

Bicephalic Monster Foetus with Congenital Omphalocele: A Rare Case Report

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Abstract

This is an unusual case of a bicephalic monster fetus with congenital omphalocele identified in a goat during obstetric intervention. The fetus exhibited two heads sharing a single body and a pronounced abdominal defect through which abdominal viscera herniated. This report underscores the significance of documenting such rare congenital conditions to advance veterinary embryology and teratology.

Keywords: Bicephalic monster fetus; Congenital omphalocele; Goat; Conjoined twins; Veterinary teratology.

INTRODUCTION

Congenital anomalies in livestock, though rare, hold substantial implications for reproductive efficiency, animal welfare, and scientific understanding of developmental biology. Among these, bicephalic monsters represent a distinct category of conjoined twins resulting from incomplete embryonic division. This condition involves two heads sharing a single torso, often accompanied by complex anomalies in organ development. High prevalence rates of congenital anomalies in livestock have been documented in various parts of India, often associated with

environmental and genetic factors (Kalita & Kumar, 2019; De Smet & Vandenberghe, 1983).

Omphalocele, defined as the failure of abdominal wall closure resulting in the herniation of abdominal viscera into a membranous sac, compounds the severity of the anomaly. While omphalocele has been extensively studied in human medicine, its occurrence in livestock, especially in conjunction with bicephalic deformities, remains a rare phenomenon with sparse documentation. Such cases provide critical insights into embryological disruptions and their implications on veterinary obstetric practices (Sadler, 2011).

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Case History: A non-descript goat in its second parity was presented to the Veterinary Clinical Complex (VCC) at COVAS, Parbhani, with a history of prolonged straining and failure to progress during kidding. The goat had delivered a live, healthy kid, but dystocia was observed with the second fetus. Upon per-vaginal examination, the second fetus was found to be in a normal anterior presentation, with its limbs extended into the birth canal.

Diagnosis: Upon per-vaginal examination, the fetus was in a normal anterior position, with the forelimbs extended into the birth canal. On palpation of the head, it was found to be larger than usual. The dystocia was attributed to fetal causes, specifically a craniophagus condition (Noakes *et al.*, 2009; Purohit & Gaur, 2014).

Treatment: Upon applying moderate traction, the dystocia was resolved, and the bicephalic monster fetus with congenital omphalocele was delivered. The foetus survived for two days post-delivery but subsequently died. The fetal membranes hanging from the vulva were removed manually, and intrauterine boluses were infused deep into the uterus to prevent infection. The use of intrauterine boluses to prevent infection after delivery is a common strategy in veterinary obstetrics, particularly when fetal abnormalities, such as those seen in this case, are involved (Sadler, 2011; De Smet & Vandenberghe, 1983). The dam was stabilized with fluid therapy, including normal saline (100 ml) with calcium sandoz (10 ml), DNS (250 ml), and RL (250 ml) intravenously. Antibiotics used included enrofloxacin (4 ml intramuscularly), and multivitamin injections (Tribivet) were also administered. Fluid therapy and antibiotic treatment are standard practices for managing post-partum complications and ensuring maternal stability in cases of dystocia and abnormal fetal presentation (Cunningham, 2012; Johnson & Breuer, 2007).

DISCUSSION

Embryological Basis: Conjoined twinning, particularly dicephalic parapagus, arises from incomplete division of the embryonic disc during gastrulation. The presence of two heads reflects duplication of cranial structures, while a single torso indicates failure of caudal separation. The concurrent occurrence of omphalocele likely results from defective lateral body wall closure during organogenesis, exacerbating the severity of the congenital defect.

Etiological Considerations: Potential etiological factors include genetic predispositions, exposure to teratogens such as aflatoxins and pesticides, nutritional deficiencies, and environmental stressors like extreme temperatures or inadequate housing conditions, which are particularly relevant in the Indian livestock industry (Kalita & Kumar, 2019; Sahoo *et al.*, 2021). Although no specific teratogenic exposures were reported in this case, the role of subclinical factors cannot be excluded. Reports suggest an increased likelihood of such anomalies in inbred populations, although this goat's breeding history did not indicate such practices. Indian studies have linked teratogenic conditions in livestock to nutritional and environmental influences (Jadav *et al.*, 2020).

Clinical and Veterinary Implications: The occurrence of such anomalies in livestock is typically incompatible with life. However, these cases provide valuable insights into embryonic development, genetic factors, and potential teratogenic impacts in livestock. Early diagnosis through imaging techniques and effective management of dystocia are critical to ensuring maternal survival.

CONCLUSION

This report highlights a rare case of a bicephalic monster fetus with congenital omphalocele in a goat, emphasizing the importance of recognizing and documenting congenital anomalies to enhance understanding of embryological disruptions. Such cases contribute to the broader knowledge of veterinary teratology and inform reproductive management practices.



Fig. 1: Bicephalic Foetal Monster with omphalocele

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