College of Veterinary and Animal Sciences, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur – 176062, INDIA.

Abstract

A nulliparous non-descript mare presented at full term with a history of straining (utero-abdominal contractions) for the last 24 hours. Vaginal examination revealed a dead foal in posterior presentation with bilateral hip flexion and dorso-iliac left position. Pre-operatively, 5 mL Tetanus toxoid as intramuscular injection, 3g Ceftriaxone and 4 mL Dexamethasone in 3L 5% Dextrose normal saline (DNS) as intravenous infusion (i/v) was administered. The per-vaginal delivery of the foal could not be attempted due to breech presentation; therefore, caesarean section was planned. Local anaesthetic infiltration along with sedation was done for carrying out the caesarean by employing an oblique ventro-lateral approach in lateral recumbency. Intravenous fluids, anti-inflammatory drugs and daily antiseptic dressing were included in post-operative management and led to uneventful recovery of mare. The authors would like to perorate the case as a rare breech presentation induced dystocia in equine and emergency caesarean by employing an oblique ventro-lateral approach under local anaesthesia and sedation.

Keywords:

Breech presentation, Caesarean section, Local anaesthesia, Mare, Oblique ventro-lateral approach.

DOI: 10.21608/svu.2021.90306.1141 **Received:** August 11, 2021 **Accepted:** October 4, 2021

Published: October 22, 2021 ***Corresponding Authors:** Akshay Sharma **E-mail:** akshays482@gmail.com

Citation: Sharma et al., Dystocia due to breech presentation and caesarean under local anaesthesia and sedation in a mare: A case report. SVU-IJVS 2021, 4 (4): 16-21.

Copyright: © Sharma et al. This is an open access article distributed under the terms of the creative common attribution license, which permits unrestricted use, distribution and reproduction in any medium provided the original author and source are created.

Competing interest: The authors have declared that no competing interest exists.



Introduction

Dystocia in equines is regarded as a true emergency as it poses threat to life of dam as well as fetus (Freeman et al., 1999). After considering the breed variation, less than 1% foaling are associated with dystocia (Threlfall, 2007; Ninu et al., 2015). Commonly lateral deviation of head and some other postural abnormalities lead to complications in foaling; however, posterior presentation remains to be the rare cause of dystocia in equines (Byron et al., 2002; Newcombe and Kelly, 2014).

Breech presentation is characterized by bilateral flexion of foal's hips is a very rarely encountered specific form of posterior presentation and its incidence varies from 0.7-1% (Baldwin et al., 1991; Frazer, 2001). The condition is very difficult to correct and caesarean section (C-section) is often indicated for relieving the dystocia (Purohit, 2011).

Caesarean in equines is an emergency (Johnston, 1992) where the safety and comfort of mare and fetus along with anaesthetic technique of the surgeon need to be considered (Benson and Thurmon, 1987). In equines, C-section under local anaesthesia and sedation in lateral recumbency has been considered as a lifesaving procedure (Shinde et al., 2012) because it is less likely to result in aortocaval compression (hypotension) by pregnant uterus as compared to dorsal recumbency (Ninu et al., 2015). Normally, Marcenac approach (iron-grid incision) is employed for C-section in equines as it offers an easy access to uterus along with less probability of wound dehiscence (Marcenac, 1950; Gandini et al., 2013). However, in current case report an oblique ventro-lateral approach i.e. linear incision extending from point posterior to last rib to a point just ahead of fold of flank, has been preferred. The present paper describes a rare case of dystocia due to breech presentation and C-section under local anaesthesia and sedation in a non-descript mare.

