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Case Report

A Successful Surgical Repair of Cranial Meningocele with Bilateral Nasal Choristoma in a Calf

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ABSTRACT

A two-day old, male, non-descript calf was presented with rare congenital defect of Cranial Meningocele sizing 15x12cm and was with bilateral Nasal Choristoma. It is defined as a mass of normal histological tissue in an abnormal location. The Cranial Meningocele was diagnosed radiographically however, histopathological examination of nasal growth revealed Hyaline & Cartilaginous Nasal Choristoma. In this case the nasal Choristoma was associated with cranial Meningocele and after surgical intervention animal recovery was uneventful.

Key words: Calf, Cranial Meningocele, Nasal Choristoma

Cranial Meningocele is a congenital defect in which the fluid-filled meninges alone protrude through a cranial defect (Leipold and Davis, 1993). In Veterinary literature surgical correction of this defect has been reported in five calves so far (Back *et al.*, 1991; Sarma *et al.*, 1993; Kohli and Naddaf, 1998).

Although a similar anomaly in a buffalo calf has also been reported, this literature has not reported to operated results (Ayyappan *et al.*, 1996).The earlier literature supports the present findings recorded in a case with Congenital Meningocele with nasal Choristoma. (Brudenal DK et al., 2008)

A two-day old, male, non-descript calf born with full term, having swelling on the forehead (Fig. 1).The calf presented had difficulty in sucking of milk and partially bearing weight on its limbs because of huge weight of the swelling. The external examination, revealed nasal hairy mass at left and right side of the dorsomedial nasolabial planum. The activities of the calf were normal. The size of the swelling was 15x12cm and covered with hair, fluid filled and turgid in consistency and situated on the cranial midline of the head, extending from the middle third of forehead to two centimeters above the muzzle. Radiographic examination of the head revealed homogeneity of the hernial sac content suggestive of a fluid-filled sac with no neural/brain tissue involvement without any adhesions with bone showing hernial sac (Fig-2).

Aseptic puncture by a 16 gauge needle on the dorsal part of the sac, permitted drainage of about 2 liters of clear and slight reddish fluid. Deep palpation revealed an elliptical median hole on the skull, with a diameter of 3.5cm- width. The case was tentatively diagnosed as meningocele and corrective surgery was performed under opioid analgesia Pentazocine lactate of dose rate (0.5 mg/kg BW) and local analgesia (2% lignocaine hydrochloride).The swelling and surrounding areas were prepared for aseptic surgery and the calf was placed in sternal recumbence. An elliptical rostrocaudal skin incision was made as is being performed for an umbilical hernia repair. Internal hernial sac, were separated from the skin by blunt dissection and then resected leaving sufficient tissues to permit simple apposition and to cover the defective hole. The inner surface of the sac appeared to be smooth embedded with connective tissue. The hernial ring was present on the median suture line of the frontal bones at its middle third. The defect measured 3.5 centimeters rostrocaudally on the frontal suture line with a width of 2 centimeters through which the brain tissue was visible. The resected edges of the tissues overlying the defect were apposed with continuous suture pattern. The skin was trimmed to size and the edges were apposed by horizontal mattress suture with nylon. The suture line was covered with a rolled piece of sterile gauze, fixed in place with four simple interrupted sutures. With the help of Bard-Parker blade, nasal mass was incised with base and

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Fig 1: Cranial Meningocele of 15x12cm size with bilateral Nasal Choristoma in calf.

