

A Rare Case of Dicephalus Derodymus Monster in a Primiparous Murrah Buffalo: A Case Report

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Abstract

Current case report describes successful per-vaginal delivery of a dicephalic derodymus monster in a primiparous Murrah buffalo after fetotomy.

Keywords: Derodymus, dicephalic, buffalo, fetotomy, monster

Monstrosities are malformed fetuses, which are rare in buffaloes (Chauhan and Verma, 1995 and Bugalia *et al.* 2001). The incidence of monstrosities reported for cow is 0.5% (Craig, 1930) whereas an incidence of 7.9% to 12.8% has been reported for river buffalo (Singla *et al.* 1992). Duplication of various body parts is an important form of monstrosities in livestock species that poses considerable difficulties at the time of birth. Congenital duplication can be defined as imperfectly separated monozygotic twins with subsequent malformations ranging from partial duplication of one part of the body up to almost total formation of 2 fused fetuses. (Sinowatz, 2010). Incomplete separation of the primitive streak after day 13 of fertilization is considered as an etiological factor for congenital duplication. The inducing factors for this, may be genetic or environmental (McGirr *et al.* 1987). Although varying degrees of fusion may occur but duplication of the cranial portion of the fetus is more common than the caudal portion in ruminants and swine (Arthur *et al.* 1989). This

occurs in about 1 in 1,00,000 in bovine births (Roberts, 2004). Dystocia is common sequelae of fetal monstrosities. Fetotomy offers a good alternative to the caesarean for relieving a fetal monster causing dystocia (Vermunt, 2009).

Case history and clinical examination

A 3.5 years aged primiparous Murrah buffalo was presented to the Veterinary Clinical complex, COVSc, LUVAS, Hisar with a history of dystocia. Owner reported that both the water bags had ruptured 5 hours back. The animal was standing with intense labor pain with futile efforts to deliver the calf. Vaginal examination revealed a fully dilated cervix and presence of dead calf in dorso-sacral position with double heads and the two extended forelimbs lodged in the vagina. Since the vagina was completely relaxed, it was decided to deliver the calf per-vaginally by fetotomy without opting for caesarean.

TREATMENT AND DISCUSSION

After routine aseptic procedure, epidural anesthesia was given with 7 ml of 2% lignocaine hydrochloride to reduce the straining. The vaginal passage was well lubricated and traction was applied to both the forelimbs and one head with obstetrical chain and long handle eye hook respectively and brought it into vagina. Then, both forelimbs were disintegrated at carpal and elbow joint of left and right forelimb respectively. Now one head became approachable to apply fetotome wire around the neck and decapitation was carried out by sawing action of wire saw. After careful repulsion of the disintegrated forelimbs in birth canal, traction was applied on another head with eye hook and fetus was delivered successfully per-vaginally. Following delivery, the buffalo was administered injection streptopenicillin 5g, NSAID, B-complex, Dexamethasone, Ca-Mg Boro-gluconate, Normal saline (3 liters) and Oxytocin (50 I.U). Antibiotic, NSAID, B-Complex and antihistaminic were advised for further 5 days. The buffalo was discharged just after delivery as the animal was alert and normal.

External inspection and necropsy of the fetus revealed a full term female buffalo monster calf with two complete separate heads and necks attached at thorax (Fig. 1).



Fig. 1: Dicephalus Derodymus monster with two head and two necks

Both heads were nearly of the same size. The vertebral column's fusion was starting from thoracic region and ended before starting of lumbar vertebrae (Fig. 2).

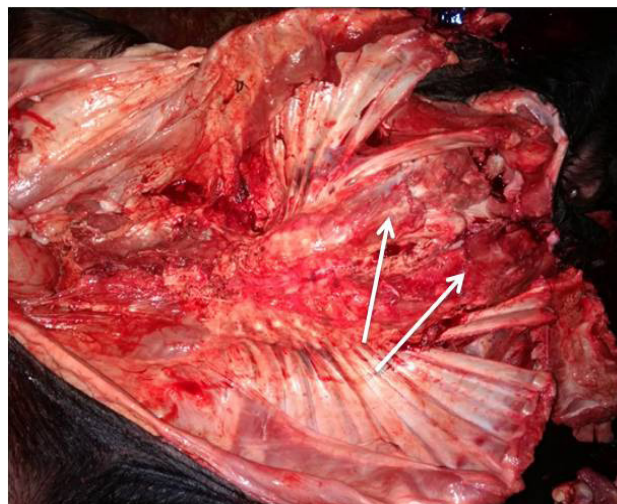


Fig. 2: Two vertebral coloumn fused in thorx

Each head showed 2 eyes, 2 ears, mandible and maxilla. Moreover, there were two larynxes, two tracheas and two esophagi that entered in to single thorax. Examination of the thorax showed one pair of non-inflated small lungs (Fig. 3) and double heart (Fig. 4).