Case details

A nulliparous non-descript mare, aged 4.5 years, presented with restlessness and straining (utero-abdominal contractions) for the last 24 hours. The anamnesis of the mare was followed by blood sampling from jugular vein into a sterile K₃EDTA minitube for haematological analysis using a Mindray® (BC-2800) haematology analyser. The haematological analysis revealed a normal blood picture with no evident dehydration, leucocytosis or thrombocytopenia due to internal bleeding. Thereafter, clinical examination revealed a congested conjunctiva mucous membrane, 3 seconds capillary refill time, 37.7°C rectal temperature, normal heart i.e. 48-52 beats per minute and respiration rate i.e. 16-18 breaths per minute. The owner reported the beginning of foaling and rupture of chorioallantoic sac 16-18 h ago. Vaginal examination revealed the complete dilation of cervix and posterior presentation of fetus along with bilateral hip flexion (breech presentation) in a dorso-iliac left position. As the correction of bilateral hip flexion is very difficult (due to lengthy limbs of foal), it was decided to perform the caesarean section rather than fetotomy or manual traction. The surgery was planned under infiltration of local anaesthetic and mild sedation instead of general anaesthesia.

Pre-operatively, 5 ml Tetanus toxoid (Serum Institute of India Limited, India) as a deep intra-muscular injection (i/m), Ceftriaxone sodium 3.0 g intra-venous (i/v; Intacef, Intas Pharmaceuticals Limited, India) and 16 mg Dexamethasone (i/v; Zidex, Laborate Pharmaceuticals India Limited, India), 160 mg Pheniramine maleate (i/m; Avilin Vet, Intervet India

Private Limited, India) were administered along with 3 L of 5% Dextrose Normal Saline (DNS) as intra-venous infusion. The caesarean and accordingly line of incision was decided from point posterior to last rib to a point just ahead of fold of flank (left side) in a linear fashion after restraint of animal in right lateral recumbency. Prior to incision, mild sedation of mare was induced with i/v administration of butorphanol @ 0.05 mg/kg (Butodol-2, Neon Laboratories Limited, India) and xylazine @ 0.6 mg/kg body weight (Xylaxin, Indian Immunological Limited, India), respectively, at a gap of 5-6 minutes. The line of incision was infiltrated with 30 ml of 2% lignocaine solution (Lidocaine, Neon Laboratories Limited, India) followed by separation of external and internal oblique abdominal muscles in the direction of fibers. Similar to skin incision, transverse abdominal muscle and peritoneum was split before exteriorization of uterus. An incision on the uterus was made to retrieve the dead fetus (Fig. 1) and uterine lavage with normal saline, metronidazole and strepto-penicillin solution was done to avoid sepsis of uterus probably have occurred due to environmental contamination following opening of cervix. The placenta was easily removed as it had already separated. Suturing of uterus was done with Cushing pattern (inverted) using absorbable chromic catgut #2 (Ethicon, Johnson and Johnson, India). Peritoneum and transverse abdominal muscle were sutured with polyglactin 910 #2 (Solus 910, Lotus surgical Private Limited, India) using lock stitch and simple continuous pattern(s) to ensure that no evisceration occurs. Internal and external muscle layers were sutured again using polyglactin 910 #2 (Solus 910,

Lotus surgical Private Limited, India) using lock stitch pattern. Closure of skin incision was done via polypropylene #1 (Trulene, Sutures India Private Limited, India) using simple interrupted pattern. Administration of intra-venous fluid was done during and after the surgery with 3 L 5% DNS, 2 L Ringer's lactate and 5000 mg (1 L) Metronidazole. 15 ml of Meloxicam (Melonex, Intas Pharamceuticals Limited, India) and 100 IU oxytocin (Evatocin, Neon Laboratories Limited, India) was also given intra-muscularly. The mare recovered from sedation and walked up to the boarding vehicle 45 minutes after C-section (Fig. 2).

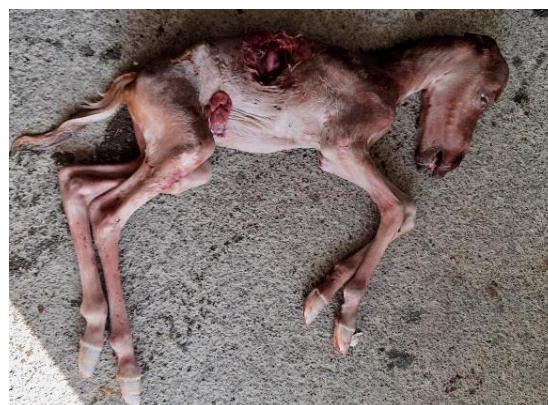


Fig. 1. The dead fetus retrieved through C-section.



