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Successful surgical excision of congenital external hydrocephalus in a Telicherry kid: Case report

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Abstract

Thirty days old female Telicherry kid was presented with a history of abnormal swelling on its head and it was diagnosed as Congenital External hydrocephalus via clinical followed by a radiographical examination. The swelling was surgically excised and with proper postoperative care, the kid showed an uneventful response.

Keywords: Telicherry kid, swelling on head, congenital external hydrocephalus

Introduction

Hydrocephalus is the buildup of excessive cerebrospinal fluid in the brain's ventricles or dura mater, causing cranial swelling (Long, 2001) [6]. There are two types: internal or non communicating where fluid accumulates in ventricles and external or communicating with fluid accumulating in subarachnoid spaces outside the brain. The reasons are excess cerebrospinal fluid (CSF) production, absorption issues, or CSF passage interference (Sastry, 1971) [12]. Symptoms include raised intracranial pressure, head enlargement, seizures, mental disability, and potential fatality (Mausumi *et al.*, 2014) [7]. This report discusses surgical management of congenital external hydrocephalus in a 30-day-old Telicherry kid

Case History and Examination

A female Telicherry kid, aged thirty days was brought to the Veterinary Clinical Complex at the Veterinary College and Research Institute in Namakkal. The kid had a history of an unusually large swelling on its head since birth. The kid's vital signs were within the normal range. Upon examination, it was noted that the swelling had a fluid filled cavity at the sub occipital region and was soft and fluctuating in nature (Fig 1). Aspiration of the swelling yielded clear brownish fluid with no odour (Fig 2). Radiographic examination revealed fluid filled soft tissue swelling over the occipital bone. Based on the case history, clinical and radiographic examination, the condition was diagnosed as Congenital External Hydrocephalus. Consequently, it was decided to proceed with the surgical removal of the swelling.

Treatment

The area around the base of the swelling was shaved and scrubbed with 5 per cent povidone Iodine (Fig 3). Two per cent lignocaine hydrochloride was administered around the swollen portion of the head to achieve local analgesia. An elliptical stab incision was performed encircling the swelling and a small incision was carefully made on the swelling itself to gradually drain the fluid. The entire mass was then excised through deep incisions (Fig 4). Subsequently, the skin edges were brought together using a horizontal mattress pattern using non-absorbable cotton thread (Fig 5). The Kid received a 0.5 ml intramuscular injection of Tetanus Toxoid, a 50 mg intravenous injection of Ceftriaxone and a 0.5 ml intramuscular injection of Meloxicam. A daily antiseptic dressing of the sutures was performed using povidone iodine for a period of 10 days following the surgery. After this 10-day period, the sutures were removed and the Kid recovered meticulously.



Fig 1: External hydrocephalic swelling at sub occipital region



Fig 2: Aspiration of fluid



Fig 3: Preparation of surgical site



Fig 4: Surgical excision of swelling



Fig 5: Suturing of skin

Discussion

Congenital hydrocephalus is a condition characterized by abnormal fluid accumulation, affecting either the brain's ventricles or the subarachnoid space (Noakes, 2009) [9]. Congenital hydrocephalus occurs sporadically and has been documented in various animals. Balasubramanian *et al.* 1997 [2], Saini *et al.* 2019 [11] and Borkhatariya *et al.* 2020 [3] reported it in cattle. Dhaliwal *et al.*, 1998 [4] and Sharma *et al.* 2015 [13] observed cases in buffalo, while Abubakr *et al.* 1998 [1] found instances in camels. Calves with internal hydrocephalus exhibit a dome-shaped head (Mohammed *et al.*, 2015) [8], while those with external hydrocephalus have a football-shaped head (Sastry, 1971) [12]. Abnormal cerebrospinal fluid accumulation in brain tissues can be due to factors like fetal infection by bovine viral diarrhoea virus, inheritance of a single gene with incomplete penetrance, vitamin A deficiency, or brain lesions disrupting fluid flow (Dangi, *et al.*, 2021) [5]. The current findings of external hydrocephalus validate the findings of Sharma *et al.*, 2015 [13] in buffalo calves and Saini *et al.*, 2019 [11] and Vahora *et al.*, 2020 [14] in cow calves. These studies demonstrated successful surgical management of external hydrocephalus in animals. Sharma *et al.* 2015 [13] noted thin cranial bones in both hydrocephalus types. Hydrocephalic fetuses die due to pressure necrosis of vital brain areas. If they're born alive, their long term survival chances are low because of central nervous system lesions. Both external and internal hydrocephalus calves also showed other issues, such as ankylosis of forelimbs and hind limbs (Purohit *et al.*, 2012) [10].

Conclusion

Proper care of the dam to prevent intrauterine infection and supplementation of diet with vitamin A will prevent the occurrence of hydrocephalus. The timely diagnosis and surgical excision of hydrocephalic swelling along with post-operative management will give satisfactory results. There was no reoccurrence even after 2 months post surgery.

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