

CONJOINED TWIN FOETAL MONSTER COUPLED WITH SCHISTOSOMUS REFLEXUS IN A JERSEY CROSSBRED COW

S. RANGASAMY, C. PUGAZHARASI, T. SARATH*, T.A. KANNAN¹, R. RAJALAKSHMI, K. NIDHIYA JOY, P. DHARANI¹, U.S. KALYAAN and K. KRISHNAKUMAR

Department of Veterinary Gynecology and Obstetrics, ¹Department of Veterinary Anatomy, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai-600007, India

Received: 02.11.2020; Accepted: 19.11.2020

SUMMARY

A rare case of monocephalus thoracopagus tetrabrachius tetrapus dicaudatus conjoined twin foetus coupled with Schistosomus reflexus in a Jersey crossbred cow and its successful obstetrical management is reported in this communication.

Keywords: Cow, Caesarean section, Conjoined twin, Schistosomus reflexus

How to cite: Rangasamy, S., Pugazharasi, C., Sarath, T., Kannan, T.A., Rajalakshmi, R., Nidhiya, K., Dharani, J.P., Kalyaan, U.S. and Krishnakumar, K. (2021). Conjoined twin foetal monster coupled with Schistosomus reflexus in a jersey crossbred cow. *Haryana Vet.* 60(1): 152-154.

Congenital abnormalities or developmental defects such as duplication of the body structures are due to abnormal duplication of germinal layer in which the inner cell mass of an embryo develops into foetuses whose organs are duplicated partially (Roberts, 1971). Definitive aetiology of embryonic duplication is speculated to be associated with genetic or environmental factors, or by their interaction or by ageing ova (Bondeson, 2013). Schistosomus reflexus is malformation of the thorax and abdomen resulting in exposure of viscera in the foetus which is a congenital anomaly commonly reported in cattle (Roberts, 1971). Dystocia is the common sequelae of such foetal anomalies and monstrosities in livestock (Shukla *et al.*, 2007) and most of the cases can be resolved either by foetotomy or caesarean section. The present paper reports surgical delivery of conjoined monster twin coupled with Schistosomus reflexus in a crossbred cow.

A five years old, full-term pregnant, pluriparous Jersey crossbred cow was presented to Madras Veterinary College Teaching Veterinary Hospital with the history of difficulty in parturition for the past 10 hours. The water bag had ruptured before 6 hours and two forelimbs were protruding out with no further progress in parturition. Clinical examination revealed a pink and moist conjunctival mucous membrane, 38.6 °C body temperature, 76/min heart rate. Detailed per vaginal examination following epidural anaesthesia with 2% Lignocaine revealed fully dilated cervix with dead foetus at anterior longitudinal, dorso-sacral and extended forelimbs and head. Then, manual traction was attempted, however, failed to deliver the foetus which made to suspect for an anomalous foetus. One forelimb was amputated using Thygeson's fetotome to create sufficient space for detailed examination of foetus

which confirmed the presence of anomalous foetal monster by presence of dorsal bony prominence which may be the vertebral column of another foetus along with other limb. Hence, caesarean section was performed on the left lower flank as per Singh *et al.* (2019) and the conjoined twin monster of two partially duplicated female foetuses were delivered. Further, the cow was treated with Ringers Lactate @ 15 ml/kg, Dextrose Normal Saline @ 10 ml/kg, Inj. Meloxicam 75 mg and Inj. B1B6B12 10 ml intravenously and Inj. Ceftiofur 1g, Inj. Chlorpheniramine maleate @ 0.5 mg/kg intramuscularly for a week. The cow had an uneventful recovery following postoperative care.

Detailed examination of the foetuses revealed, the head and neck were developed only in the foetus A (monocephalus), both foetuses had fully developed forelimbs (tetrabrachius) and hind limbs (tetrapus) with two separate pelvises and two individual tails (dicaudatus) (Fig. 1). The thoracic vertebrae of foetus B was deviated laterally to its right side which displaced its forelimbs backwards towards thoracolumbar region of foetus A (Fig. 1). The internal organs were exposed due to incomplete closure of abdominal wall (Schistosomus reflexus) (Fig. 2). Also, foetus B was fused perpendicular to thoracic region (thoracopagus) of foetus A which was further substantiated with the radiography (Fig. 3). The internal organs were commonly shared by both foetus except liver and uterus, i.e. presence of one fully developed head, tongue, hard palate, larynx, thyroid gland and oesophagus; one rudimentary trachea with single vestigial lung (Fig. 4a & b); one normal heart with absence of pericardium (Fig. 5); an incompletely formed diaphragm; a normal gastrointestinal tract; one under developed spleen; two kidneys one in each foetus and a forked urinary bladder (Fig. 6a &

