

## CASE REPORT

# Acardius Acephalus Amorphous Foetal Monster Co-twin with a Normal Live Calf in a Crossbred Cow at Field Level

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*Acardius acephalus* is a rare congenital malformation characterized by the absence of a functional heart and head. This is a form of detached asymmetric conjoined twinning in which one of the twins (the parasite) is joined to a relatively normal fetus (the autosite) in one of the same sites of union as intact conjoined twins (Spencer, 2001). The autosite twin provides circulation and nutrients to the parasitic twin connected by the chorionic or umbilical cord vessels, while at birth, as the parasitic one has no independent circulation once umbilical cord separated, only the normal twin survives (Tovar, 2009). *Amorphous globosus* is an asymmetrical spherical mass that usually appears as round or oval, composed of connective tissue and fat, covered with hairs, born co-twin to a normal viable fetus (Hafez and Hafez, 2000), without a functional heart and sometimes cartilage. And bones may be present where the general body form is unrecognizable and attached to the fetal membranes of a normal fetus (Noakes *et al.*, 2019). The present communication reports a case of an *acardius acephalus amorphous* monster co-twin with a normal live calf in a Holstein-Friesian crossbred cow and its successful per-vaginal delivery.

### CASE HISTORY AND CLINICAL OBSERVATIONS

A five years old, full-term pregnant Holstein-Friesian crossbred cow in her third parity was presented with the history of dystocia, straining, ruptured water bag, and no further progress in parturition for the past 5 hours. Clinical examination revealed that all the clinical parameters were found within normal limits. Per vaginal examination revealed a fully dilated cervix, and the fetus was in the anterior longitudinal presentation, dorso-sacral position with extended forelimbs and right lateral deviation of head, and the fetal reflexes were also observed suggesting a viable fetus. Based on the clinical examination, the case was diagnosed as dystocia due to postural abnormality.

### TREATMENT AND DISCUSSION

The obstetrical mutations were carried out by repulsion of the fetus into the uterus following the correction of deviated head after low caudal epidural anaesthesia with 2% Lignocaine hydrochloride and sufficient lubrication of

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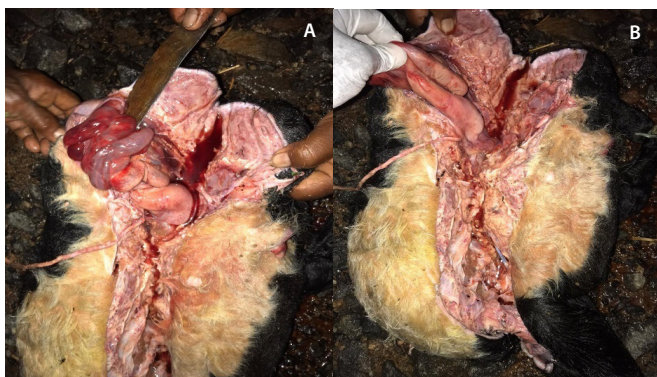
the birth passage. A normal live female calf was delivered by traction through snares applied on the forelimbs. Re-examination revealed a presence of semi-globular soft tissue like fetal mass with protruding short limb-like structure to which snare was applied, and an *acardius acephalus amorphous* fetal monster was delivered successfully through per-vaginum by manual traction (Fig. 1). Then, four Nurea-M



**Fig. 1:** Normal live female calf with an *Acardius acephalus amorphous* foetal monster



**Fig. 2:** *Acardius acephalus amorphous* foetus with underdeveloped single forelimb and hind limb with absence of head and tail



**Fig. 3:** Dissection of *Acardius acephalus amorphous* foetus revealing presence of few intestinal loops (A) and absence of heart (B)

boli were placed intrauterine, and the cow was administered with Streptopenicillin 5 g, Chlorpheniramine maleate @ 0.5 mg/kg b.wt., Meloxicam @ 0.2 mg/kg b.wt., and 10 ml Vit. B<sub>1</sub>, B<sub>6</sub>, B<sub>12</sub> intramuscularly for the next three days. The cow had an uneventful recovery.

On detailed examination of the monster fetus, it was confirmed to be an *acardius acephalus amorphous*. It was an irregular semi-globular fetal mass with normal skin with hairs, some viscera protruding out at one pole laterally, and two incompletely developed limbs, i.e., one forelimb and one hindlimb, the absence of head (*acephalus*) (Fig. 2). There was no differentiation of the fetal head, thorax, abdomen, and tail. Dissection of the monster revealed the absence of heart (*acardius*) and other internal organs; however, few loops of intestine and bony parts were recognizable along with soft tissues (Fig. 3).

*Acardius* twins are morphologically classified into four categories: *Acardius acephalus*, the most common type with lack of head and upper extremities; *Acardius anceps*, the most highly developed form with developed body and extremities;

and partly developed head with cranial structures and neural tissue development; *Acardius acormus*, the rarest form in which there is a head without a body; *Acardius amorphous*, the least form which is the most severe malformation with no distinguishable cephalic structure or trunk (Patel *et al.*, 2020). The incidence of *acardius* fetus is 1 per 35,000 pregnancies or 1% of monozygotic twin pregnancies in humans (Chandramouly and Namitha, 2009). However, the incidence is rare among domestic animals. Similar observations with different *acardius acephalus* were recorded in cows (Santos *et al.*, 2008). Similarly, few *Amorphous globosus* have been reported in cattle (Gehrke *et al.*, 2019). Kumar *et al.* (2016) also reported a similar case of *Amorphous globosus* monster with three incompletely developed limbs attached to the irregular mass in a Marwari goat.

The spherical shape and the absence of any palpable extremities render it difficult to relieve manually, so Caesarean section is the method of choice in typical *Acardius amorphous* cases. As an underdeveloped limb was palpable in the present case, per-vaginal delivery was possible by applying snares and traction. Since there were no cardiac anlage or elements, it is hypothesized that the defect might be due to error in the cleavage at the early embryonic stage or Twin-Reversed Arterial Perfusion (TRAP) sequence or teratogenic factors.

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