Dystocia Due to Dicephalus Monster with Kyphosis and Arthrogryposis in a Cross Bred Cow - a Case Report

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Abstract

A rare case of dystocia due to dicephalus monster with kyphosis and arthrogryphosis was recorded in a 5-year old crossbred cow presented with history of full term pregnancy, signs of labor since about 48 hrs, and unsuccessful pre-handling using unskilled traction. Vaginal examination revealed the presence of a dicephalic monster fetus with one of the heads severely damaged (broken jaw and damaged eye canthi). Caesarean section was performed and a female fetus with two heads, necks fused caudally, arthrogryphosis in all the limbs and kyphosis was removed.

Key words: Arthrogryposis, Cattle, Dicephalus, Dystocia, Kyphosis

Introduction

Fetal anomalies and monstrosities in cattle lead to economic losses as a result of dystocia and greater calf mortality. Congenital duplication is rarely observed, ranging from partial duplication of one part of the body to almost total formation of two fused fetuses. Duplication of the cranial parts is more common than that of the caudal parts (Noakes et al., 2001). Dicephalus is a state of congenital duplication which involves the head with or without the involvement of the neck (Sinowatz, 2010). The condition represents a case of absolute fetal oversize and almost always leads to dystocia due to fetomaternal disproportion. The condition is complicated further, in some cases, by additional anomalies such as arthrogryposis and defects of the spine. Arthrogryposis is a rare congenital musculoskeletal anomaly and is seen in all breeds of cattle, with greater incidence in Angus and Charolais breeds (Goonewardene and Berg, 1976; Windsor et al., 2011). The affected calves exhibit joints fixed in abnormal positions and frequently have scoliosis and kyphosis (Shupe et al., 1967; Keeler, 1974). Arthrogryposis is caused by an autosomal recessive gene with complete penetrance in the homozygous state (Goonewardene and Berg, 1976). Teratogens
identified as causing arthrogryposis include plants such as lupines (anagyrine as the toxic agent) that are ingested by pregnant cows between day 40 and 70 of gestation (Shupe et al., 1967; Keeler, 1983). Prenatal infections with Akabane virus and Bluetongue virus can also cause arthrogryposis (Van Huffel and De Moore, 1987).

The present clinical article describes a rare case of dystocia in a crossbred cow due to dicephalus monster with arthrogryposis and kyphosis.

**Case Presentation**

A 5-year old pluriparous crossbred cow weighing about 300 kg was presented to outpatient department of Veterinary Teaching Hospital, College of Veterinary and Animal Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar with a history of full term pregnancy and signs of labor since about 48 hrs. Initial unskilled intervention using traction was unsuccessful, as reported by the owner, and the case was referred to the Veterinary Clinics of the institute. Transvaginal examination revealed the presence of a dicephalic monster fetus with one of the heads severely damaged (broken jaw and damaged eye canthi) and a rope applied around the neck. Considering the chances of potential injury to the birth canal due to projecting bone ends, mutation was not considered a good corrective approach in this case. Instead, caesarean section was performed after proper anesthesia (linear infiltration with Lox® 2%, Neon Laboratories Ltd, Mumbai, India) and peri-operative fluid therapy (4 litres of Normal saline and 3 litres of Dextrose normal saline IV), antibiotic (4.5 g of ceftriaxone-tazobactan IV; Intacef-Tazo®, Intas Pharmaceuticals Ltd, Ahmedabad, India), anti-inflammatory (75 mg of meloxicam IM; Melonex®, Intas Pharmaceuticals Ltd, Ahmedabad, India), 100 mg chlorpheniramine maleate IM (Anistamin®, Intas Pharmaceuticals Ltd, Ahmedabad, India), calcium magnesium borogluconate infusion (Mifex®, Novartis India Ltd, Gandhinagar, India), and 10 ml multivitamin injection (MVI®) were administered. The fetus removed after hysterotomy was a dead female with two heads (Figure 1), necks fused caudally, arthrogryposis in forelimbs as well as hindlimbs, and kyphosis. One of the heads was severely damaged with broken jaw and eye canthi, most likely sequelae of injudicious unskilled traction. Post-operative antibiotic, anti-inflammatory and fluid therapy was continued for 3 days. Animal showed an eventful recovery and was discharged on the 4th day post operation.

**Discussion**

Fetomaternal disproportion is the commonest cause of dystocia in cattle. The disproportion can be relative fetal oversize (narrow birth canal) or due to absolute fetal oversize (Noakes et al., 2001). The monster fetus reported in this paper had two heads (dicephalus) and represented a case of absolute fetal oversize.
Arthrogryposis and kyphosis can lead to dystocia even in the absence of duplications and possibly served as additional contributing factors in the present case. While handling cases of dystocia, obstetrical aspects of the fetus as well as the birth canal must be taken into account during the decision making process. Injudicious use of traction often leads to lacerations of the birth canal and other complications which can be fatal for the animal. The broken jaw and canthi in the present case suggest that a lot of unskilled traction had been applied on the fetus before veterinary intervention was sought.

References