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Surgical management of dermoid cyst in a cross bred calf

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Abstract

A ten days old male jersey cross bred calf was presented referral veterinary polyclinic, Indian Veterinary Research Institute, Izatnagar for ocular examination in August 2017 with a history of epiphora, blepharospasm and keratoconjunctivitis. Clinical examination revealed that, there was hair growth in the limbus region and epiphora on right eye. Mild pain noticed on direct palpation. The present case was diagnosed as ocular dermoid and surgical treatment was warranted. The calf was sedated with general anaesthesia and regional nerve block was given with 2% lignocaine to desentize the eye ball. Dermoid tissue on dorsal side of cornea was grasped and was excised gently by superficial keratectomy procedure. There was no bleeding and then wound was closed with PGA 4-0 (Polyglycolic acid). Ocular dermoid in cross bred calves are genetically transmitted diseases. In conclusion under Xylazine and lidocaine anaesthesia, corneal dermoid was removed surgically by superficial keratectomy procedure.

Keywords: Ocular dermoid, limbus, epiphora, hair growth

1. Introduction

Ocular dermoid is a congenital defect recognized in animals characterized by skin like appendages present on the eye. These represent histologically normal Island of skin but misplaced to other location usually arising on the limbus, conjunctivae and cornea ^[1, 2]. It is believed that these cysts originate from an incarceration and subsequent growth of embryonic epithelial cells during the closure of the neural tube, and therefore, most of these lesions occur along the median line ^[3, 4]. However, there are reports of acquired dermoid cysts, secondary to traumatic epithelial dislocations ^[5]. The increased size of the cyst occurs due to normal cell desquamation within the cyst cavity leading to secondary signs related to the compression of adjacent structures. Cyst may be unilateral or bilateral associated with other ocular manifestation or with other malformation. The cyst usually contains hair, keratin, and sebum, and these materials may produce progressive enlargement of the structure so that it becomes clinically apparent ^[6]. Occurrence of Ocular dermoid is rare in newborn calves and hardly it associated with other congenital eye defects like corneal opacity which have been described in Holsteins as recessive condition ^[7]. Dermoid containing hair follicle is associated with irritation resulting in chronic inflammation of conjunctivae and cornea may result in visual impairment ^[8]. Being congenital anomaly, ocular dermoid was recorded in different breeds of cattle. However, ocular dermoid is not an inherited, nevertheless their occurrence is recommended to be duly noted in breeding herds and affected animals should be treated ^[9]. Dermoid cyst usually corrected surgically. The present case was deals with surgical management of unilateral ocular dermoid in Jersey male cross bred calf.

2. Materials and methods

On August 2017, a 10 days old male jersey cross bred calf was presented to Referral Veterinary Polyclinic, Indian Veterinary Research Institute, Izatnagar with the history of abnormal appearance of right eye since 10 days. On presentation animal was active and alert and other physiological parameters were within the normal range. Ocular finding showed that, a large mass was attached to the limbus cornea and sclera with a large number of hairs arising from the surface of the mass (Fig. 1). The calf was in good bodily condition and no other abnormalities were detected on physical examination, blood and other biochemical parameters were within the normal range. On the basis of clinical signs, the case was tentatively diagnosed as dermoid cyst in right eye. Owner was informed about the condition and surgical correction was recommended.



Fig 1: Dermoid cyst in the right eye with sign of epiphora and corneal opacification



Fig 4: Temporary Tarsorrhaphy was done after surgical removal of dermoid cyst

The calf was sedated with 0.1mg/kg Xylazine intramuscularly and restrained on left lateral recumbency. In order to achieve complete anesthesia of eye, relaxation of globe and akinesia of eyelid: retrobulbar, supra orbital and auriculopalpebral nerve block were performed with 2% lignocaine hydrochloride [10]. The calf eyelashes were trimmed and washed with 0.9% povidone iodine solution to remove contaminants. After attainment of adequate sedation, superficial keratectomy was performed. The mass was grasped with forceps and tissue was completely excised with Pard barker blade no 15 from the limbus and bulbar conjunctiva by careful dissection without damaging the anterior chamber of the eye (Fig. 2). Ulcerated corneal region was covered with conjunctival flap that exhibit the best blood supply to the ulcerated cornea (Fig. 3). After that the eyelid was temporarily closed by Tarsorrhaphy to prevent the exposure to outside contaminants and help the cornea to heal (Fig. 4). Post operatively ciprofloxacin and flurbiprofen eye drop T.I.D in a day for 5 days. Systemic antibiotic Gentamicin 4mg /kg intra muscular for 6 days and Meloxicam 0.4mg /kg intramuscular for 3 days were given. The calf was again rule out for any reoccurrence.



Fig 2: Dermoid cyst was surgically removed by superficial keratectomy procedure



Fig 3: Ulcerated cornea was covered with conjunctival flap

3. Results and Discussion

Clinical findings and history indicated that calf had congenital malformation of ocular dermoid on right eye. Dermoid was successfully removed by superficial keratectomy. Post operative recovery was uneventful and reexamination after one month did not show any sign of reoccurrence of dermoid. Ocular dermoid is a christoma of normal tissue formation at abnormal location. It is a congenital overgrowth of heterotrophic defect which appears at incorrect site of eye [11, 12 & 13]. While, mechanism of eye dermoid formation was not known [1] but it is not transmitted through hereditary origin. The present case also reported coreneoconjunctival form of dermoid that was not hereditary. Ocular dermoid are not common in cattle with a percentage of occurrence 0.002-0.4% [11]. Dermoid have been reported in many breeds of cattle and can be unilateral or bilateral [14]. Our finding in this case was in agreement with [15] who reported that Holstein Friesians cross bred calf affected with unilateral dermoid on right eye. Dermoid may be located in the third eyelid, cornea, conjunctiva, corneoconjunctival junction and limbus region [16]. Similar findings were noticed in our case where the dermoid cyst was located on the corneoconjunctival region. The dermoid may contain hair follicle, skin like appendages, epidermis, dermis, sebaceous gland and frequently hair follicle [16]. In present case the dermoid cyst contain hair follicle and skin like appendages in corneoconjunctival region. The calf showed sign of moderate blepharospasm and continuous epiphora on right eye. As a result of trichiasis, the superficial cornea was damaged and having ulceration. Due to continuous irritation of hair follicle lead to loss of transparency of cornea in right eye. However blinking, consensual and photomotor pupillary light reflex were intact. These findings were correlated with study of [17] who observed that skin tissue and hair attached to the cornea and frequently irritate eye of the animal which leads to conjunctivitis [18]. Early excision is warranted else the long hairs arising from surface of the tissue may cause conjunctival and corneal irritation leading to epiphora, conjunctival edema, keratitis with subsequent visual impairment in prolonged cases [19]. In the present case visual impairment was partially present due to late presentation of animal lead to inflammatory changes and opacification of cornea. Treatment of dermoid can be done with enucleation, exenteration, evisceration, cryotherapy, lamellar keratotomy or combination of technique had been suggested [13]. But superficial lamellar keratectomy was found to be successful technique for corneal dermoid excision [16]. Hence in this case superficial lamellar keratectomy and partial wedge resection of conjunctiva were performed. This made the calf to recover uneventfully without reoccurrence.

4. Conclusion

It is concluded that corneal dermoid surgery can be performed using 20% Xylazine HCl and 2% lignocaine provide a safer sedation and good analgesia in a cow calf. The prognosis of early presented animal would be higher compare to late. Surgical procedure is the key solution to be used for removal of ocular dermoid defect. Therefore, superficial lamellar keratectomy was observed to be safer which showed uneventful recovery without complications.

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