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Management of acquired nasolacrimal duct obstruction in a bullock

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Abstract

Nasolacrimal duct obstruction is an uncommon but important cause of persistent epiphora in cattle and may be congenital or acquired. The present case describes the diagnosis and successful management of acquired nasolacrimal duct obstruction in a bullock. The animal was presented with persistent unilateral lacrimation despite previous treatment with systemic and topical antibiotics, non-steroidal anti-inflammatory drugs, antihistamine, and corticosteroid eye drops. Clinical examination revealed continuous epiphora without significant corneal or conjunctival lesions. No abnormal external opening suggestive of a congenital nasolacrimal fistula was observed. The obstruction was diagnosed by flushing through the lacrimal punctum using a No. 6 infant feeding tube. Gentle irrigation with sterile normal saline restored ductal patency and resulted in marked reduction of lacrimation. Supportive treatment, topical medication, and temporary tarsorrhaphy were provided. The animal showed complete resolution of epiphora without recurrence during 15 days of follow-up. The case highlights the importance of differentiating acquired obstruction from congenital anomalies and demonstrates that nasolacrimal flushing can be a simple and effective treatment.

Keywords: Bullock, cattle, epiphora, nasolacrimal duct obstruction, nasolacrimal flushing, lacrimal drainage, tarsorrhaphy

Introduction

The nasolacrimal apparatus provides drainage of tears from the ocular surface into the nasal cavity. Obstruction of this drainage pathway commonly manifests as epiphora and may be associated with periocular moisture, dermatitis, conjunctival irritation, or mucopurulent discharge. Irrigation of the nasolacrimal duct is useful both diagnostically and therapeutically because reflux or failure of passage of fluid can indicate obstruction, while successful flushing may restore ductal patency (MSD Veterinary Manual, 2026) [5].

Nasolacrimal disorders in cattle may broadly be classified as congenital structural anomalies or acquired obstruction. Congenital abnormalities include supernumerary openings, ectopic ducts, fistulae, and other developmental defects. Supernumerary openings of the nasolacrimal drainage apparatus were reported in Brown Swiss calves by Heider *et al.* (1975) [3], while Braun *et al.* (2014) [1] documented a potentially hereditary nasolacrimal duct fistula in Brown Swiss cattle. Congenital lacrimal fistulae have also been reported in calves and bulls, where an abnormal cutaneous opening communicates with the nasolacrimal system (Braun *et al.*, 2012; Jugant *et al.*, 2019) [2, 4].

Unlike these congenital anomalies, acquired nasolacrimal duct obstruction represents loss or impairment of previously established ductal patency. In cattle, acquired obstruction may be associated with inflammatory material, mucus, foreign bodies, trauma, or secondary stenosis. In appropriate cases, flushing of the duct can re-establish normal tear drainage (MSD Veterinary Manual, 2026) [5].

Clinical Observation

A bullock was presented with a history of persistent unilateral excessive lacrimation. Clinical examination revealed continuous overflow of tears from the affected eye with wetting of the

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periocular region. Detailed ophthalmic examination did not reveal significant corneal lesions, severe conjunctivitis, or another obvious ocular cause for the epiphora. Other clinical parameter like respiration rate 22 breath per min, heart rate 56 beats per min, rectal temperature 101.4 °f, mucous membrane pink, appetite, defecation, urination were normal. Paravet was previously treated animal with antibiotic enrofloxacin, NSAID meloxicam, antihistamine chlorpheniramine maleate and topical eye drop moxifloxacin and dexamethasone but animal did not show any recovery.

The medial canthal region was examined carefully for the presence of an ectopic lacrimal opening or fistula. No abnormal cutaneous opening suggestive of a congenital nasolacrimal fistula was identified. The clinical findings, together with the absence of an apparent congenital anomaly, were suggestive of an acquired nasolacrimal drainage obstruction.

Diagnosis

The nasolacrimal drainage system was evaluated by flushing through the lacrimal punctum with the infant feeding no.6. Resistance to the passage of fluid was encountered initially, supporting the diagnosis of ductal obstruction. Gentle irrigation with sterile normal saline resulted in progressive restoration of patency. The passage of flushing fluid through the normal nasal drainage pathway and subsequent reduction in epiphora supported the diagnosis of acquired nasolacrimal duct obstruction.

