



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(6): 1277-1279

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Received: 03-09-2018

Accepted: 06-10-2018

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## Schistosomus reflexus accompanied by left brachium *Amelia* and contracture of remaining limbs in a crossbred cattle calf

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**Abstract**

*Schistosomus reflexus*, *Amelia* and Contracture of limbs are categorized as fetal monstrosities that are reported in bovine. These monstrosities occur separately in different cases and seldom occur in combination. Most of the times, monstrosities occur in a combination of two defects, but the occurrence of three defects together at the same time is an extremely rare event. The current case report presents similar findings, where a crossbred cattle was presented with dystocia at full term. The intestinal viscera was protruding out through vulva and the animal was continuously straining with unsuccessful delivery attempts. Per vaginal examination suggested fetus lying in transverse presentation having dorsiflexion of spinal cord with abdominal viscera coming out. Fetotomy was performed which led to delivery of *Schistosomus reflexus* fetal monster accompanied by left brachium *Amelia* and contracture of remaining limbs.

**Keywords:** *Amelia*, cattle, contracture, monstrosities, *Schistosomus reflexus*

**1. Introduction**

Dystocia is defined as delayed or difficult calving, sometimes requiring significant human assistance [1]. Dystocia can occur either due to fetal or maternal causes. Studies on cattle indicate that the fetus is the major cause of dystocia [2] and abnormal fetal presentations at birth contribute to 1-5% of total dystocia cases [3]. Out of fetal causes of dystocia, fetal monstrosities are quite common. *Schistosomus reflexus* is a peculiar fetal monster characterized by dorsiflexion of spinal cord with abdominal viscera exposed out which often protrudes through vulva at the time of parturition [4]. Another fetal monstrosity called as *Amelia* is defined as the complete absence of the skeletal parts of a limb and is generally a rare congenital malformation which is thought to be a sporadic anomaly. Also, *Arthrogryposis* (curved joints) is a rare congenital disorder characterized by multiple joint contractures [5]. Most commonly, all these fetal monstrosities occur separately but the present communication reports a rare case of dystocia caused by *Schistosomus reflexus* accompanied by left brachium *Amelia* and contracture of remaining limbs, which was successfully managed through fetotomy.

**2. Case History and Observations**

A pluriparous crossbred Holstein cow was presented at the University Veterinary Hospital with dystocia at full term of gestation. As per the history provided by the animal owner, water bags had ruptured six hours ago and the animal was straining since then with unsuccessful delivery attempts with only abdominal viscera coming out. Physical examination of the animal was carried out and basic parameters were recorded that lied within the normal range. Visibly, intestinal viscera was protruding out through vulva. Following initial stabilization and fluid therapy, per-vaginal examination was performed which revealed the fetus lying in transverse presentation having dorsiflexion of spinal cord and abdominal viscera of fetus coming out through ventral abdomen. On critical examination, it was confirmed that the intestines protruding out through vulva were of fetal origin. Contracted limbs of fetus were also appreciable upon examination. Keeping all these clinical findings in view, it was decided to perform fetotomy which led to the delivery of *Schistosomus reflexus* fetal monster accompanied by left brachium *Amelia* and *Arthrogryposis* of remaining limbs.

