

Case Study

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Dystocia due to Hydrocephalic Fetus in a Jersey Crossbred Cow

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ABSTRACT

Keywords

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Hydrocephaly can be defined as dropsical condition of the brain owing to abnormal accumulation of cerebrospinal fluid (CSF) in the cranial cavity. This present case reports the successful management of dystocia due to live hydrocephalus fetus in a Jersey crossbred cow.

Introduction

Hydrocephalus has been encountered as an infrequent congenital anomaly in mammals causing fetal dystocia (McEntee, 1990). Hydrocephalus involves swelling of the cranium due to accumulation of fluid, which may be in the ventricular system or between the brain and the dura. In more severe cases there is marked thinning of the cranial bones (Arthur, 1975). Hydrocephalous results due to disturbance in normal flow of CSF and its reabsorption. CSF is produced primarily by the choroid plexus and by secondary extrachoroidal sites inside the brain (Ferris *et al.*, 2011). As per Chhetri *et al.*, (2018) and

Roberts (1971) a simple autosomal recessive gene and autosomal dominant gene with incomplete penetrance (Leipold and Dennis, 1986) have been reported to be linked with hydrocephalus in cattle. The condition could also be inherited with coexisting hypovitaminosis-A (Jubb and Kennedy, 1970). It affects all species of animals and is seen most commonly in pigs, puppies and calves. In more severe form of hydrocephalus there is marked thinning of the cranial bones (Noakes *et al.*, 2009). The condition is well documented in cattle (Sharda and Ingole, 2002, Purohit *et al.*, 2006; Jana and Ghosh, 2010; Murugan *et al.*, 2014), Kangayam breed (Prakash *et al.*, 2016), mare (Ferris *et al.*,

2011; Kumar *et al.*, 2010), buffalo (Bugalia *et al.*, 1990; Kumaresan *et al.*, 2003) and pig (Arthur, 1975). The present case reports the successful management of dystocia due to live fetal hydrocephalus in a Jersey crossbred cow.

Case history and clinical observations

A Jersey crossbred cow on its fourth parity was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with an anamnesis of full term pregnant, rupture of water bag with difficulty in parturition. General clinical examination revealed that the animal was in sternal recumbency with respiratory distress and continuous straining. Vaginal examination revealed that the fetus was in anterior-longitudinal presentation (P1), dorso-sacral position (P2) and head resting on the forelimb towards the birth canal (P3). Palpation of the fetus showed that the fetal head was abnormal and the fetus reflexes present.

Diagnosis and clinical management

Based on the anamnesis, clinical and vaginal examination the case was diagnosed as dystocia due to fetal hydrocephalus. The animal was cast and placed on the hind quarter elevator and by traction a live female fetus was delivered. Examination of the fetus revealed dome shaped head (Fig. 1). Radiographic examination revealed fluid accumulation in the ventricular part of the cranium (Fig. 2). Ultrasonographic examination of fetal head revealed fluid filled cranium. After a day of birth, the fetus died and post-mortem examination revealed fluid accumulation in the ventricles of brain (Fig 3) and hence the case was confirmed as dystocia due to fetal hydrocephalus. Karyotyping of the fetus revealed no chromosomal

abnormality (Fig 4). The dam was administered with Inj. Enrofloxacin @ 5 mg/kg b.wt i/m, Inj. Calcium Borogluconate 450 ml i/v, Inj. Oxytocin 30 IU i/v . The animal recovered uneventfully.

Results and Discussion

Hydrocephalus is a dropsical condition with accumulation of fluid as a result of an imbalance between the formation and drainage of cerebrospinal fluid (CSF) either in ventricular system or subarachnoid space characterized by marked enlargement of cranium (Noakes *et al.*, 2009). The affected animals are either born dead or die shortly after birth. The calves born alive show signs of cerebral inhibition such as depression, weakness, droopy ears and head, blindness, recumbency and convulsion (Whitlock, 2010). The infection of the fetus causes either excessive production of cerebrospinal fluid or damage to the outflow tract of the cerebrospinal fluid resulting in progressive enlargement of the fetal head with increased fluid pressure within the brain and malformation of the brain and skull (Leaold *et al.*, 1974). In more severe cases there is marked thinning of the cranial bones (Arthur, 1975). Hydrocephalous results due to disturbance in normal flow of CSF and its reabsorption. CSF is produced primarily by the choroid plexus and by secondary extrachoroidal sites inside the brain (Ferris *et al.*, 2011). Severe form of hydrocephalus results in dystocia and that cannot be relieved by mutation and forced traction. The excessive bony enlargement of cranium may require fetotomy (Roberts, 1971). Chhetri *et al.*, 2018 reported live fetal hydrocephalus in a crossbred cow managed by forced traction, similarly this case with dystocia due to live fetal hydrocephalus was delivered by forced traction.



Fig.1 Dome shaped fetal head



Fig.2 Radiographic view revealed fluid accumulation in the ventricles of the brain

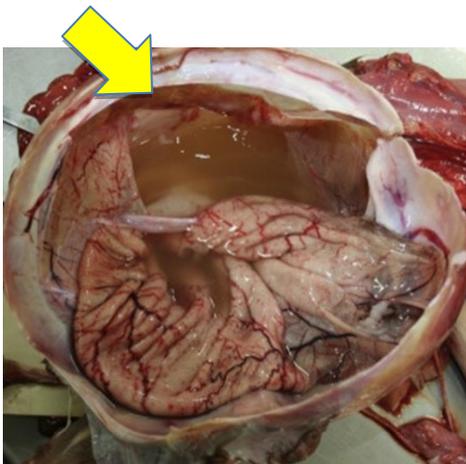


Fig.3 Post mortem examination of the fetus revealed fluid accumulation in the ventricles of the brain

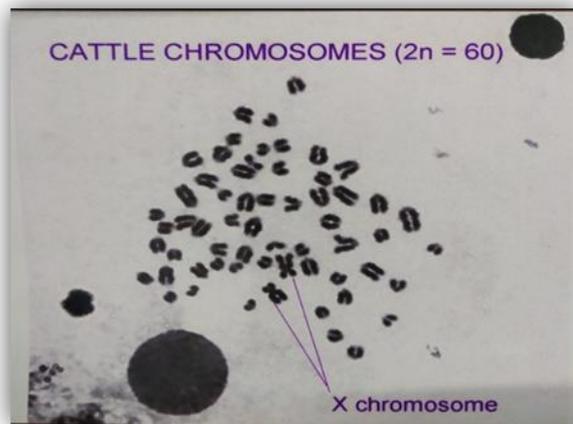


Fig.4 Karyotyping revealed no chromosomal abnormality

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