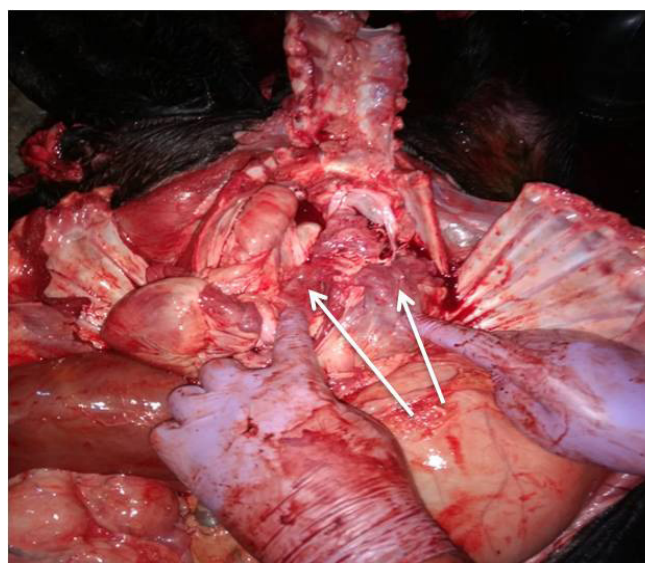


Fig. 3: One pair of non-inflated lungs

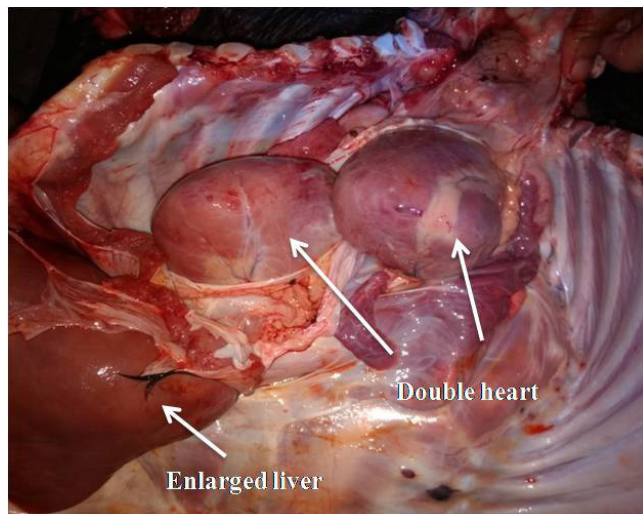


Fig. 4: Double heart and enlarged liver

Abdominal cavity showed double stomach (Fig. 5) and each of them was large sized. Liver was single but showed hepatomegaly condition (Fig. 4). Spleen showed duplication (Fig. 6) in which one was normal and another was hypoplastic. Intestinal tract was single and normal. One pair of normal kidneys were present there.

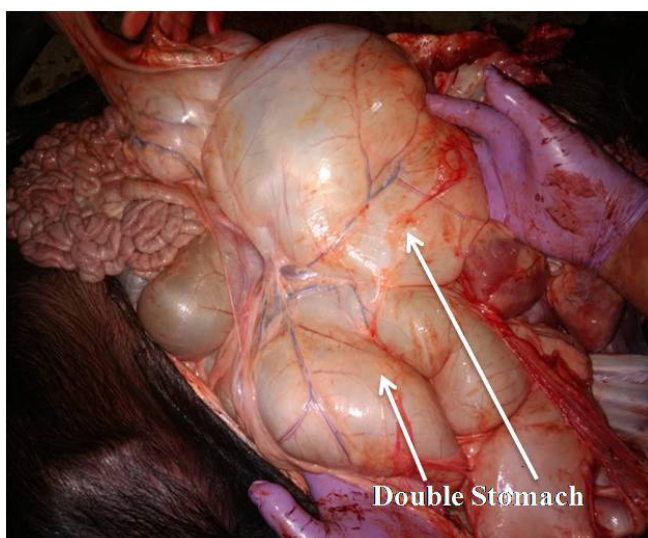


Fig. 5: Enlarged double Stomach

DISCUSSION

Dicephalus is a state of embryonic duplication which involves the head with or without

involvement of the neck (Buck *et al.* 2009). Cranial duplications are found in 75% of all bovine double monsters (Leipold *et al.* 1972), but duplications of the entire head and neck are uncommon. Canon *et al.* (1992) stated that dicephalus fetus could assume the following forms: atlodymus (two complete and separate skulls and one neck), iniodymus (two skulls with fusion at the occipital level) and derodymus (two complete and separate skulls with 2 separate necks). Based on this, the present monster was termed dicephalus derodymus monster calf. In the present case two normal heads were present on two necks which were fused at the shoulder.

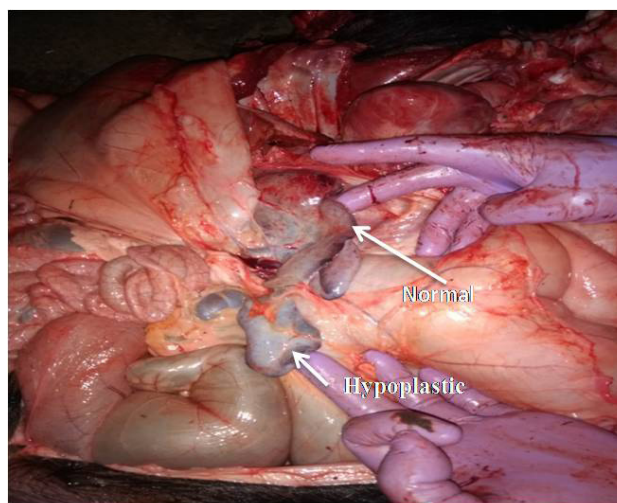


Fig. 6: Dublication of Spleen

Although the ribs were abnormal in shape and number, there was one trunk and four legs. The vertebrae were double and partially fused from the thoracic region to the sacrum, which was singular and normal. Similar findings were reported by McGirr *et al.* (1987) in stillborn calf derived by embryo transfer. Double headed calf represent a case of absolute fetal oversize with subsequent provoke of dystocia in animals. Such condition could be resolved through fetotomy or caesarean section (Long, 2009). Fetotomy offers a good alternative to the caesarean for relieving a fetal monster causing dystocia (Vermunt, 2009). Because the animals undergone to caesarean have been found to have lower survival rate

(45.1%) as compared to those with/without partial fetotomy (Singh *et al.* 2013). Conception rate in dams with caesarean deliveries and mutations with/without partial fetotomy have been found 36 and 23%, respectively (Frazer *et al.* 1997). So it's the foremost requirement to explore the suitable way for detecting fetal monsters at early stage.

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