Per-vaginal delivery of a hydrocephalic foetus in a non-descript cow: A case report

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Abstract

A pregnant non-descript cow after completion of first stage of labour was presented to RVP, I.V.R.I. Izatnagar. Per-vaginal examination revealed, both forelimb lying in the birth canal and also enlarge cyst over the head was palpated. Following epidural anaesthesia and sufficient lubrication of the birth canal epidural anaesthesia was given in using 6 ml, Lignocaine HCl (Xylocaine, 2%) in sacro vertebrae. There was done. Dropsical part of foetal head was punctured with a hook in the inner canthus of eye along with the judicious traction on that fluctuating swelling over the head. The cow was strained in latera recumbancy and respiratory rate were within normal range however cow was dull, depressed, anxious and exhausted. On per-vaginal examination revealed that foetus was in anterior longitudinal presentation with both forelimbs was lying in the birth canal and details examination revealed that fluctuating swelling over the head. The cow was strained in lateral recumbancy and epidural anaesthesia was given in using 6 ml, Lignocaine HCl (Xylocaine, 2%) in sacrococcygeal inter vertebral space and ample lubrication of the birth space with liquid paraffin was done. Dropsical part of foetal head was punctured with a trocar and around 2-3 litres of fluid come out and leaving ample space for manipulation. Dead female foetus was extracted out by the application of hook in the inner canthus of eye along with judicious traction on forelimbs. The animal was administered calcium borogluconate (Inj. Mifex® 450 ml IV), Oxytocin (Inj. Pitocin® 45 IU IM), dexamethasone (Dexona® 40 mg IM), and fluid replacement therapy. Parenteral and intrauterine antibiotics were also administered simultaneously to combat any possible infection. The animal recovered uneventfully. Exploration of head revealed accumulation of fluid in the subdural space, general atrophy of cranial nerves and a dilated ventricle. The animal was euthanised.

Keywords: Cow, dystocia, hydrocephalus, foetus

Introduction

Dropsical conditions of foetus resulting in dystocia include hydrocephalus, ascites, hydrothorax and anasarca (Purohit et al. 2006; Purohit et al. 2012) [13, 14]. Hydrocephalus is accumulation of excessive fluid in dura matter or ventricles of brain (Purohit et al., 2012) [14]. There are two types reported: (1) Internal hydrocephalus, a collection of fluid in the cerebral ventricles, and (2) External hydrocephalus, a collection of fluid outside the brain substance (Cole and Moore, 1942) [19]. It occurs mainly due to abnormal development of foetus during pregnancy, however hereditary, infectious and nutritional factors can also predispose to this condition, Roberts (1986) [15] resulting into obstruction of free passage of cerebrospinal fluid into the arachnoid space,Salunkhe et al. (2001). Death results due to increased pressure on the vital centres of brain, Roberts (1986) [15]. There is an abnormal expansion of cavities (ventricles) within the brain due to the accumulation of cerebrospinal fluid. The present case reports successful per-vaginal delivery of hydrocephalic foetus after relieving fluid from enlarged head.

Case History and Management

A non-descript indigenous cow in her 2nd parity (about 7 yrs. of age) was presented to Referral Veterinary Polyclinic (RVP) Indian Veterinary Research Institute (I.V.R.I.), Bareilly (U.P) with history of continuous straining and water bag was ruptured 6 hrs before and two hooves were visible from vulva and traction was applied over the protruding hooves by local practitioner but it was unsuccessful. The clinical parameters viz. rectal temperature, heart rate and respiratory rate were within normal range however cow was dull, depressed, anxious and exhausted. On per-vaginal examination revealed that foetus was in anterior longitudinal presentation with both forelimbs was lying in the birth canal and details examination revealed that fluctuating swelling over the head. The cow was strained in lateral recumbancy and epidural anaesthesia was given in using 6 ml, Lignocaine HCl (Xylocaine, 2%) in sacrococcygeal inter vertebral space and ample lubrication of the birth space with liquid paraffin was done. Dropsical part of foetal head was punctured with a trocar and around 2-3 litres of fluid come out and leaving ample space for manipulation. Dead female foetus was extracted out by the application of hook in the inner canthus of eye along with the judicious traction on forelimbs. The animal was administered calcium borogluconate (Inj. Mifex® 450 ml IV), Oxytocin (Inj. Pitocin® 45 IU IM), dexamethasone (Dexona® 40 mg IM), and fluid replacement therapy. Parenteral and intrauterine antibiotics were also administered simultaneously to combat any possible infection. The animal recovered uneventfully. Exploration of head revealed accumulation of fluid in the subdural space, general atrophy of cranial nerves and a dilated ventricle. The animal was euthanised.
brain and widening of the sulci between the convolutions) confirming description of external hydrocephalus as per Sastry et al., 1971.\(^{[16]}\)

**Fig 1:** Extracted hydrocephalic

**Fig 2:** Hydrocephalic head with

**Discussion**

Congenital hydrocephalus has been described in various animal species including cattle (Mouli, 1987; Balasubramanian et al., 1997;\(^{[1, 2]}\) Sharda and Ingole, 2002)\(^{[12]}\), buffalo (Bhandari et al., 1978; Bugalia et al., 1990)\(^{[3, 4]}\), mare (Sharma, 1996) and camel (Abubakr et al., 1998)\(^{[1]}\). The condition results in dystocia and the foetuses are delivered by either excision of the head followed by traction (Bhandari et al., 1978)\(^{[3]}\) or caesarean section (Balasubramanian et al., 1997; Bugalia et al., 1990)\(^{[4]}\). A simple autosomal recessive gene (Roberts, 1986)\(^{[15]}\) has been reported to be linked with hydrocephalus in cattle. Jubb and Kennedy (1970)\(^{[10]}\) stated that congenital hydrocephalus (Water Head) is known to be inherited in cattle and exacerbated in its manifestation by a coexisting hypovitaminosis A. Hydrocephalus is assumed to arise from disturbances in normal circulation of cerebrospinal fluid resulting from its altered production or absorption (Fride, 1975)\(^{[9]}\) and generally classified as internal or external hydrocephalus depending upon the involvement of ventricular and sub-arachnoid space, (Thompson, 1989). Compression of the brain occurs in calves with hypovitaminosis A due to failure of growth and sculpturing of the cranial vault to accommodate the growing brain. Sastry (1971)\(^{[16]}\) suggested that external hydrocephalus resulted from either too much fluid formed and not rapidly drained by the arachnoid villi or due to hindrance to the drainage of normally produced fluid. Congenital external hydrocephalus in the form of water sac over the forehead and face is quite rare in animals (Jubb and Kennedy, 1970)\(^{[10]}\). The condition appears as a flaccid liquid filled sac covered with skin and contains clear serous fluid as was seen in the present cases. The enlarged head cannot easily pass through the birth canal and results in dystocia as was seen in the present case, although sometimes the foetus may be delivered normally and presented later for therapy of the calf (Mouli, 1987)\(^{[11]}\). In the present case the foetus could be delivered by gentle manipulation if previous handling would not have been done. Death of foetus occurs due to pressure on vital centers of brain (Purohit et al., 2012)\(^{[14]}\). Since the above condition is inherited, the best control is by genetic planning i.e. to cull the animals that carry these genes, from breeding programmes and by purchasing bulls / semen from reputable breeders produced by parents who did not carry undesirable genes, Ogilvie (1998)\(^{[12]}\).

**References**

15. Roberts SJ, Diagnosis and treatment of Dystocia,