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Dystocia due to dicephalus thoracophagus tetrabrachius tetrapus dicaudatus monster in a Holstein Friesian cow: A case report

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Abstract
A rare case of dystocia due to Dicephalus thoracophagus tetrabrachius tetrapus dicaudatus monster conjoined twins in a Holstein Friesian cow and its successful delivery by mutation operations followed by partial fetotomy is reported. The cow had an uneventful recovery.

Keywords: Dystocia, conjoined twin, thoracophagus, monster, fetotomy

Introduction
Monsters are the developmental defects causing distortion of the organ and their body systems (Vegad, 2010) [18] with altered appearance (Purohit, 2006) [10]. Congenital defects are usually associated with monsters (Arthur *et al.*, 2001) [1], in which the body structures are partially duplicated due to abnormal duplication of the inner cell mass (Roberts, 1971) [12]. The common sequele of fetal monstrosity is dystocia which makes per vaginal delivery difficult and cannot be removed without caesarean section or fetotomy in most cases (Gupta *et al.*, 2011) [3]. Rare incidences of fetal monsters were reported by Meena Varma *et al.* (2018) [8] in non-descript cattle and Reddy *et al.* (2024) [11] in Murrah buffalo. The present study reports a rare case of conjoined twin monster dicephalus thoracophagus tetrabrachius tetrapus dicaudatus in a Holstein Friesian cow and its successful delivery by partial fetotomy.

Case history and observations
A Primiparous three year old Holstein Friesian cow in its first parity was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with the history of full term pregnant and straining noticed for past 24 hrs. Water bag ruptured a few hours before but unable to deliver the calf. On Clinical examination, the animal was restless, dull with weak and intermittent straining. Detailed obstetrical examination revealed obstructed birth canal with double headed fetus with four fore limbs. Further examination revealed that both the heads fused at the region of thorax and two separate vertebral columns were palpated. The case was tentatively diagnosed as dystocia due to fetal monster. Mutation operations failed and hence decided to perform the partial fetatomy.

Treatment and Discussion
The cow was administered with injection 2% lignocaine hydrochloride epidurally into sacro-coccygeal space to prevent straining. One head was removed by decapitation with Thygeson's fetatome, followed by extraction of the fetus using William's long obstetrical eye hook. The removed fetus was a conjoined twin monster dicephalic (two heads) with the thoracophagus (thorax fused) containing a pair of forelimbs and hindlimbs in each fetus (Fig.1)

Fig 1: Pair of forelimbs and hindlimbs in each fetus

The animal was administered with fluid therapy (i.e). Inj. Normal saline - 2 litres and Dextrose Normal Saline - 2 litres and Inj. Calcium boro-gluconate - 450 ml intravenously. Inj. Enrofloxacin @ 5 mg/ kg, Inj. Flunixin meglumine @ 1.1 mg/ kg and Inj. Chlorpheniramine maleate 15 ml intramuscularly. The owner was advised to follow the fluid therapy along with antibiotic therapy for 3 days and the animal recovered uneventfully. Dystocia due to conjoined twins have been reported in buffaloes (Sharma *et al.*, 2010 and Sachan *et al.*, 2016) [14, 13] and in cows (Singh *et al.*, 2011; Sharma *et al.*, 2013 and Kumar *et al.*, 2014) [17, 15, 6]. The possible causes were prenatal viral infection, ingestion of poisonous plants by dam, vitamin A and folic acid deficiency, genetic factors and/or combination of these predisposing factors (Sharma *et al.*, 2010) [14]. Kumar and Reddy (2008) [5] reported that congenital duplication of germinal layer arising from single embryo could have resulted in monster fetuses. According to Simon *et al.* (2009) [16], the conjoined twins were always genetically identical and shared the same sex. Finberg (2004) [2] reported that the embryonic disk starts to differentiate on the 13th day of conception, if the split occurs after day 13, the twins will share body parts in addition to sharing their chorion and amnion. Conjoined twins showed great variability in site of union and degree of organ-sharing (Hiraga and Dennis, 1993) [4]. The extent of doubling ranged from two faces to almost two complete conjoined individuals and the degree of organ-sharing ranged from single set of viscera to almost complete duplication of internal organs (McGirr *et al.*, 1987) [9]. Roberts (1971) [12] suggested that duplication of fetus was more common in cranial portion, similarly, Leipold *et al.* (1972) [7] reported that the cranial portion of the fetuses were involved in 75% of bovine duplications. Similarly, in the present case study, the duplication of the limbs and visceral organ were seen and the conjoined twins were relieved by mutation operations and partial fetatomy as suggested by (Gupta *et al.*, 2011) [3].

Conclusion

In the present case, a rare case of dystocia due to Dicephalic thoracophagus tetrabrachius tetrapus fetal monstrosity was reported. The fetus was relieved by mutation operations and partial fetotomy and the animal had an uneventful recovery.

Conflict of Interest

Not available

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