The distinction from congenital fistula was important because congenital fistulae are characterized by an abnormal external opening and communication with the lacrimal drainage system. In affected cattle, fluid introduced through the lacrimal puncta may exit through the abnormal fistulous opening rather than following the normal drainage pathway (Braun *et al.*, 2012; Braun *et al.*, 2014) [2, 1].

Treatment and Management

The animal was adequately restrained, and the periocular region was cleaned before the procedure. The affected lacrimal punctum was identified and gently cannulated with infant feeding tube no.6 (Fig.1). Sterile normal saline was slowly introduced into the nasolacrimal duct under controlled pressure. Initial resistance was encountered, but repeated gentle flushing resulted in restoration of ductal patency. Care was taken to avoid excessive pressure because forceful irrigation may traumatize the delicate mucosa or create a false passage. Nasolacrimal flushing is recognized as an appropriate approach for re-establishing ductal patency in cases of obstruction. Following flushing, topical ophthalmic medication like Pendistrin SH (Penicillin Streptomycin sulphate Sulphamerazine Hydrocortisone acetate) used to counteract conjunctival inflammation or secondary infection is present. To avoid the recurrence of inflammation tarsorrhaphy was done by giving auriculopalpebral nerve block (Fig.2). Tarsorrhaphy suture were removed after 10 days. The animal was monitored for recurrence of epiphora and other ocular abnormalities.

Following restoration of nasolacrimal duct patency, a marked reduction in lacrimation was observed. The affected eye subsequently showed normal tear drainage, with resolution of periocular wetness. Follow up treatment include injection dicrysticin (procaine penicillin G, penicillin G sodium, and streptomycin sulphate) 5 gm intramuscularly, injection Cadistin (chlorpheniramine maleate) 10 ml intramuscularly, injection melonex (meloxicam) 20 ml intramuscularly and

Placentrex (Placenta extract) 2 ml intramuscularly for 3 days. No recurrence of excessive lacrimation was observed during the 15 days of procedure (Fig.3).

Discussion

Nasolacrimal duct obstruction should be considered in cattle presenting with persistent unilateral epiphora after other painful ocular conditions have been excluded. A careful examination of the medial canthal region is particularly important because congenital fistulae may resemble ordinary lacrimal discharge. Congenital nasolacrimal fistulae have been documented in Brown Swiss cattle, calves, and bulls, and some reports suggest a hereditary component (Braun *et al.*, 2012; Braun *et al.*, 2014) [2, 1].

Congenital abnormalities should be distinguished from acquired obstruction because their management differs. Congenital fistulae represent abnormal anatomical communication and may require surgical correction rather than simple flushing. Congenital lacrimal fistulae in calves have been treated by resection and closure of the ectopic duct with placement of a nasolacrimal stent (Jugant *et al.*, 2019) [4]. In contrast, flushing is particularly useful when the duct is anatomically present but its lumen is temporarily or partially obstructed. Restoration of patency following gentle irrigation provides both diagnostic and therapeutic evidence of an acquired obstruction. The successful outcome in the present bullock indicates that early recognition and appropriate flushing can provide a simple, minimally invasive treatment option for selected cases.



Fig 1: Nasolacrimal duct blockage flushing through infant feeding tube no.6



Fig 2: Tarsorrhaphy



Fig 3: Suture removal after 10 days with absence of epiphora

Conclusion

The present case demonstrates successful management of acquired nasolacrimal duct obstruction in a bullock by gentle flushing through the lacrimal punctum. Importantly, congenital nasolacrimal abnormalities such as fistulae and ectopic openings should be distinguished from acquired obstruction because they represent structural defects and may require surgical correction. In cattle with epiphora and no evidence of a congenital anomaly, careful ophthalmic examination followed by controlled nasolacrimal flushing can be an effective diagnostic and therapeutic approach. Early restoration of tear drainage may prevent persistent periocular wetness, secondary dermatitis, and recurrent ocular irritation.

Conflict of Interest

Not available

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Not available

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