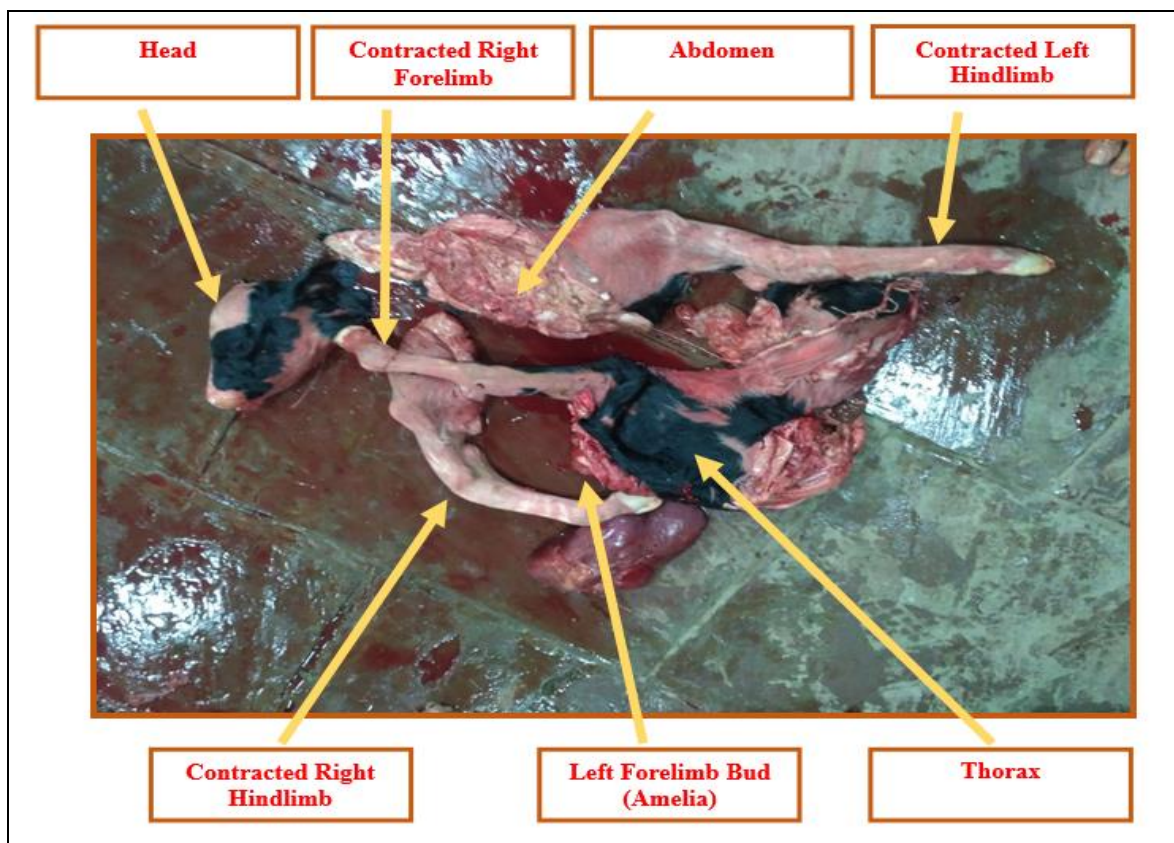
### 3. Treatment

In general, line of treatment adopted to deliver fetal 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 [6]. To save the life and preserve the future production potential of the animal, decision to perform fetotomy under epidural anaesthesia (7 ml, 2% Lignocaine hydrochloride at sacro-coccygeal junction) following lubrication with 1% carboxy methyl cellulose sodium solution was taken. Partially loaded fetotome was introduced in the uterus and first cut was given in a diagonal manner extending from fetal neck to abdomen followed by evisceration. Thoracic part along with one forelimb as well as head were taken out following first cut. Then version was performed to bring out the remaining fetus in posterior presentation but the extreme contracture of the right hind limb was making further delivery of fetus difficult. Thus, it was immediately decided to give a second cut at the level of the fetal pelvis in order to amputate a contracted right hind limb to facilitate delivery. After giving second cut, right hind limb was pulled out and the rest of the fetus was delivered by moderate traction at the left hind limb. Thus, partial fetotomy proved fruitful to deliver the monster fetus. It was found that *Schistosomus reflexus* fetal monster was having left brachium *Amelia* along with contracture of right forelimb and both hind limbs (Fig. 1). 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 non steroidal anti-inflammatory drugs (Flunixin megludyne, 2 mg/kg b. wt., IM) was administered and other drugs viz. multivitamins, rumenototics, ecobolics 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 F2 $\alpha$  analogue (Cloprostenol sodium, 500 mcg, IM) 10 days post delivery to boost uterine involution.

### 4. Discussion

Mild developmental abnormalities of the ovum, embryo or fetus result in structural abnormalities in the fetus leading to monstrosities. Organic deviation in either structure or form or both, in one or several parts of the body, is known as monster. Most of the anomalies occur in the early stage of cell differentiation when the conceptus is subjected to genetic and maternal influences. Hereditary defects due to autosomal recessive genes are common. The incidence of monstrosities reported for cow is 0.5% [7]. Fetuses with congenital defects are generally dead at birth, and anomalies of muscular and skeletal systems are common in monsters. As it is difficult for monsters to pass through the birth canal, because of either their altered shape or relative size, obstetrical intervention in the form of cesarean or fetotomy becomes a necessity. *Schistosomus reflexus* presents with variable angulations of the vertebral column with predominating skeletal defects. The thoracic and abdominal tunics are absent or incomplete, ventrally exposing the visceral contents [4]. The exposed abdominal organs of the *Schistosomus* fetus, especially the intestines, should not be confused with the maternal intestines that are much bigger in size. Further, *Amelia* refers to the absence of some skeletal parts or complete absence of one or more limbs. It is a rare congenital disorder with scarce reports in animals. Kokila *et al* (2014) reported a case of *tetra-amelia* in a Holstein cow [8] which is a rare occurrence.



**Fig 1:** *Schistosomus reflexus* fetal monster having *Amelia* of left forelimb and contracture of remaining limbs (image after delivery following fetotomy).

## 5. Conclusion

The present case becomes novel and one of its kind in which *Schistosoma reflexus* fetal monster accompanied by *Amelia* of left forelimb and *Arthrogryposis* of remaining three limbs, an extremely rare occurrence, has been reported. To best of our knowledge, no evidence of the combined occurrence of all these conditions exists in literature.

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