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Management of Dystocia Caused by *Pygodidymus* Monster in Crossbred Cattle

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A B S T R A C T

A rare case of conjoined twin monster-*Pygodidymus* in a crossbred cattle and its successful management by partial fetotomy is presented in the current report.

Introduction

Fetal monsters arise from adverse factors affecting the fetus in the early stages of its development. These factors are mostly of genetic origin but may also include physical, chemical or viral factors (Roberts, 1971).

A large number and type of monsters have been described in cattle that pose immense problems for the veterinarian as it is often impossible to palpate the whole structure per vaginum. The conjoined twins or double monsters arise from incomplete division of a fertilized ovum (Shukla *et al.,* 2007). Most often conjoined twins with partial duplication of extremities and fusion in the anterior abdomen are encountered in bovine (Kumar *et al.,* 2014). *Pygodidymus* is a rare monster when two calves are joined at the rump and facing in opposite directions. The delivery of such monsters is generally achieved by cesarean section (Saxena and Prakash, 1986) that further reduces the successful recovery of the dam owing to extra-long uterine incision to remove the monster that poses high risk of uterine adhesion formation. But in present report successful delivery of a rare *Pygodidymus* - conjoined twin monster was achieved by partial fetotomy in crossbred cattle.

Case history and clinical observations

A Holstein-Friesian crossbred cow at full term pregnancy was presented to the Teaching

Veterinary Clinical Complex of Guru AngadDev Veterinary and Animal Sciences University, Ludhiana, India for the treatment of dystocia. The animal had calved twice earlier without any obstetrical complication and delivered normal calves. At presentation of the animal to our clinics, duration of dystocia was more than 12 hours, water bags had ruptured about 8 hours before and forced traction was applied for 4 hours at the field level by the local veterinarian in vain.

After complete anamnesis, vaginal and rectal examinations were performed to reveal the nature and cause of dystocia. Two forelimbs and head of the dead calf were presented in the birth canal and the case seemed resembling a hip lock condition. On critical vaginal examination another calf was found in posterior presentation that was attached to the right lateral rump area of the first calf and the case was diagnosed as a conjoined twin monster (*pygodidymus*).

Treatments and Discussion

In general, line of treatment for conjoined twin 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 (Dhindsa *et al.,* 2010). Realizing the production potential of the presented animal we quickly took the decision to perform fetotomy under epidural anaesthesia (7 ml, 2% Lignocaine hydrochloride).

A lubricated loaded fetotome was then inserted deep into the passage and fixed near rump area of the calf beyond the rib cage. A cut was given and first calf with head, forelimbs and thorax was extracted out carefully avoiding injury to the birth canal. The second calf was unable to deliver in posterior presentation due to the attached posterior part of first calf to it, thus, efforts were done to rotate the second calf within the uterus to bring it into anterior presentation following ample lubrication with 1 per cent solution of sodium carboxymethyl cellulose. To our surprise it was rotated well inside the uterus, by repelling the posterior end of the fetus and applying gentle traction to the other end, and we were able to catch hold of and snare up the forelimbs of the calf. An eye hook was applied to the right orbit of the calf, both hooves were cupped in hands to avoid injury to the birth passage and forced traction was applied carefully by pulling the snares tied to both forelimbs along with pressure on eye hook to deliver the calf.

The second calf was extracted out without any injury to birth canal and uterus (Fig. 1), and loose hanging fetal membranes were removed manually, whereas attached membranes were left in situ to shed off later on. On critical examination of fetal gross anatomy, the point of attachment between two male calves was at lateral rump area (sacrum of both calves) that was fused together, however other internal and external organs were in duplication. Following delivery, supportive therapy comprising of 5 litres of normal saline solution (IV), solution of calcium borogluconate together with magnesium and phosphorus 450 ml (slow IV), antibiotics (Ceftiofur 2 mg/kg b. wt., IM) and nonsteroidal anti-inflammatory drugs (Flunixinmegludyne, 2 mg/kg b. wt., IM) was administered and other drugs viz. multivitamins, rumenotorics, ecbolics were prescribed as a routine treatment for one week.

The cow recovered well following the treatment. The owner was advised to supplement calcium and mineral mixture in the feed to maintain adequate production level, and to administer prostaglandin F2αanalogue (Cloprostenol sodium, 500 mcg, IM) 10 days post-delivery to boost uterine involution.

Fig.1 Conjoined twin monster –*pygodidymus* delivered through fetotomy

In cattle, fetus is considered as most common cause of dystocia (Bennett and Gregory, 2001) and developmental anomalies affecting the bovine embryos have been well recorded (Honnappagol *et al.,* 2005). A low incidence (0.5%) of monstrosities has been reported for cow (Purohit *et al.,* 2012). Whitlock *et al.,* (2008) have documented various developmental anomalies in bovine. The development of conjoined twins is one of the congenital abnormalities found in animals (Velhanker *et al.,* 1968 and Chandrahasan *et al.,* 2003). Conjoined twins are always identical twins of the same sex originate due to incomplete division of one fertilized egg (Kumar *et al.,* 2014) at the primitive streak development state (Noden and Delahunta, 1985). These double monsters have considerable significance both from the obstetrical and embryological points of view. The cause of such conjoined twins remains mystery, however, many genetics and environmental factors, viral infection, poisoning of dam or nutritional deficiency viz. vitamin A, folic acid etc. are considered to play role in development of such monsters (Jones and Hunt, 1983). The incidence of conjoined twins with almost complete duplication as observed in the present case is rare in bovine (Singh and Pandey, 2013). It is believed that such twins fail to separate into two fetuses after the 13th day post fertilization (Srivastva *et al.,* 2008). In conclusion, dystocia due to conjoined twin monster-*pygodidymus* may occur in cattle and can successfully be managed by fetotomy instead of cesarean section to improve prognosis of the condition.

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