

Successful Obstetrical Management of Dystocia Due to Schistosomus Reflexus Foetus in a Kankrej Cow – A Case Report

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(Received : February, 2024 41/24 Accepted : March, 2024)

Abstract

Schistosomus reflexus (SR) is a rare and fatal congenital malformation found in bovines, stemming from autosomal recessive disorders. This anomaly primarily manifests in cattle, affecting the foetus's trunk and often leading to dystocia during birth (Roberts, 1971). A review of existing literature shows limited documentation regarding the occurrence of schistosomus reflexus in Kankrej cows. Therefore, this communication presents a case study detailing dystocia resulting from schistosomus reflexus in a pluriparous Kankrej cow.

Key words: *Dystocia, Schistosomus fetus and Kankrej cow*

The term “schistosomus” denotes the exposure of abdominal (typically) and thoracic (occasionally) viscera, while “reflexus” indicates a pronounced angulation of the vertebral column, causing the tail to lie close to the head. Schistosomus reflexus represents an abnormal and rare form of foetal monstrosity in ruminants, characterized by fatal hereditary and developmental defects leading to foetal demise. Foetal monstrosities arise from developmental anomalies affecting the ovum, embryo or foetus, resulting in significant structural distortion (Vegad, 2007), often leading to dystocia in the dam (Varudharajan *et al.*, 2019). SR is commonly

observed in cattle, although goats, sheep and other species may also exhibit this anomaly. The livestock industry and cattle farms occasionally incur economic losses due to SR occurrences, resulting in a reduction of viable offspring, decreased milk production, infertility, prolonged inter-calving intervals and management costs associated with dystocia correction.

The precise etiology of this malformation remains unclear; however, genetic factors (such as recessive genes from either the dam or sire, or both) affecting embryonic development, mutations, chromosomal abnormalities, exogenous elements (including environmental and infectious agents) and teratogenic effects are believed to be predisposing factors (Azawi *et al.*, 2012). This case report focuses on dystocia caused by a schistosomus foetus and its subsequent vaginal delivery in a pluriparous Kankrej cow.

Case History and Observations

A pluriparous, full-term pregnant Kankrej cow was brought to the Madras Veterinary College Teaching Hospital with a history of difficulty in parturition for the past 10 hours. The attending veterinarian noted that the animal appeared dull and depressed, standing with frequent straining. Severe oedema of the vulva was observed. Upon vaginal examination, the cervix was found to be fully dilated, with the vaginal passage appearing dry and oedematous. Protrusion of the foetal abdominal contents through the vulva was evident. Examination of the

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Fig.1. Schistosomus foetus in Kankrej pluriparous cow

foetus revealed the presence of all four limbs in the vaginal passage. The case was diagnosed as a foetal monster due to schistosomus reflexus.

Treatment and Discussion

Liberal application of Carboxymethyl cellulose (CMC) obstetrical gel was used to lubricate the birth passage. Under epidural anaesthesia with 2% Lignocaine hydrochloride, traction was applied to the head and two limbs, while one limb was repulsed inside the uterus to facilitate the delivery of the monster foetus along with the foetal membranes. A male foetus, along with its exposed viscera (Fig. 1) was successfully delivered. Following foetal delivery, the dam received 5mg per kg b.wt of Inj. Enrofloxacin I/M, Inj. Ringers Lactate at 10ml per kg b.wt I/V, Inj. Calcium borogluconate at 350 ml I/V, Inj. Meloxicam at 0.2mg/kg b.wt I/M and Inj. Chlorpheniramine maleate at 15ml I/M. The dam recovered without any complications.

The gross examination of the foetus revealed a marked ventral curvature of the spine, with stretched body and chest walls. Despite reaching full growth, the skin, musculature and peritoneum over the viscera behind the sternum were absent. The diaphragm attachment was incomplete and the lung appeared small while the liver was enlarged. Additionally, the rumen was distended with fluid and both forelimbs and hind limbs were ankylosed. Similar findings were reported by Roberts (1971), Jana and Ghosh (2001) and Honparkhe *et al.*, (2009) in cattle. The precise cause of such dystocia

remains unknown, potentially stemming from teratogenic predisposition. This condition falls within the spectrum of defects involving incomplete closure of the ventral body wall (Sacchan *et al.*, 2013).

The etiology of Schistosoma reflexus is uncertain but may involve genetic factors, infectious agents, environmental factors or a combination of all the factors (Noakes *et al.*, 2002). Genetic aberrations affecting the post-gastrulation embryo, particularly involving the intermediate mesoderm, could be a probable cause. A previous study demonstrated that mutations in murine genes led to severe anomalies in ventral body walls and visceral organs (Laughton *et al.*, 2005). SR has been detected not only in crossbreeding but also in inbreeding programs, where common ancestors were repeatedly associated with SR pedigrees; it was noted that the ancestors shared by affected calves differed from those shared by unaffected ones (Citek *et al.*, 2012). Genetic defects implicated in SR are believed to be recessive traits, assessable through molecular analysis, such as SNP-based genetic mapping (Charlier *et al.*, 2008).

Sires with a history of SR in their progeny are generally not recommended for breeding cows (Sitali *et al.*, 2014). However, dams, in addition to sires, might also contribute to the occurrence of SR in offspring. During artificial insemination (AI), certain recessive factors carried by semen can induce SR in offspring. Given its genetic predisposition, to control the occurrence of such conditions, dams should not

be mated with the same sire again (Sacchan *et al.*, 2013).

The incidence of SR ranges from 0.01% (Sloss and Johnston, 1967) to 1.3% (Knight, 1996) of bovine dystocia cases. Instances displaying both visceral exposure and spinal inversion are deemed true schistosomus reflexus and are most prevalent in bovines (Roberts, 1971). Such occurrences lead to the loss of foetuses, reduced milk production, and economic losses in foetal extraction (Leipold and Dennis, 1986). Literature suggests delivery of Schistosoma reflexus through obstetrical manipulation as well as via caesarean section (Azawi *et al.*, 2012). In the present case, the schistosoma reflexus foetus was delivered vaginally through obstetrical manipulation.

Summary

This study outlines the diagnosis and management of Schistosoma reflexus foetus in a pluriparous Kankrej cow. However, further research should prioritize pedigree and genetic analysis to identify the precise factors responsible for this defect in offspring. Schistosoma reflexus monstrosity is prevalent in both cattle and buffaloes and can be corrected through obstetrical manipulation, foetotomy, or caesarean section.

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