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Management of live hydrocephalus calf with dystocia in indigenous cow

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Abstract

An indigenous cow with prolonged labour since 11 hours was presented. On clinical and per vaginal examination it was diagnosed to be hydrocephalic fetus. There was presence of palpebral and slight suckling reflex revealed the fetus as alive. The fetus was initially lubricated with proper lubricant and delivered carefully with reposition and traction. After delivery it was found that the fetus showed marked increase in size of the head and fluctuating as the cranial cavity was filled with fluid and the calf died after 3 days.

Keywords: Management live hydrocephalus calf dystocia in indigenous cow

Introduction

Hydrocephaly can be defined as dropsical condition of the brain owing to abnormal accumulation of cerebrospinal fluid (CSF) in the cranial cavity and has been encountered as an infrequent congenital anomaly in mammals causing fetal dystocia (McEntee, 1990) [1]. 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) [2]. 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) [3]. A simple autosomal recessive gene (Roberts, 1971) [4] and autosomal dominant gene with incomplete penetrance (Leipold and Dennis, 1986) [5] have been reported to be linked with hydrocephalus in cattle. The condition could also be inherited with coexisting hypovitaminosis-A (Jubb and Kennedy, 1970) [6]. 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) [7]. The condition is well documented in cattle (Sharda and Ingole, 2002, Purohit *et al.*, 2006; Jana and Ghosh, 2010; Murugan *et al.*, 2014) [8, 9, 10, 11], mare (Ferris *et al.*, 2011; Kumar *et al.*, 2010) [3, 12], buffalo (Bugalia *et al.*, 1990; Kumaresan *et al.*, 2003) [13, 14] and pig (Arthur, 1975) [2].

Materials and Methods

History and Clinical Observations

Six year-old primiparous indigenous cow at full term was presented by farmer of Hailakandi, Assam, India 11 hours after the onset of straining and rupture of water bag. On clinical examination the rectal temperature, heart rate and respiration were found within the normal limit. Slight extended fetal forelimb was observed outside the vulva with anterior longitudinal presentation within the birth canal. On per-vaginal examination after proper lubrication revealed that a fetus with oversized head, fluctuating fluid filled sac like structure adjoining the head obstructing the birth canal was palpated. Presences of palpebral and slight suckling reflex revealed the fetus as alive. The fetus was diagnosed to be congenital hydrocephalus.

Clinical Management

First, the cow was given caudal epidural anaesthesia (6 ml, 2% Lignocaine HCl). On per-vaginal examination after proper lubrication of the birth canal with sodium carboxy methyl cellulose gel revealed extended forelimbs outside the vagina in anterior longitudinal presentation. Head of the fetus was enlarged, fluctuating sac like structure filled with fluid adjoining the head obstructing the birth canal with absence of bones on the skull. For delivery

of the fetus protruded forelimbs were tied after retraction, the vaginal wall and head of the fetus was lubricated and the fluid fill area of the head was pressed/manipulated to make a space in the vagina and mild traction was applied. In the present case the fluid filled area was big and flabby which facilitate delivery of the fetus without its removal. A male calf was delivered normally with excessive size of the head. All other body parts appeared to be working normally. Probably because of the excessive weight of the head and slow growth of the body the calf was unable to stand on its legs and died after 8 hours of birth. The placenta was expelled six hours after delivery of the fetus. Gross examination and dissection of head of fetus revealed absence of cranial bones and a skin pouch on head which was filled with cerebrospinal fluid. Based on the above findings, the present case was diagnosed as congenital external hydrocephalus. Post-delivery the cow was administered with DNS (5 %, i/v), Meloxicam (15 ml, i/m), Oxytocin (25 IU, i/v), Calcium borogluconate (350 ml, i/v) followed by inj. Streptopenicilin (5 gm, i/m). Antibiotic alone continued for three more days. The animal recovered uneventfully.



Fig 1: Indigenous calf with Hydrocephallus

Discussion

Most of 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, dropsy ears and head, blindness, recumbency and convulsion (Whitlock, 2010) [15]. A mummified fetus affected with hydrocephalus and eye flap and survives for a week was also reported by (Majeed and Hussein 2010) [16] and death within 3 days of delivery by Narari, 1996 [17], who reported hydrocephaly and showed the cause results of obstruction of the ventricular system during a critical stage of embryonic development, result early infant death. 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) [18]. In more severe cases there is marked thinning of the cranial bones (Arthur, 1975) [2]. Hydrocephalus 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) [3]. 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) [4] but in the present case there was no such enlargement of

cranium except excessive fluid filled head which might facilitate extraction by forced traction.

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