

CASE REPORT

Congenital Hydrocephalus in a Calf and its Surgical Treatment: A Case Report

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Hydrocephalus is an accumulation of excessive fluid in durameter or ventricles of the brain (Purohit *et al.*, 2012) thereby leading to the swelling of the cranium. It is mainly due to abnormal development of the fetus during pregnancy; however, hereditary, infectious, and nutritional factors can also predispose this condition. This condition has been reported occasionally in the ewe, doe, mare, and sow, whilst it is rarely seen in cattle and buffalo (Long, 2001). Hydrocephalus occurs mainly due to three reasons, as excessive production of CSF, defective absorption of CSF, and interference in the passage of CSF. Hydrocephalus may cause increased intracranial cerebral pressure, progressive enlargement of the head, convulsions, mental disability, and even death. This communication describes a case of congenital hydrocephalus in a day-old female cattle calf.

HISTORY AND OBSERVATIONS

A day-old female cattle-calf was presented to the Veterinary Clinical Complex of the College at Navania, Udaipur, in lateral recumbency, showing the symptoms of the dome-shaped skull, weakness, poor suckling reflex, head tremors and convulsions (Fig. 1). It could not coordinate its movements to stand or walk without help. In a neurological examination, the calf was alert and responsive, pupillary light reflexes, and menace response was suspected. Physical examination



Fig. 1: Hydrocephalus in the cattle- calf

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revealed that frontal bones of the skull in that portion were not formed and under the skin a fluid-filled cavity was present. Through clinical examinations and case history, it was established that the calf was suffering from congenital hydrocephalus, and it was decided to operate.

The animal was given preoperative treatment comprised of Inj. Mannitol (20%) 200 mL i/v for reducing the intracranial pressure. After that the surgical site was prepared by shaving and scrubbing, then 2% lignocaine hydrochloride was infiltrated around the swollen part of the head for achieving the local analgesia. Finally, the site was scrubbed by chlorhexidine solution and painted the site with povidone-iodine. A small stab incision was given in the middle of the swelling for draining the fluid contents slowly. After draining out three-fourths of the accumulated fluid the stab incision was extended in both the directions and the excess skin was removed and then the skin edges were opposed in horizontal mattress pattern with Tru-silk no. 1. The calf was treated with Inj. Meloxicam @0.2 mg/kg bodyweight for 3 days and Inj. Cefotaxime @500 mg i/m daily for 5 days and antiseptic dressing with betadine of suture line daily for 10 days postoperatively. After 10 days, the sutures were removed and the animal showed uneventful recovery.

Congenital hydrocephalus is reported in cattle (Sharda and Ingole, 2002). Exploration of the head revealed an

accumulation of fluid in the subdural space and general atrophy of brain (Sastry, 1971; Sharma *et al.*, 2015) confirming the description of external hydrocephalus. Sastry (1971) suggested that external hydrocephalus resulted from either too much fluid formed and not rapidly drained by the arachnoid villi or due to a hindrance to the drainage of a normally produced fluid. The condition appears as a flaccid liquid-filled sac covered with skin and contains clear serous fluid. Similar findings were noticed in the present case. Congenital hydrocephalus has been described in various animal species including cattle (Sharda and Ingole, 2002; Dhami *et al.*, 2007), buffalo (Bugalia *et al.*, 1990; Sharma *et al.*, 2015), mare (Sharma, 1996) and camel (Abubakr *et al.*, 1998). Congenital hydrocephalus is seen sporadically in all large animal species, although it is relatively common in calves. The calf in the present case improved gradually and after 10 days of treatment, it was observed that the calf was able to behave like a normal calf, her sucking reflex and movement reflex were improved. Moreover, no history of convulsion was recorded within 10 days. During the physical examination, it was seen that the frontal bones of the skull in that portion were not formed and the skull was dome-shaped. This finding corresponds with the observation of Whitlock (2008) and Mausumi *et al.* (2014). Initially, the animal was having a convulsion, which was also in accordance with the findings of Mausumi *et al.* (2014). The literature available so far revealed that the life span of the affected newborn was very less, but in this case, through this treatment protocol, the calf was leading a normal life after 2 months of treatment.

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REFERENCES

- Abubakr, M.I., Ahmed, A.A., Nayel, N.M. and Fadlalla, M.E. (1998). Hydrocephalus in a newborn male camel calf. *J. Camel Pract. and Res.*, 5: 309.
- Bugalia, N.S., Chander, S. and Chandolia, R.K. (1990). Mostrosities in cows and buffaloes. *Vet. J.*, 67(11): 1042-1043.
- Dhami, A.J., Rabari, B.S. and Parmar, B.C. (2007). Dystocia due to hydrocephalic fetus in a crossbred cow. *Indian J. Field Vets.*, 2(3): 47-49.
- Long (2001). Abnormal development of the conceptus and its consequences. In: Arthur's. *Veterinary Reproduction and Obstetrics*. 8th edn, W.B. Saunders Co., p. 141.
- Mausumi, N., Subhasis, N., Upadhyay, S.N. and Hazra, J. (2014). A case of congenital hydrocephalus in a calf and its successful recovery. *Explor. Anim. Med. Res.*, 4(2): 253-256.
- Purohit, G.N., Kumar, P., Solanki, K., Shekhar, C. and Yadav, S.P. (2012). Perspectives of fetal dystocia in cattle and buffalo. *Vet. Sci. Dev.*, 2: 8.
- Sastry, G.A. (1971). *Veterinary Pathology*. 3rd edn, CBS Publishers and Distributors, New Delhi, India, pp. 345.
- Sharda, R. and Ingole, S.P. (2002). Congenital bilateral hydrocephalus in Jersey cow calf. A case report. *Indian Vet. J.*, 79: 965-966.
- Sharma, A. (1996). Dystocia due to hydrocephalic fetus with downward deviation of head in mare. *Indian Vet. J.*, 73: 337-338.
- Sharma, S.K., Monika Joshi, Khosa, J.S. and Diler Singh (2015). An unusual case of dystocia due to hydrocephalic monster in a buffalo. *Intl. J. Sci. Environ. Technol.*, 4(2): 300-304.
- Whitlock, B.K., Kaiser, L. and Maxwell, H.S. (2008). Heritable bovine fetal abnormalities, *Theriogenology*, 70: 535-549.

