



DYSTOCIA DUE TO CONGENITAL FETAL ANOMALIES IN MURRAH BUFFALO – A STUDY OF TWO CASES

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In bovines, dystocia incidence is quite high than other farm animal species (Dutt *et al.*, 2021). Fetal anomalies and monstrosities of various kinds cause dystocia in cattle (Mir *et al.*, 2015) and buffaloes (Shukla *et al.*, 2007). The congenital abnormalities of foetus with structure and function may occur at birth and are relatively less frequent in bovines (Rahman *et al.*, 2006). The incidence of congenital defects in calves ranges from 2 to 3.5%, of which 24% cases are musculo-skeletal defects (Aiello, 2000). Congenital skeletal deformities, also called dysostoses, are the defects arising from the errors during development and are characterized by abnormal growth of individual bones or part of bones. The organogenesis is the period of gestation highly susceptibility to various kinds of teratogens. The present report presents two cases of dystocia due to congenital fetal anomalies in Murrah buffaloes.

Case 1: A 6-year-old Murrah buffalo in 2nd parity at full term was brought to the Veterinary Clinical Complex (VCC), LLRUVAS, Hisar, India with the history of dystocia for last 4 h. Both water bags had ruptured. The case was referred by a local practitioner by misdiagnosing the case as dystocia due to *Schistosoma reflexus* fetal monstrosity as loop of fetal intestines were hanging out of the vulvar lips of dam. Clinical observations of animal revealed normal temperature (38.9°C) and normal heart rate (82 bpm). Following proper lubrication with liquid paraffin after epidural anesthesia with 5 mL of 2% lignocaine hydrochloride, per-vaginal examination was performed which showed fully dilated cervix, adequate fetal fluid, dead fetus in posterior longitudinal presentation with dorso-sacral position and bilateral hip flexion (breech presentation). It posed as an occlusion in the passage which caused dystocia. Besides, there was evisceration of abdominal organs through an unusual opening indicative of incomplete closure of ventral abdominal wall around the umbilicus region.

Case 2: A 5-year aged Murrah buffalo in 1st parity at full term was brought to the VCC, LLRUVAS, Hisar with the history of dystocia for last 7 h. Clinical observations of animal showed normal temperature (38.5°C) and normal heart rate (84 bpm). Both water bags had ruptured. The case was handled previously by a local practitioner with failure to deliver fetus. After proper lubrication with liquid paraffin, per-vaginal examination revealed narrow birth canal with inadequate fetal fluid, dead fetus in anterior longitudinal presentation and in lumbo-sacral position. Both the fetal forelimbs were in the passage projecting towards vulva and fetal jaws were mutilated. Further detailed per-vaginal examination revealed abnormally large sized fetus in anterior longitudinal presentation with excessive muscular development of shoulder and anterior thoracic region. As the case was already manipulated at field level, hence it was decided to carry out the caesarean section to deliver the fetus.

In case 1 the fetus was repelled by applying pressure on its sacral region. The hind limbs appeared to be deformed. One of the fetal hindlimb was located and the limb was drawn backwards and upwards in the arc of a circle into the pelvis. Pressure was exerted in upward direction on the hock while cupping the hoof with hand, thus flexed limb was extended and brought into the pelvis. The second leg was dealt in a similar manner. An obstetrical chain was applied around the hindlimbs above the fetlock joint and traction applied on both the hind limbs in upward direction while fetus entered pelvis and then in downward direction and a dead male fetus with evisceration of abdominal organs through an unusual opening indicative of incomplete closure of ventral abdominal wall around the umbilicus



Fig. 1: Anomalous fetus delivered per-vaginally

Animal Health), inj. flunixin meglumine 20 mL i/m (Megludyne®, Virbac Animal Health India) and inj. vitamin B complex 10 mL i/m (Tribivet, Intas Pharmaceuticals). Antibiotic, vitamin-B complex and NSAID were advised for 5 days. The animal recovered without any post-partum complication.

In case 2, caesarean section was performed by casting the animal into right lateral recumbency and paramedian site just parallel to milk vein (four fingers above milk vein and just cranial to udder) under local infiltration with 2% lignocaine hydrochloride. Uterus was exteriorized and a dead fetus with mutilated jaws was delivered by obstetrical maneuvers after incising the uterus. Uterus was washed with normal saline and incision closed in routine manner. Muscle layers and skin were sutured in routine manner with chromic catgut (No. 3) and silk (No. 3). Gross examination showed an anomalous male fetus with excess of skeletal musculature in shoulder and anterior thoracic region (Fig. 2) which was the prime hindrance during normal parturition. This musculature was without fatty tissue and confirmed to be bilateral muscular hypertrophy. The rest fetal parts were apparently normal.