Fig. 2. Mare recovered from sedation and the figure is showing the oblique ventro-lateral approach (white arrow) for C-section

For post-operative management, the mare was prescribed Ceftriaxone sodium 3.0g (Intacef, Intas Pharmaceuticals Limited, India) and Meloxicam 15 ml (Melonex, Intas Pharmaceuticals Limited, India) once daily as i/m administrations for 5 days except meloxicam (3 days). The owner was advised to administer mare with 250 ml herbal uterine ecboic through oral route (HimROP Plus, The Himalaya Drug Company, India) twice daily for 2 days for uterine cleansing as well as energy supplementation. Daily antiseptic dressing of sutured site and feeding of small quantity of food and water was advised at an interval of 3-4 h whereas sutures were removed 14 days after surgery. An uneventful recovery was reported by the owner after 1.5 months during routine follow-up of the case.

Discussion

The present case report takes note of a rarely occurring dystocia in mare due to breech presentation and its management by caesarean section. In mares, posterior presentation of fetus results in countable number of foaling emergencies (Frazer, 2001; Threlfall, 2007) as entrapment of fetal hindlimbs occur within one of the uterine horns after 8-8.5 months of gestation (Ginther et al., 1994). This hypothesis is based on the fact that fetal maturation of inner ear in conjunction with acute angle of uterine horns cause the temporary isolation of fetus and allantoic fluid to the uterine body with its head directed towards mare's cervix (Newkombe and Kelly, 2014). However, adoption of posterior presentation along with bilateral hip flexion (breech) is more likely to result in dystocia and near impossible retrieval of fetus via forced extraction or mutations per vagina and C-

section remains the only choice of treatment (Purohit, 2011).

In equines, C-section is always considered as a major surgical procedure as it involves risk related to condition of the animal, anaesthesiological considerations and some post-operative complications (Gandini et al., 2013). Generally, Marcenac and ventral midline incision is employed for laparohysterotomy as it causes least difficulty in exteriorizing the uterus and post-partum complications (Embertson, 2002; Ninu et al., 2015). However, a different approach frequently employed in C-section of cattle and buffalo i.e. oblique ventro-lateral, in lateral recumbency also offers adequate space for uterine exteriorization and less chances of wound dehiscence (Newman, 2008). The need for general anaesthesia has been described by many researchers (Johnston, 1992; Donaldson, 2006) but it is also associated with mortality rate ranging from 0.6-1.8% and difficult recovery from anaesthesia (Mee et al., 1998; Johnston et al., 2002). Therefore, the administration of local anaesthetics i.e. lidocaine, due to its short half-life and least toxicity (Labelle and Clark-Price, 2013) along with mild sedation by alpha-adrenergics and opiates is more suited in equines (Clarke et al., 1986; Ninu et al., 2015) which is in agreement with the current case report. The benefit of mild sedation includes lesser central nervous system depression, shortened recovery time and decreased fatal complications on a live foal (Gandini et al., 2013).

Conclusion

In conclusion, bilateral hip flexion in equines is always difficult to manage without surgical intervention although the

choice of incision site and sedation anaesthetic remain quite important in mitigating the risk(s) associated with C-section. To the best of our knowledge, this is a rare report of dystocia due to posterior presentation and its management by caesarean section under sedation in a mare.

Author's contributions

All the authors were involved in handling of dystocia and its successful management by caesarean section at the clinics facility.

Conflicts of interest

The authors declare no conflict of interest.

References

Baldwin JL, Cooper WL, Vanderwall DK (1991). Dystocia due to anterior presentation with unilateral or bilateral hip flexion posture (dog sitting presentation) in the mare. Incidence management and outcomes. In: Proceedings of 37th Annual Meeting of American Association of Equine Practitioners. pp. 229-240.

