

## A RARE CASE OF FETAL HYDROCEPHALUS IN JAFFARABADI BUFFALO: A CASE REPORT

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### ABSTRACT

A 9 year old Jaffarabadi buffalo in her first parity and approximate Ten month pregnancy with history of dystocia was presented to the Teaching Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, JAU, Junagadh. The buffalo was treated by local veterinarian and case was referred to the college clinics for further investigation and treatment. During manual obstetrical examination, the cervix was found fully open with the huge fluid filled in the head, marked enlargement of the cranium and foetal extremities were very difficult to palpate. On the basis of clinical observations and obstetrical examination, the case was diagnosed as dystocia due to foetal hydrocephalus. Dead male fetus having 25 liters of fluid in the cranium was delivered through cesarean section.

**Keywords:** *Bubalus bubalis*, buffalo, hydrocephalus, dystocia, cesarean section, Jaffarabadi

### INTRODUCTION

Hydrocephalus refers to excessive accumulation of fluid in the arachnoid space or in the ventricular system of the cranium thereby leading to the swelling of cranium (Arthur *et al.*, 2001). Hydrocephalus involves dilation of ventricular system and subarachnoid space due to accumulation of fluid (Noakes, 2009). Obstruction in free passage of cerebrospinal fluid in to the arachnoid space leads to excessive swelling of cranial cavity during foetal development (Salunke *et al.*, 2001). The hydrocephalus condition has been described both in cows and buffalo (Purohit *et al.*, 2006). It is mainly due to abnormal development of fetus during pregnancy, however, hereditary, infectious and nutritional factors can also predispose this condition (Roberts, 1986; Kalman, 1989). The present report records a unique case of extremely enlarged hydrocephalic fetus and its successful delivery in Jaffarabadi buffalo by cesarean section.

### CASE HISTORY AND CLINICAL OBSERVATION

A 9 year old Jaffarabadi buffalo in her first

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parity and approximate Ten month pregnancy with history of dystocia was presented to the Teaching Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, JAU, Junagadh. The buffalo was treated by local veterinarian but failed to deliver the fetus. During manual obstetrical examination, the cervix was found open with huge fluid filled in the head, marked enlargement of the cranium and foetal extremities were very difficult to palpate. Absence of suckling and eye ball reflex indicated the foetus is not viable. All the clinical parameters were in physiological range. On the basis of clinical observations and obstetrical examination, the case was diagnosed as dystocia due to foetal hydrocephalus.

### TREATMENT AND DISCUSSION

Per vaginal delivery of the fetus was not attempted because a very large bulging of head is confusing with other viscera and fetal extremities are very difficult to palpate for grasping the fetus

per vaginal. So, it was decided to deliver the fetus by caesarean section. Following epidural anesthesia (10 ml, 2% Lignocaine HCl,) through lower left flank approach. The skin of fetal cranium was stabbed with guarded knife. The approximate 25 liter fluid was then drained out from the enlarged cranium by putting pressure on it through fingers. After the evacuation of fluid, the size of the head got reduced and with slight manipulation dead male fetus was removed. The complete placenta was removed immediately. Surgical site was flushed with normal saline and an intra-uterine four ecbolic boli Furea were poured in to the uterus. The uterine and laparotomy incisions were sutured as per standard technique. The patient was kept under post-operative care with appropriate antibiotic, anti-inflammatory, fluid therapy and antiseptic dressing of the incision daily for five days. The sutures were removed on 12<sup>th</sup> post-operative day. The animal showed uneventful recovery (Figure 1).

The delivered dead male calf weighed 30 kg without cerebrospinal fluid from cranium. The



Figure 1. High grade hydrocephalus in Jaffarabadi buffalo calf.

head of the calf was extraordinarily large, football shaped due to fluid accumulation in to the cranial cavity. The peripheral diameter was 110 cm. Forehead was excessively stretched out. Foetal trunk, limbs and other body parts were normal. On dissection, cranial bones were found markedly thin. Epical cap of the bony skull was missing. The thinning of frontal, parietal and temporal skull bones was observed. The cerebrum was replaced with ventricle system filled with cerebrospinal fluid. The fluid in the cavity was watery measuring approximate 25 litres. Microscopic examination of fluid revealed no cells or contents. Similar findings have also been reported by many clinicians (Patil *et al.*, 2008; Yadav *et al.*, 2008; Upasana *et al.*, 2012; Sharma *et al.*, 2015) but in this case accumulation of cerebrospinal fluid in the cranium was very high. It might be due full term gestation of the dam and relatively large size of Jaffarabadi buffaloes. Hydrocephalus may be caused due to genetic, nutritional and environmental factors (Kalman, 1989). In the presented case, death of the fetus is due to pressure on vital centers of the brain. There was no history of inbreeding. An autosomal recessive gene is considered responsible for many hereditary cases but intra-uterine infections and nutritional factors have not been fully evaluated except relationship of blue tongue virus to hydrocephaly (Upasana *et al.*, 2012). In fetuses with very large heads, puncture of the head with a trochar is advocated to relieve dystocia, along with routine obstetric maneuvers.

## REFERENCES

- Arthur, G.H., D.E. Noakes, T.J. Parkinson and G.C.W. England. 2001. *Veterinary Reproduction and Obstetrics*, 8<sup>th</sup> ed. WB Saunders company, Philadelphia, Pennsylvania, USA. p. 131-132.
- Kalman, T.S. 1989. *Congenital Malformations in Laboratory and Farm Animals*. Academic Press. INC San Diego, California, USA.
- Noakes, D.E. 2009. *Arthur's Veterinary Reproduction and Obstetrics*, 8<sup>th</sup> ed. W.B. Saunder's Comp., Philadelphia, USA.
- Patil, A.D., G.U. Yadav, N.M. Markandeya and S.D. Moregaonkar. 2008. A rare case of acephalia with hydrocephalus in a cow calf. *Intas Polivet*, **9**(1): 46-47.
- Purohit, G.N., M. Gaur and A. Sharma. 2006. Dystocia in Rathi cows due to congenital hydrocephalus. *Indian J. Anim. Reprod.*, **27**: 98-99.
- Roberts, S.J. 1986. *Veterinary Obstetrics and Genital Diseases*, 3<sup>rd</sup> ed. Edwards Brothers, Michigan, USA. 77p.
- Salunke, S.P., M.B. Amle and P.C. Zambre. 2001. Dystocia due to hydrocephalus in Pantharpui buffalo. *Indian J. Anim. Reprod.*, **22**: 96.
- Sharma, A. 2006. Dicephalic monster in a graded Murrah buffalo. *Intas Polivet*, **12**(1): 30-31.
- Sharma, S.K., J. Monika, J.S. Khosa and D. Singh. 2015. An unusual case of dystocia due to hydrocephalic monster in a buffalo. *International Journal of Science, Environment and Technology*, **4**(2): 300-304.
- Upasana, R., G.R. Bhar, E.E. Varughese, S.P.S. Ghuman and M. Honparkhe. 2012. Per-vaginal delivery of a Murrah buffalo calf with congenital high grade hydrocephalus internus. *Vet. Pract.*, **13**(2): 310-311.
- Yadav, R.S. 2008. Hydrocephalus in a crossbred cow: A case report. *Vet. Pract.*, **9**(2): 118.