Cranial Meningocele in a Kid – A case report

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Abstract

A four day-old female Non-descriptive kid presented with cranial meningocele to the size of a football, which was operated under xylazine and ketamine anaesthesia. The hernial ring was on the medial suture line of the frontal bone. The hernial sac containing a meningeal membrane was resected and sutured. The animal recovered uneventfully.

Key words : Kid, Cranial meningocoele, Hernia

Cranial meningocoele is a congenital defect in which the fluid-filled meninges alone protrude through a defect in the cranium (Leipold and Davis, 1993). A similar condition was reported in a buffalo calf (Ayyappan et al., 1996), female jersey calf (Justin William et al., 2011) and kid (Laiju et al., 2012). The present case reports on the successful surgical correction of cranial meningocoele in a kid.

Case History and Observations

A four day-old female Non-descriptive kid weighing 4.2 kg was presented with the history of swelling on the forehead at birth (Fig. 1). The kid was born at full term and had difficulty in sucking milk from the udder. Physical examination of the swelling revealed fluid filled sac and situated on the cranial midline of the head, extending from the dorsal part of the forehead to few centimetres above the eyes. Aseptic puncture by a needle, on its dependent portion, permitted drainage of about one litres of clear and colourless fluid. Laboratory examination of the fluid revealed that it is cerebrospinal fluid containing glucose 4.5mg/dL, protein 1.5g/dL, albumin 0.8g/dL and globulin 0.8g/dL. Palpation after the drainage revealed the presence of an elliptical opening on the median aspect of the skull with the maximum diameter of two-finger width.

Treatment and Discussion

The surgical site was prepared aseptically and premedicated using xylazine @ 0.01 mg/kg body weight and induced by ketamine hydrochloride @ 2.5 mg/kg body weight intravenously respectively. The kid was placed in sternal recumbency and an elliptical rostrocaudal skin incision was made. The underlying tissues which had similarity to an 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 opening. The inner surface of the sac was smooth. The hernial ring was on the median suture line of the frontal bones at its middle third. The defect measured 5 centimetres rostrocaudally on the frontal suture line with a width of 3.5 centimetres through which the brain tissue was visible due to the incomplete apposition of the frontal bones. The resected edges of the tissues overlying the defect were apposed with continuous suture pattern using PGA No. 1-0 and skin was apposed by simple interrupted suture using braided silk. Post-operative antibiotic was administered

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Fig 1. Cranial Meningocele in a Kid
intravenously for five days. Sutures were removed on the 8th post-operative day and the recovery was uneventful.

The herniations of fluid filled meninges through cranial defects are related to suture lines, are almost always median and usually in the frontal regions and covered by skin (Maxie and Youssef, 2007). In the present case also the meningocele was related to the frontal suture line and covered by normal skin. The morphogenesis of meningocele is not simply a problem of defective ossification of the skull with secondary herniation of preformed intracranial tissue but instead, depends on a primary defect of the neural tube, by which there is focal failure of dehiscence of the neural tube from the embryonic ectoderm and in consequence, a focal failure of development of the skeletal encasement (Jubb and Huxtable, 1993). The anomaly is designated a cranial meningocele or spinal meningocele, depending on the site of the defect. It is formed during embryonic development, because of the incomplete closure of neural tube (Ghonghadze et al., 2011). The only effective treatment is reparative surgery, generally performed within one to two days after birth. The aim of the surgery is to remove the protrusions and to correct the deformities, essentially relieving pressure that can delay normal brain development. The surgical procedure and intra-operative findings were similar to those in calves earlier reported (Kohli and Naddaf, 1998). Recovery depends on the type of brain tissue involvement and location of the lesion and extends damage to the brain tissue. When the protruded material consists of primary cerebrospinal fluid, a complete recovery can occur (Laiju et al., loc. cit). In the present case non-recurrence of the swelling suggested that the defect might have progressively closed during growth of the kid.

Summary
The present report describes the surgical correction of cranial meningocele in a kid.

References

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