



Short Communication

Cranial Occipital Meningocele in a Buffalo Calf

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Abstract

The report presents a case of rear congenital defects of occipital meningocele in male buffalo calf of Neeli-Ravi breed. A soft fluctuating, fluid filled swelling was observed in the occipital region of skull. On the base of grass clinical examination and ultrasound examination, the case was diagnosed as occipital meningocele and was recommended for surgical treatment under general anesthesia. An elliptical skin incision was made at the base of the swelling involving the skin. Fluid filled meningeal membranes were identified protruding out from the defect site. About one litter accumulated fluid in the sac was drained. The meninges close to the defect were resected and remaining part of meninges were sutured to close the defect. The animal got an uneventful recovery after 15 days of post-operative care. © 2021 Friends Science Publishers

Keywords: Meningocele; Neeli-Ravi; Surgical intervention; Meningeal membranes

Introduction

Cranial Meningocele is a congenital defect in which the fluid filled meningeal membranes get herniated from the defect to form an extra-cranial sac (Leipold 1993). This defect has been reported in various domestic animals, especially in cow calves (William *et al.* 2011; Ayhan *et al.* 2013) and kids (Laiju *et al.* 2012). The defect may be due to incomplete ossification of skull bones at frontal and occipital regions forming an opening of variable sizes through which the meningeal membranes can pass out (Oliver *et al.* 1987). This condition has been successfully treated surgically in kids and cow calves (William *et al.* 2011; Laiju *et al.* 2012; Ayhan *et al.* 2013). Only one case of cranial meningocele has been (Ayyappan *et al.* 1996). The present report represents a novel case of congenital Meningocele reported in buffalo calf occupying the frontal region of skull and was not treated surgically located at occipital region in a buffalo calf of Neeli-Ravi Breed and was treated successfully by surgical intervention.

Materials and Methods

Case history and clinical observations

A 22-days old male buffalo calf of Neeli –Ravi breed was examined under field condition with complaint of a large swelling present caudal to cranium (occipital region of skull) since birth. The swelling was soft, painless,

fluctuating and having uniform consistency. The swelling had a total base circumference of 11 cm occupying the dorsal surface of atlanto-occipital area. The sac was hanging towards the right side of neck. The calf was of 47 kg b. wt. The dam of the calf has been vaccinated annually against Foot and Mouth disease and Hemorrhagic septicemia disease. The calf was alert but had weak milk suckling response along with slight in-coordination during walking. No other congenital defect was found in the body of buffalo calf. Aseptic needle exploration of swelling yielded colorless watery fluid resembling the cerebrospinal fluid. By ultrasound examination, anechoic fluid was observed along with some hypo echoic area. On the basis of the clinical findings and ultrasound examination, the calf was tentatively declared as case of cranial meningocele and was recommended for surgical treatment.

Surgical treatment

Fronto-occipital region was prepared aseptically after having shaved the hairs closely and scrubbing area with Pyodine scrub (Fig. 1). The calf was sedated with Intramuscular injection of Xylazine HCl (Inj. Xylaz, Farvet Lab. The Netherlands) @ 0.01 mg/kg b. wt. and was placed in lateral recumbency. Injection Lidocaine was infiltrated at the base of sac to local numbness. An elliptical skin incision was made and the skin was separated from the underlying meningocele sac (Fig. 2). Fluid filled meningeal membranes were identified protruding out from

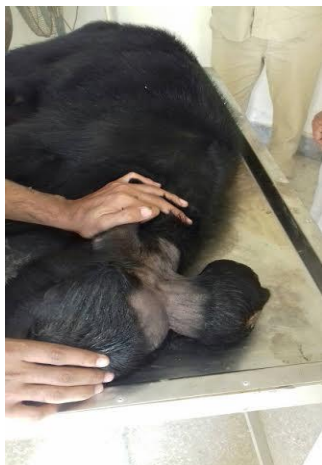


Fig. 1: Congenital swelling at the occipital region of skull



Fig. 2: Neuronal tube defect of 2 cm at the defective site



Fig. 3: Suturing of skin with simple interrupted suturing pattern

the defect site. About one litter accumulated fluid in the sac was drained. The meninges close to the defect were resected. The size of defect was about 2 cm (Fig. 2). This defective site was sutured by suturing the overlying edges of resected tissue by simple continuous suturing pattern with Vicryl (Ethicon Vicryl suture 1-0). The skin edges were approximated by applying simple interrupted suture with braided silk (1 no. size) (Fig. 3). As a post-operative management, Injection Streptomycin 1gm was used I/M for five days and Injection Meloxicam (Inj. Diclostar, Star Lab. Pakistan) was used @0.2 mg/kg b. wt. sub-cut for 3 days. There was gradual improvement in the milk suckling response and animal recovered completely in 15 days.

Results

An elliptical incisional approach of surgery was used to explore and correct the neuronal tube defect and herniation of meningeal membrane. After 15 days' post-operative management of surgical wound the animal got recovery with no re-occurrence of meningeal membranes herniation and without any post-surgical complication. There was a gradual improvement in the milk suckling response.

Discussion

Meningocele is a congenital defect of neuronal tube in which the neuronal tube is unable to fuse completely resulting in herniation of meningeal membrane. This defect is present at birth and may be found on different part of cranium especially the medial side of frontal bone (Maxie and Youssef 2007). In the present case, the herniation of meninges was found on the occipital region. One case of meningocele in buffalo calf has been reported having neuronal defect on the frontal bone and was not surgically treated (Ayyappan *et al.* 1996). The present case differs

from that, the Meningocele was present on the occipital region and was treated successfully by surgical intervention. In most cases of Meningocele reported in different animals, no neurological signs were observed but in present case the calf was having weak suckling reflex that improved gradually after surgery.

Conclusion

Meningocele in buffalo calves can be identified by clinical examination and ultrasound examination and can be successfully treated by using elliptical incisional approach near base of swelling.

Author Contributions

SAM and AS planned the whole work. SAM and DR performed experimental work and HIA helped in write up and statistical analysis.

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