Explor Anim Med Res,
Vol. 8, Issue - 1, 2018, p. 118-119

ISSN 2277- 470X (Print), ISSN 2319-247X (Online)
Website: www.animalmedicalresearch.org

Short Communication

DYSTOCIA DUE TO FOETAL MUSCULAR HYPERTROPHY AND ITS SUCCESSFUL MANAGEMENT THROUGH FETOTOMY IN A RIVERINE BUFFALO (*BUBALUS BUBALIS*)

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Received 04 January 2018, revised 02 May 2018

ABSTRACT: A case of dystocia in riverine she buffalo was brought to Veterinary clinical complex. Dystocia was successfully relieved by fetotomy and mutation and the cause was diagnosed as muscular hypertrophy of fetal neck and shoulder region which is a rare condition.

Key words: Dystocia, Fetotomy, Muscular hypertrophy, Riverine buffalo.

Muscular hypertrophy or double muscling is well established inherited (recessive lethal) meat trait in European beef cattle. The condition is characterized by hypertrophy of muscles, most prominently in the regions of proximal sites of fore and hind quarters (Menissier 1982) and dystocia results from feto-maternal disproportion at calving due to increase in the width of the calf by the hypertrophy of the muscles. Double muscling has no association with duplication of muscles, rather an increase in the number of muscle fibres (hyperplasia), and fibre enlargement (hypertrophy) (Swatland and Kieffer 1974). Rarely the congenital hypertrophy of muscles of different parts of body viz. chest and neck was seen in cattle and buffalo that possess an important cause of fetal dystocia. The rate of congenital musculoskeletal anomalies of thorax and neck was reported as 1.48 per 10,000 births in cattle (Doyle *et al*. 1990).

Case history and observations

A pluriparous water buffalo (OPD No-E-11-529, dated 29.11.2017) was brought to the Veterinary Clinical Complex, LUVAS (Hisar, India) with the history of complete gestation and dystocia. A local veterinarian attended the case and applied traction but failed to deliver the fetus. Both the water bags had ruptured 4 hours back as per history. Clinical observations of the animal showed normal temperature (102.2º F) and normal heart rate (82 bpm). Per-vaginal examination revealed fully dilated cervix, scanty fetal fluid and abnormally large sized dead fetus in anterior longitudinal presentation with excessive muscular development of shoulder and neck region. As the case was fresh and less manipulative procedures were carried out at field level, hence it was decided to carry out fetotomy to deliver the fetus per-vaginum.

Treatment and discussion

Before commencement of fetotomy, 6 ml of 2% lignocaine hydrochloride was injected in epidural space between sacrum and first coccygeal vertebrae to reduce straining. The vaginal passage was well lubricated with liquid paraffin and traction was applied to both the forelimbs and head with obstetrical chain and long handled eye hook, respectively. Then decapitation of head followed by amputation of one of the fore limb was carried out by wire saw. Fetal neck and shoulder muscles were incised using surgical blade introduced cautiously and muscle masses were removed manually to reduce the fetal size which was followed by fetal evisceration. After that, the fetus was corrected in to posterior presentation and traction applied to both hind limbs with obstetrical chains and the fetus was delivered. Post obstetrically the animal was administered with inj. Dexamethasone (40mg IM @ 0.1 mg/kg body weight), inj. Ceftiofur sodium plus sulbactum (1.125g IM, @ 2.2mg/kg body weight), inj. Flunixin Meglumine (500mg IM, @ 1.1mg/kg body wt), inj. Pheneramine Maleate (20ml IM @ 0.5-1.0mg/kg body weight), inj. Calcium-Magnesium-Borogluconate (450 ml

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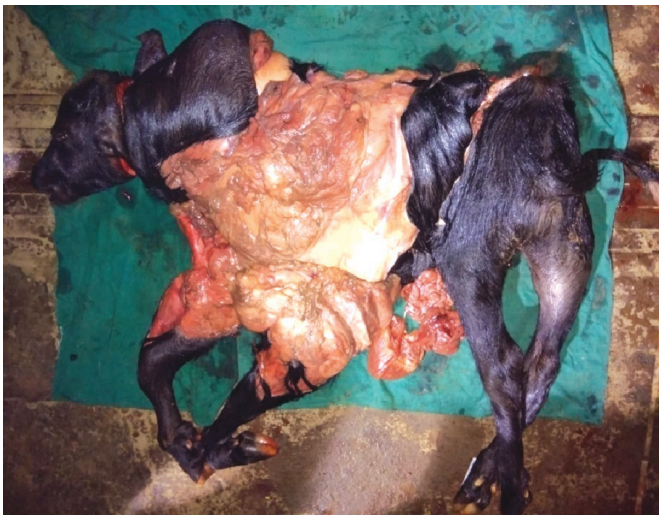

Fig. 1. Fetus with muscular hypertrophy of neck and shoulder muscles delivered by fetotomy.

slow IV @ 1.0 ml/kg body weight), inj. Oxytocin (50 I.U. IV), Metronidazole (600 ml IV, @ 10 mg /kg body weight), Bolus Cleanex (4 boli intrauterine) and inj. Intalyte (2 lit. IV). Except Pheneramine Maleate (20 ml IM) and inj. Calcium-Magnesium-Borogluconate, rest of the treatment was advised for 5 days. After the said treatment and proper feeding and management, the animal recovered successfully.

Gross examination of fetal monster revealed a male fetus with abnormal size due to excess of skeletal musculature in neck and shoulder regions (Fig. 1) which was the prime hindrance during parturition. The neck was shorter and thicker but remainder of the fetus was somewhat normal in appearance. Dystocia due to muscular hypertrophy has already been reported in buffaloes (Kumar *et al.* 2012, Singh *et al.* 2017) which were quite similar to the present case. Most noticeable feature in double muscling is rounded outline of the hindquarters with a shortened and thickened neck (Leipold 1983). In the reported case there was presence of roundness of forequarters and a short and thickened neck. 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). A quite similar condition *i.e.* pseudohypertrophy has also been reported in buffalo (Ghuman *et al.* 2012, Prabaharan *et al.* 2013) which is characterized by the enlargement of atrophic muscle due to replacement of muscle by fat and fibrous tissue (Valentine and Mc Gavin 2007). But, these were not seen in the current case as evident by absence of fatty tissue in enlarged muscle masses. Pseudohypertrophy is different from muscular hypertrophy or double muscling in a way that the former is characterized by atrophic muscles while in later there is absolute hyperplasia and hypertrophy of affected muscles. Fetotomy or caesarean section is opted depending upon case history and condition of the dam. Therefore, fetotomy was done in reported case of dystocia due to muscular hypertrophy which is better suited in the timely referred and less manipulated cases than caesarean section.

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***Cite this article as:** Dutt R, Dalal J, Yadav V, Gahalot SC, Patil SS, Singh G, Dhaka AP (2018) Dystocia due to foetal muscular hypertrophy and its successful management through fetotomy in a Riverine buffalo (*Bubalus bubalis*). Explor Anim Med Res 8(1): 118-119.