SURGICAL MANAGEMENT OF CRANIAL MENINGOCOELE IN A CALF

Justin William¹, B. M. Shiju Simon², S. Ayyappan¹, C. Ramani³, Velavan⁴ and R. Suresh Kumar⁵

Madras Veterinary College,
Tamil Nadu Veterinary and Animal Sciences University, Chennai -7.

A two day-old female jersey calf with cranial meningocele to the size of a football 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 apposed using PGA No. 1-0 and skin was closed using braided silk. The animal recovered unevenfully.

Cranial meningocoele is a congenital defect in which the fluid-filled meninges alone protrude through a defect in the cranium (Leipold and Davis, 1993) and may be caused by genetic or environmental factors or a combination of both. Surgical correction of this defect in five calves has so far been reported in veterinary literature (Kohli and Naddaf, 1998). A similar condition was reported in a buffalo calf, without surgical attempt (Ayyappan et al., 1996). The present case reported the successful surgical correction of cranial meningocoele in a calf.

A two day-old female jersey calf weighing 15.5 kg was presented to the Clinic with the history of swelling on the forehead at birth (Fig. 1). The calf was born at full term and had difficulty in sucking milk from the udder. Physical examination of the swelling revealed fluid filled and turgid in consistency and situated on the cranial midline of the head, extending from the middle third of forehead to few centimetres above the muzzle. Aseptic puncture by a needle, on its dependent portion, permitted drainage of about two and half litres of clear and colourless fluid. Deep palpation after drainage revealed an elliptical median hole on the skull, with a maximum diameter of two- finger-width. Surgical correction was carried out to solve the problem.

The swelling and surrounding areas were prepared for aseptic surgery. The calf was premedicated using xylazine @ 0.01 mg/kg body weight and induced by ketamine hydrochloride @ 2.5 mg/kg body weight intravenously respectively and local analgesia with 2% lignocaine. The calf 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 hole. 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 5.5 centimetres rostrocaudally on the frontal suture line with a width of 3 centimetres through which the brain tissue was visible. 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 cross mattress suture using braided silk. Post-operative antibiotic was given intravenously for five days. Sutures were removed on the 10th post-operative day and the recovery was unevenful.

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 meningocoele was related to the frontal suture line and covered by a normal skin. The morphogenesis of meningocoele 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 surgical procedure and intra-operative findings were similar to those in calves earlier reported (Kohli and Naddaf, 1998). Radiographic and ultrasonographic examination of a meningocoele at the anterior fontanelle has already been described in a two-and-a-half month old calf with a suggestion of cranioplasty, where the cranial defect is considerably large (Back et al., 1991). The non-recurrence of the swelling suggested that the defect might have progressively closed during growth of the calf.

REFERENCES


