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CASE REPORT

Surgical Management of Dystocia due to Foetal Arthrogryposis in a Graded Murrah Buffalo

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ABSTRACT

A full term graded Murrah buffalo was presented with dystocia. Per vaginal examination confirmed dystocia due to foetal abnormality and performed caesarean section through left paramedian celiotomy. Male calf with arthrogryposis and ankylosis of hind limb joints was retrieved. With good post operative care both the dam and calf recovered uneventfully.

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INTRODUCTION

Congenital abnormalities of foetus with structure and function are present at birth is relatively frequent in cattle (Rahman *et al.,* 2006). Anomalies occuring due to congenital defects often lead to dystocia. The incidence of congenital defects in calves ranges from 2-3.5% (Aiello, 2000) of which, musculoskeletal defects account for 24% (Leipold *et al.,* 1983). These defects can occur from defective genes or from genetic insult or agent that is associated with the foetal environment or from their interaction (Leipold *et al.,* 1983). Arthrogryposis multiplex or curly calf syndrome is one such musculo skeletal genetic defect resulting due to autosomal recessive gene characterised by severe contraction of limb joints (Whitlock *et al.*, 2008). The musculoskeletal defects of the foetus like rigid and fixed limbs in abnormal posture often lead to dystocia (Aiello, 2000). Here we report a case of arthrogryposis in a calf which led to dystocia and its successful surgical management in a she – buffalo.

Case history and observations

A full term Graded Murrah buffalo of 3rd parity weighing around 350 kg was brought to the Department of Surgery and Radiology with history of inability to deliver calf since last 2 hours. 1st water bag ruptured 1 hour back and no signs of calf delivery were seen.

Per vaginal examination revealed calf in posterior presentation and limbs were not straight and struck in birth canal causing dystocia. Clinically the dam was active, with strong labour pains, and all other physiological parameters were within normal range. As the manual methods failed and further traction may harm both dam and calf, emergency caesarean operation was conducted.

Treatment

The animal was infused 2 litres Ringers' Lactate, 15 ml tolfenamic acid, 15 ml B- complex and restrained in right lateral recumbancy. The left para median site was prepared for surgery. Xylazine hydrochloride at the rate of 0.01 mg/kg BW was used for sedation and local anaesthesia was achieved by 2% lignocaine hydrochloride.

With a routine caesarean operation procedure, calf was retrieved. Uterus was cleaned, placed 6 furazolidone and metronidazole boli inside, and sutured in double inversion manner with chromic catgut no.2. Metronidazole and Oxytetracyclin liquid poured in peritoneal cavity. Abdomen was closed with chromic catgut no.2 in lockstitch pattern superimposed by simple interrupted sutures. Sub cutis and skin closed routinely. Post operatively 4lt. DNS, 3g Intacef, 15 ml Chlorphaneramine maleate and 50 IU of oxytocin were administered. This treatment was repeated for 5 days along with regular wound dressing.

Fig. 1: Photograph showing calf with arthrogryposis and crooked legs.

The calf was healthy and smaller in size; fore limbs were normal in conformation, contour and alignment. But, hind limbs were twisted with short pelvis and ankylosed joints and confirmed as arthrogryposis (Figure 1). It was a live male calf and could not stand on its own as the hind legs were crooked. Both the limbs were stiff, with ankylosed joints. Ankylosis was mainly observed near the hock joint of both hind limbs which led to inward turning of bones below this level. Its umbilical cord was ligated and excised. Both dam and calf recovered well and calf was sold at 1 year age.

DISCUSSION

Arthrogryposis is a genetic deformity due to autosomal recessive gene with complete penetrance in the homozygous state showing signs of ankylosis of joints, frequently associated with cleft palate, kyphosis and scoliosis (Nawrot *et al.,* 1980). Other etiological factors include nutritional deficiencies, plant toxins *Lupine, Veratrum, Astragalus, Nicotiana, sp.*(at 40-70 days of gestation), chemicals, drugs, etc (Rousseaux and Ribble, 1988). Dystocia is defined as difficult parturition. General causes are foetal-maternal size mismatch, foetal mal presentation, and maternal related causes. Caesarean operation was the only option when delivery of calf was impossible by foetal mutation and extraction (Schulz *et al.,* 2008). Because of the dystocia due to foetal abnormality caesarean operation was opted here.

Left paramedian celiotomy was followed owing to the effective secure and holding properties of linea alba and single layered abdominal wound closure was possible. The uterus was closed in double inversion pattern with no.2 chromic catgut as indicated by Schulz *et al.,* (2008). Oxytetracyclin liquid and Metronidazole were used as anti adhesive and anti bacterials, but, Moll *et al.,* (1992) used 1% solution of Carboxymethyl cellulose as an anti adhesive in abdomen. The hind limbs of the calf retrieved were ankylosed in contrary to this; Abbot *et al.,* (1986) reported that in arthrogryposis forelimbs were most commonly affected. Calves born with Arthrogryposis were dead or die shortly after birth (Whitlock *et al.,* 2008) and some mildly affected animals recover completely (Aiello, 2000) as was in our case that the calf recovered well, which can be attributed to only sign of limb flexion, absence of associated signs like scoliosis, etc. and untiring efforts of the owner.

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