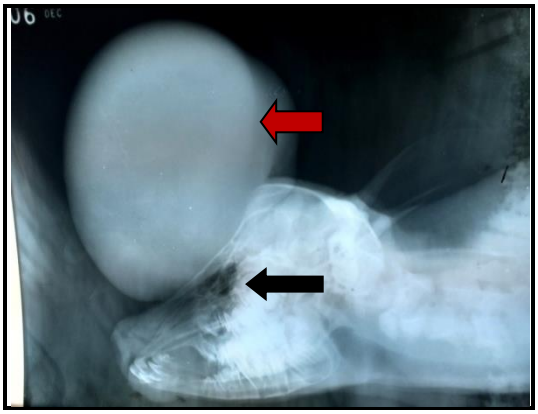
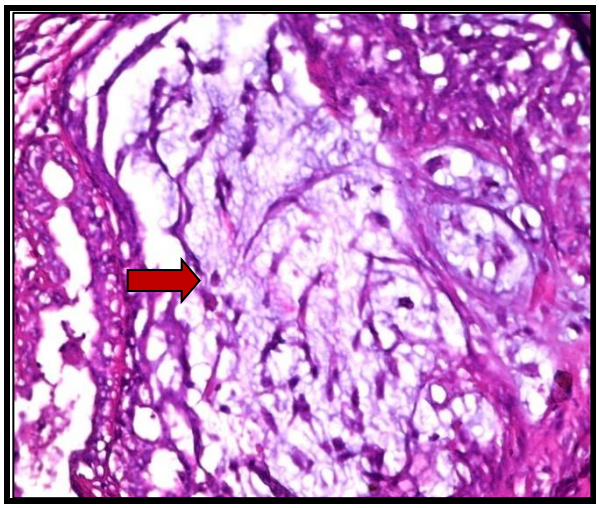


Fig 2: Lateral Radiographic view of head region showing the hernial sac (*arrow-brown*) filled with homogenous content and cranial defect (*arrow-black*).



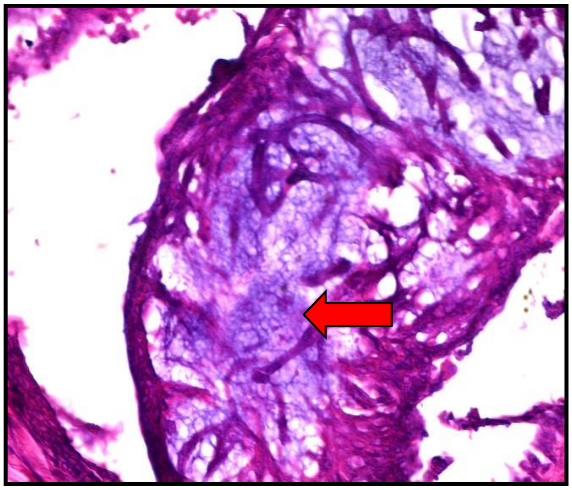


Fig 3&4: Microphotographs showing islands of variable staged hyaline & cartilaginous tissue along with young growing fibrous connective tissue (H & E X 400).

Fig 5: After removing of sutures on 10th Post-operative day.

preserved in 10% neutral buffered formalin for the histopathological examination. After fixation the tissue sample was trimmed processed & stained as per for Rapid Paraffin embedding technique (Luna 1968) revealed various developing stages of hyaline & cartilaginous nasal Choristoma (Fig-3&4) The post-operative treatment was given for next 5 days with injections ceftriaxone at dose rate of (10 mg/kg BW), anti-inflammatory Meloxicam dose rate of (0.2 mg /kg BW), Post operative findings sutures were intact and no abnormal discharge observed sutures were removed on 10th post-operative day (Fig-5).There was no recurrence after two & four months of

follow up. Hence, it is being assumed that the case was successfully managed.

The herniation of fluid filled meninges through cranial defects are related to suture lines, almost median and usually in the frontal regions covered by skin (Maxie and Youssef, 2007). In present case also the Meningocele was related to the frontal suture line and covered by a normal skin. The morphogenesis of Meningiocoele is not simply a problem of ossification of the skull with secondary herniation of preformed intracranial tissue but instead, depends on a primary defect of the neural tube from the embryonic ectoderm and in consequence, a focal failure of development of the skeletal encasement (Jubb and Huxtable, 1993). Two calves earlier reported were recumbent at the time of presentation (Sarma *et al.*, 1993; Ayyappan *et al.*, 1996). One calf was able to walk properly after surgery, while the other one was not operated because of it's poor condition. However, the present case was active and alert. This might be due to the reason that the fluid would not have caused any pressure on the brain. The surgical procedure and intra-operative findings were similar to those reported by (Kohli and Naddaf, 1998). The non-recurrence of the swelling suggested that the defect might have progressively closed during growth of the calf.

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