*Corresponding author: drsarathvet@gmail.com



Fig. 1-3. (1) Fusion of foetus B was perpendicular to thorax of foetus A, displacing its two forelimbs backwards towards thoracolumbar region of foetus A (yellow arrow). The thoracic spine of foetus B was deviated laterally towards pelvis of foetus A (red arrow); (2) Conjoined twin with incomplete closure of abdominal wall (red arrow); (3) Thorax-Ventrodorsal view: Fusion of thorax (red arrow); Deviation of spine (yellow arrow)

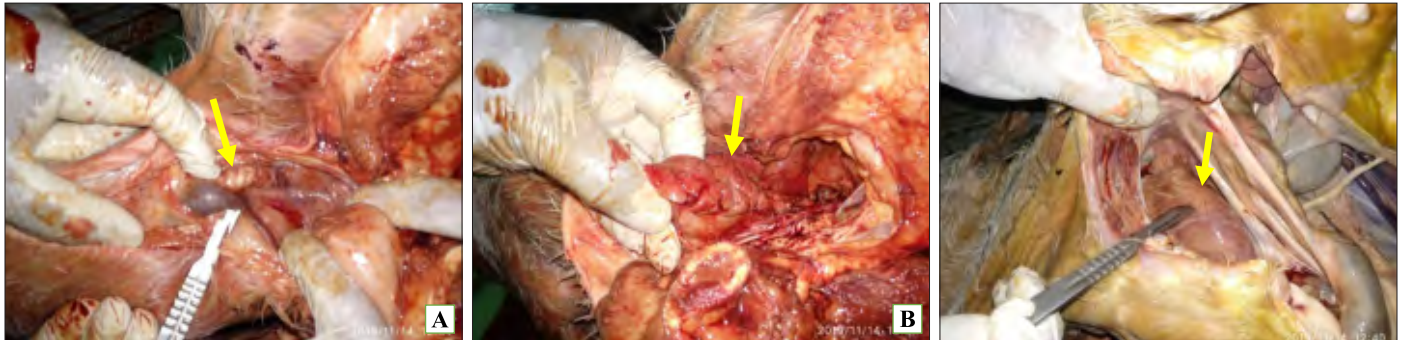


Fig. 4. (a & b). One rudimentary trachea (arrow) and Single vestigial lung (arrow)

Fig. 5. One normal heart with absence of pericardium



Fig. 6 (a & b). Two kidneys (one in each foetus) and one forked urinary bladder

Fig. 7. One underdeveloped Spleen (yellow arrow) and two underdeveloped misshapen livers (red arrow) with two gall bladders

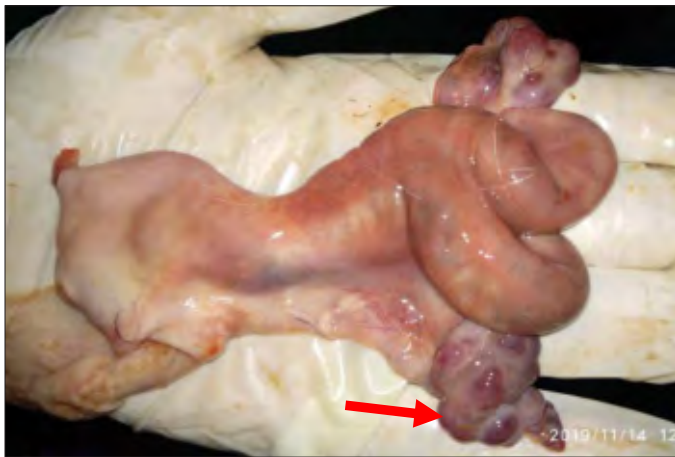


Fig. 8. Uterus with cystic ovaries of foetus A

b); two underdeveloped mis-shaped liver with two gall bladder (Fig. 7) and two uterus with cystic ovaries (Fig. 8)

one in each foetus.

Conjoined twins arise from a single ovum which are monozygotic and identical in nature (Kumar *et al.*, 2018) and always share the same sex (Sachan *et al.*, 2016). The faulty duplication in the foetuses may be cranial or caudal or both and among which, cranial duplication is more commonly seen in ruminants. The type of twin may vary based on the fusion site and some organs will remain unduplicated if the duplication process is incomplete. Conjoined anomalies are caused by number of factors, being influenced by genetic and environmental conditions and is presently thought that these factors are responsible for the failure of twins to separate after 13th day of fertilization (Srivastva *et al.*, 2008). Such occurrences are

costly to the cattle and buffalo owners because of the reduction in number of viable offsprings, loss of milk production and cost of fetal extraction or caesarean section (Dutt *et al.*, 2019). Similar to present case, Dutt *et al.* (2020) has also reported a monocephalic thoracopagus tetrabrachius tetrapus dicaudatus conjoined twin monster. The present case might be due to non-inheritant and teratologic developmental defect because there was no report of monstrosity in previous calving.

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