Fig. 2: Anomalous fetus delivered by caesarean section

B complex and NSAID were advised for 7 days and alternate day dressing of suture site. Sutures were removed on day 14 post-caesarean section. An uneventful recovery was recorded.

Bilateral hip flexion in caudal presentation is known as breech presentation which is diagnosed by the presence of tail and buttocks in pelvic cavity (Wehrend *et al.*, 2002). It is one of the most difficult postures to manage, especially when the fetus is dead. Arthrogryposis is one of the common fetal malformations characterized by contortion and rigidity of joints. The fixation of joints may be due to the lack of extensibility of muscles, ligaments or atrophy resulting from neuropathy (Tyagi and Singh, 1996). Arthrogryposis with associated malformations may be hereditary or as a result of phenocopy of a mutant gene effect produced by unknown factors and homozygosity of a single recessive gene (Nawrot *et al.*, 1980). Prenatal infections with Akabane virus and Bluetongue virus may be the other cause of arthrogryposis (Van Huffel and De Moore, 1987). The defects may be related to alkaloidal toxin-induced inhibition of fetal movement during critical gestational periods (Aiello and Moses, 2012). However, the possible cause in present case of dystocia could not be ascertained. The higher incidence of fetal mortality in caudal presentations is presumably due to asphyxiation of fetus

region was delivered (Fig. 1). Examination of fetus revealed contractures and ankylosis of all the joints with variable degree of flexion and extension, so termed as arthrogryposis. The fetal membranes were shed off spontaneously soon after the fetal delivery.

The animal was treated with inj. oxytocin 10 mL (Evatocin®, Neon Laboratories) in 1 L normal saline i/v; inj. calcium-magnesium-boro-gluconate 450 mL i/v (Mifex®, Novartis India), inj. Ceftriaxone 4 g i/m (Intacef, Intas Pharmaceuticals), inj. chlorpheniramine maleate 10 mL i/m (Avil®, MSD

Animal Health), inj. flunixin meglumine 20 mL i/m (Megludyne®, Virbac Animal Health India) and inj. vitamin B complex 10 mL i/m (Tribivet, Intas Pharmaceuticals). Antibiotic, vitamin-B complex and NSAID were advised for 5 days. The animal recovered without any post-partum complication.

The animal was treated with inj. oxytocin 10 mL (Evatocin®, Neon laboratories) in 1 L normal saline i/v; inj. dextrose normal saline 1 L i/v (dextrose 5%; Fresenius Kabi), inj. calcium-magnesium-boro-gluconate 450 mL i/v (Mifex®, Novartis India), inj. cefoperazone plus sulbactam 4.5 g i/m (Pathocef, Zydus Animal Health), inj. chlorpheniramine maleate 10 mL i/m (Avil®, MSD Animal Health), inj. flunixin meglumine 20 mL i/m (Megludyne®, Virbac Animal Health India), inj. metronidazole 1000 mL i/v (Metrogyl®, JB Chemicals) and inj. vitamin. B complex 10 mL i/m (Tribivet, Intas Pharmaceuticals). Antibiotic, vitamin

subsequent to rupture or compression of the umbilical cord. If repulsion of fetus followed by correction on posture fails to deliver the fetus, bisection of pelvis or in difficult cases caesarean section may be performed (Purohit *et al.*, 2012).

Muscular hypertrophy or double muscling is characterized by reduced fat deposit, light bone, thin skin and large muscles and is seen in many breeds of cattle including Herefords, Holstein, Angus and Charolais (Roberts, 1971). The probable cause for muscular hypertrophy is deletion mutation in the myostatin or growth and differentiation factor 8 (GDF8) gene leading to failure of muscle fibres deposition regulatory mechanism (Bellinge *et al.*, 2005). Double muscling/muscular hypertrophy can be successfully treated with fetotomy and mutation techniques (Dutt *et al.*, 2018). But, simply applying traction without proper examination of fetal morphology may cause severe damage to the adjoining genitalia, nerve paralysis, bruises, contusions, aberrations, lacerations, hemorrhages or sometimes death of the animal (Singh *et al.*, 2019). The present case with bilateral muscular hypertrophy of fetal shoulder and anterior thorax was manipulated at level and in manipulated or delayed cases of dystocia due to muscular hypertrophy, caesarean section is a viable option.

Conclusively, we extracted fetus affected with arthrogryposis per-vaginally following obstetrical maneuvers and fetus with bilateral muscular hypertrophy of shoulder and anterior thoracic region in two buffaloes suffering from fetal dystocia. Therefore, timely and excusably decision for line of treatment decides the prognosis of the case.

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