Clinical Article

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DYSTOCIA DUE TO UNILATERAL MUSCULAR HYPERTROPHY OF FETAL SHOULDER AND FORE LIMB IN A MURRAH BUFFALO

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SUMMARY

A case of dystocia due unilateral muscular hypertrophy (double muscling) in pluriparous Murrah buffalo was reported with successful management by fetotomy with uneventful recovery of dam.

Key words: Ascites, Double muscling, Dystocia, Fetotomy, Muscular hypertrophy

Muscular hypertrophy or double muscling is an inherited (recessive lethal) anomaly, characterized by hypertrophy of muscles, most prominently in the regions of the proximal fore and hind quarters with intermuscular boundaries and grooves clearly visible beneath the skin (Menissier, 1982). Myostatin or growth and differentiation factor 8 (GDF8) is a negative regulator of muscle mass and mutation of gene render this phenotype (Grobet *et al.,* 1997). The gestation period of double muscling calves is longer, resulting in offspring with higher birth weight than normal calves (Hanset, 1991) and when hypertrophy is substantial in fetus, it will be the prime cause for severe dystocia, especially in primiparous animals with high mortality rate.

In India few reports of present condition have been made in Murrah and upgraded buffalos (Prabhakar *et al.*, 1995; Singh *et al.,* 2017; Dutt *et al.,* 2018). The present report puts on a record a case of dystocia due to unilateral muscular hypertrophy of shoulder in buffalo.

A case of 10 year old pleuriparous Murrah buffalo was referred to Teaching Veterinary Complex with the history of full term gestation associated with dystocia. The anamnesis revealed ruptured water bag 18 hours before presenting to the clinics. The general condition of animal was good however animal had no signs of straining due to exhaustion. Per vaginal examination revealed that both the fore limbs and head were lying in birth canal and one limb was significantly swollen. On the basis of history and gynaeco-clinical examination the condition was diagnosed to be a case of dystocia due to unilateral muscular hypertrophy. Animal was restrained in right lateral recumbency following epidural anaesthesia (2% lignocaine HCl; 7 ml). Traction over both fore limbs was futile then it was decided to amputate the swollen leg. Normal fore limb was repelled back into abdomen cavity other swollen limb amputated by Thygenson's double barrel fetotome from the upper border of scapula then other fore limb was corrected and traction was applied on extended fore limb and head a dead male calf fetus was delivered.

Gross examination of male monster revealed that fetus was normal but there was marked hypertrophy of shoulder upto knee joint (Fig. 1) and also there was mild degree of ascites (Fig. 2). Gross examination of male

Fig. 1: Unilateral muscular hypertrophy

Fig. 2: Fetal ascites

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monster revealed abnormal contour due to excess of skeletal musculature in the shoulder and chest region which was the prime obstacle to progress in per-vaginal delivery.

Dam recovered uneventfully with therapeutic treatment which included administration of Inj. Ceftriaxone (3gm for 3 days, I/M, Inj. Meloxicam (75 mg for 3 days I/M, Inj. Oxytocin (25 IU I/M), bolus Steclin (3gm for 3 days, I/U, Sarabhi Zydus Pharma).

Dissection of hard swelling over the shoulder revealed excess musculature and fat deposition between muscle bundles and below the skin. All limbs and hind quarter were apparently normal. It had been established that myostatin or growth and differentiation factor 8 (GDF8) is negative regulator of muscle mass. Mutation of gene (11 bp deletion mutation in the myostatin gene), fails to regulate muscle fibre deposition (Bellinge *et al.,* 2005) hence, rendering this phenotype. Despite of naming, the double muscling it has no association with a duplication of muscle, but rather an increase in the number of muscle fibres (hyperplasia), and fibre enlargement (hypertrophy) (Swatland and Kieffer, 1974).

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