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Crooked calf condition associated with dystocia in a sahiwal cattle

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Abstract

A sahiwal cattle developed dystocia upon completion of gestation period. Per-vaginal examination revealed fetus lying in posterior presentation with both hind limbs and one fore limb in the birth canal. Critical examination was suggestive of multiple contractures of limbs, torticollis as well as dorsal curvature of the spine (Kyphosis). Fetotomy was performed which led to the delivery of a crooked calf.

Keywords: *Arthrogryposis*, crooked calf, dystocia, fetotomy, kyphosis

1. Introduction

Fetal anomalies and monstrosities of various forms are a common cause of dystocia in cattle [1, 2]. Crooked calf is a peculiar fetal monstrosity in which there is a pattern of congenital anomalies that are characterized by the presence of *Arthrogryposis* (flexure of a joint) of the forelimbs typically involving both the elbow and the carpal joints, and by the variable presence of torticollis (wryneck, twisting of the neck), scoliosis (lateral curvature of the spinal column), kyphosis (humpback, dorsal curvature of the spinal column), and cleft palate [3]. Eventually, *Arthrogryposis* is a relatively rare congenital musculoskeletal abnormality that is seen in all breeds of cattle, with higher incidence in Angus and Charolais breeds [4] and is caused by an autosomal recessive gene with complete penetrance in the homozygous state [5] or by viruses [6]. Moreover, fetotomy provides a good and feasible alternative over caesarean section to relieve dystocia caused by such fetal monstrosities [7]. The present case report records similar findings in which crooked calf condition viz. *Arthrogryposis*, torticollis and kyphosis was observed associated with dystocia in a sahiwal cattle which was successfully treated by fetotomy.

2. Case History and Observations

A sahiwal cattle in 2nd parity was presented to University Veterinary Hospital with chief complaint of dystocia at full term of gestation. Owner reported that water bags ruptured around four hours ago and the animal was straining since then with unsuccessful delivery attempts. Limbs of fetus were noticeable coming out through vulva without any further progression in the parturition process. Traction attempts at presenting limbs of the fetus were tried in the field by local veterinarian which proved futile. After recording physical parameters and initial stabilization of the animal, status was assessed per-vaginally which revealed fetus lying in posterior presentation with both hind limbs and one fore limb in the birth canal. Deeper exploration and critical examination was suggestive of multiple contractures of all the limbs, torticollis as well as dorsal curvature of spine. Taking all these findings into consideration, it was decided to perform fetotomy to relieve dystocia caused by crooked calf.

3. Treatment

In general, line of treatment adopted to deliver fetal monsters is the cesarean section but the post-cesarean complications viz. low survival of the dam, development of uterine adhesions, peritonitis and low subsequent fertility are the negative impacts of the surgery in bovine [8]. To save the life and preserve the future production potential of the animal, the decision to perform fetotomy under epidural anaesthesia (7 ml, 2% Lignocaine hydrochloride at sacro-coccygeal junction) following lubrication with 1% carboxy methyl cellulose sodium solution was taken. Fetotome was introduced into the uterus and multiple cuts were given first at the presenting

ankylosed limbs followed by amputation of fetus at lumbosacral region of the fetus. Last cut was given at the level of neck to amputate the head. Fetotomy operation proved fruitful in order to reduce size of the calf and the whole of the fetus was taken out in the form of multiple amputated pieces. Post-delivery analysis of the fetus was indicative of multiple contractures of all the limbs, extreme lateral twisting of the neck and dorsal curvature of the spinal column. All these were typical kind of anomalies in order to categorize fetus as crooked calf. Subsequent treatment consisted of parenteral antibiotics, anti-inflammatory, rumenototics, intravenous fluid therapy for five days and regular calcium supplementation for improving the production potential of the animal. Animal recovered well after treatment as per the periodical follow-ups taken from the owner over the telephone.

4. Discussion

It has been reported that the plant genus *Lupinus*, which contains quinolizidine alkaloid anagryne, when ingested by pregnant cows, can cause *Arthrogryposis* in the calf [9]. Mechanisms of *Arthrogryposis* development in fetuses include a reduction in the number of motor neurons resulting in paresis [10]. Alkaloids present in lupines being acetylcholine receptor agonist, lead to paralysis [11, 12]. This results in a reduced locomotor capacity of the fetus which subsequently causes fibrosis of the joints, thus leading to fixation or *Arthrogryposis* [12]. When *Arthrogryposis* is found associated with either of the other anomalies viz. kyphosis, scoliosis, torticollis or cleft palate, then the condition is called as a crooked calf disease [13]. Other causes of *Arthrogryposis* may include genetics and infections by viruses of the family *Bunyaviridae* [12, 13].

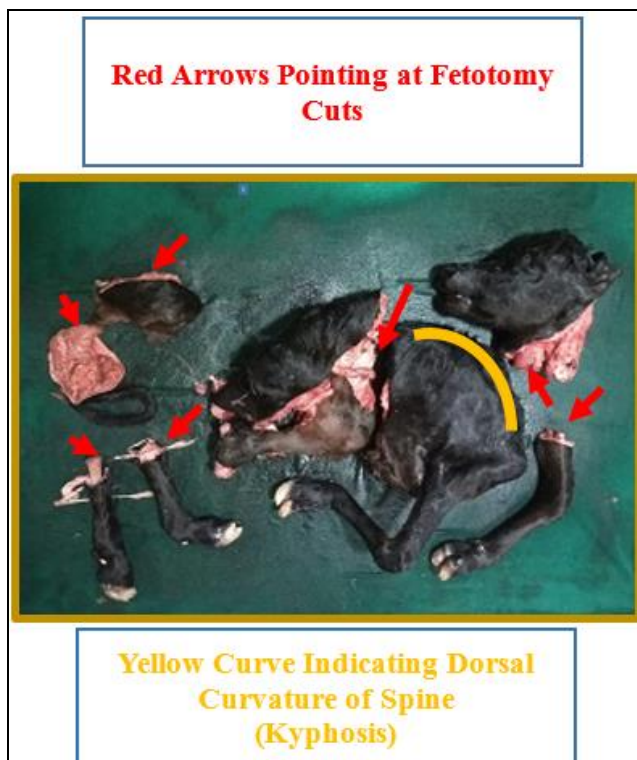


Fig 1: Arrows indicating fetotomy cuts and kyphosis condition of crooked calf.



Fig 2: Arrows indicating torticollis and arthrogryposis condition of crooked calf.

5. Conclusion

The present communication describes dystocia in a sahiwal cattle due to an extremely rare form of fetal monstrosity called as ‘crooked calf condition’ and its successful delivery by fetotomy. It is also evident that fetotomy provides a reasonable advantage over caesarean section to relieve dystocia caused by fetal monsters as the animal recovers well without any complications post fetotomy, thus preserving the future reproductive potential of the animal.

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