ISSN: 0976-3376

Available Online at http://www.journalajst.com

ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 08, Issue, 01, pp.4097-4098, January, 2017

RESEARCH ARTICLE

DYSTOCIA DUE TO CONGENITAL HYDROCEPHALUS AND ARTHROGRYPOSIS CALF IN A CROSS BRED COW

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ARTICLE INFO

Article History:
Received 05th October, 2016
Received in revised form
14th November, 2016
Accepted 18th December, 2016
Published online 31st January, 2017

Key words:

Dystocia,
Hydrocephalus and
Arthrogryposis calf,
Holstein Frisian cow.

ABSTRACT

A very rare case of Hydrocephalus and Arthrogryposis calf in a crossbred Holstein Frisian cow from the rural area of Madurai District in Tamil Nadu was reported. This report would help in drawing the attention of animal breeders of Madurai with respect to collection of sire and dam's pedigree information before breeding of their cattle as the condition is hereditary in nature.

INTRODUCTION

Foetal anomalies and monstrosities of various types have been recorded in bovines (Noakes *et al*., 2001; Roberts, 2004) and Buffaloes (Singh *et al*., 2013). Foetal anomalies and monstrosities are the most common causes of dystocia in bovines (Shukla *et al.,* 2007). Arthrogryposis is one of the musculoskeletal system abnormalities encountered as a congenital disease (Leipold *et al*. 1996). Hydrocephalus has been described both in cows (Buck *et al.*, 2009; Smolec *et al.*, 2010) and buffalo (Purohit *et al.*, 2006). There is accumulation of excessive fluid in the ventricles of the brain or dura matter. Hydrocephalus is either external or internal. In external hydrocephalus, (VidyaSagar *et al*., 2010) fluids accumulate in the subarachnoid space exterior to the brain whereas in the internal hydrocephalus, (Kumaresan *et al*., 2003) fluids accumulate in the ventricles of the brain. Death of the foetus is due to pressure on vital centres of the brain. The frontal, temporal and parietal bones are usually involved becoming deformed, separated and thin. The condition does not affect foetal development but may result in death of the foetus at birth or soon after birth. This condition has been occasional in ewes, doe, mare, sow and it's very rarely seen in cattle and buffalo (Dhaliwal *et al.,* 1988).

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In cattle, a simple autosomal recessive gene and autosomal dominant gene with incomplete penetrance has been known to be associated with hydrocephalus and Arthrogryposis. This present report records a unique case of bovine dystocia due to a multiple skeletal deformities viz; extremely enlarged hydrocephalus, arthrogryposis, brachygnathism with illdeveloped mono occularism foetus was successfully delivered per vaginally.

Case history and observations

A primiparous crossbred Holstein Friesian Cow at full term in second stage of parturition suffering from dystocia due to foetal cause was referred to veterinary dispensary S.Meplapatti, Madurai District .It was reported that the cow was straining since 6 hours, water bags have been ruptured and animal unable to deliver the foetus. Further, the cow was physically dull and exhausted. Per vaginal examination of a cow shown that the foetus in anterior longitudinal presentation and dorso-sacral position without any foetal movements and other reflexes. The cervix was fully dilated with extremely enlarged head and excessive accumulation of fluids in it along with loose cranial bones with ill developed lower jaw and mouth with all the limbs were ankolysed. Based on the clinical signs, the case was diagnosed as hydrocephalus, arthrogryposis and brachygnathism foetus (Fig. 1).

Fig. 1. Hydrocephalus and *arthrogryposis calf after foetotomy*

TREATMENT AND DISCUSSION

Following epidural anesthesia (5ml of 2%lignocaineHcl) and ample lubricant was applied in to the birth cannel. The skin of the fetal cranium was stabbed with guarded knife. The fluid was then drained out from the enlarged cranium by putting pressure on it through fingers. After the evacuation of fluid furtherlly the size of the cranium was reduced by partial foetotomy of cranial bone with obstetrical hook. These results come in agreement with (Narari, 1996) who reported hydrocephalus and showed the cause results of obstruction of the ventricular system during a critical stage of embryonic development, result death of foetus. Both the limbs were secured with nylone snare and the foetus was delivered by traction. After delivery gross examination of dead calf noticed extremly enlarged head, the lower jaw was illdeveloped,left side eye was absent with right side eye ill developed and all limbs joints were ankylosed. Post obstetrical treatment involved I/V fluids parental administration of antibiotics and anti inflammatory and analgesics. The animal had uneventful recovery. Hydrocephalus is seen mostly in cattle (Balasubramanium *et al*., 1997; Nandakumar *et al*., 1999; Kumaresan*et al*. 2003) when hydrocephalus is severe enough that results dystocia and cannot be relieved by even mutation and forced traction. Excessive bony enlargement of cranium may also require foetotomy (Robert, 1971). Hence, in this case the foetus with multiple foetal abnormalities was relieved successfully by reducing to foetal size by partial foetotomy.

Conclusion

Pedigree record of sire and dam is always necessary and an important aspect of breeding of animals. That will help in minimizing the occurrence of foetal anomalies which arises primarily due to some genetic defect.

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