Benson GJ, Thurmon JC (1987). Special anesthetic considerations for caesarean section. In: Short, CE (Ed.), Principles and practice of veterinary anesthesia. (1st Edn.), Baltimore, Williams and Wilkins. pp. 337-348.

Byron CR, Embertson RM, Bernard WV, Hanche SR, Bramlage LR, Hopper SA (2002). Dystocia in a referral hospital setting: Approach and results. *Equine Veterinary Journal*, 35: 82-85.

Clarke KW, Taylor PM, Watkins SB (1986). Detomidine/ketamine anaesthesia in the

horse. *Acta Veterinaria Scandinavica Supplement*, 82: 167-179.

Donaldson L (2006). Anesthesia and pregnancy. In: Doherty, T and Valverde, A (Eds.), *Manual of equine anesthesia and analgesia*. (1st Edn.), Oxford, Blackwell Publishing Ltd. pp. 244-252.

Embertson RM (2002). Indications and surgical techniques for caesarian in the mare. *Equine Veterinary Education*, 5: 60-64.

Frazer GS (2001). Obstetrics. In: Recent advances in equine reproduction. Ed. Ball B.A. International Veterinary Information Service A, 0208-0501.

Freeman DE, Hungerford LL, Schaeffer D, Lock TF, Sertich PL, Baker GJ, Vaala WE, Johnston JK (1999). Caesarean section and other methods for assisted delivery: comparison of effects on mare mortality and complications. *Equine Veterinary Journal*, 31: 203-207.

Gandini M, Iotti B, Nervo T (2013). Field caesarean section in seven miniature horses and ponies. *Reproduction in Domestic Animals*, 48: 49-51.

Ginther O, Williams D, Curran S (1994). Equine foetal kinetics: Entry and retention of foetal hindlimbs in a uterine horn. *Theriogenology*, 41: 795-807.

Johnston GM (1992). Perioperative care of mares subjected to caesarean section. Part 1: Anaesthesia. *Equine Veterinary Education*, 4: 26-30.

Johnston GM, Eastment JK, Wood JLN, Taylor PM (2002). The confidential enquiry into perioperative equine

- fatalities (CEPEF): mortality results of phases 1 and 2. *Veterinary Anaesthesia and Analgesics*, 29: 159-170.
- Labelle AL, Clark-Price SC (2013). Anesthesia for ophthalmic procedures in the standing horse. *Veterinary Clinics of North America Equine Practice*, 29: 179-191.
- Marcenac N (1950). Laparotomy in equidae. *Revue Medecine Veterinaire*, 126: 129-150.
- Mee AM, Cripps PJ, Jones RS (1998). A retrospective study of mortality associated with general anaesthesia in horses: emergency procedures. *Veterinary Record*, 142: 307-309.
- Newkombe JR, Kelly GMM (2014). Five cases of consecutive posterior (caudal) presentation of the fetus in two mares. *Veterinary Record*, 175: 120.
- Newman KD (2008). Bovine caesarean section in the field. *Vet Clinics of North America Food Animal Practice*, 24: 273-293.
- Ninu AR, Saxena AC, Sivanarayanan TB, Remya V, Binsila BK, Maiti SK, Zama MMS (2015). Caesarean in mare by Marcenac incision under local anaesthesia. *Iranian Journal of Veterinary Research*, 16(1): 117-119.
- Purohit GN (2011). Intra-partum conditions and their management in mare. *Journal of Livestock Science*, 2: 20-37.
- Shinde G, Sharma N, Jadhav B, Jaisal P. (2012). Caesarean section under local anaesthesia: back to basics. *Tropical Doctor*, 42: 38-40.
- Threlfall WR (2007). Parturition and dystocia. In: Youngquist, RS and Threlfall, WR (Eds.), *Current therapy in large animal theriogenology*. (2nd Edn.), Saunders, Missouri. pp. 118-130.