

Surgical Management of Nasolacrimal Duct Obstruction Associated with a Mast Cell Tumor in a Mare

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Introduction

Obstruction of the nasolacrimal duct in horses is a common condition and may lead to epiphora, nasal discharge, and secondary infection (1-3). Neoplastic causes are rare, and mast cell tumors have been infrequently described involving the equine adnexa or the nasal cavity (4-7). This case report describes the clinical presentation, histological findings, surgical management, and short- and long-term outcomes of a mare with nasolacrimal duct obstruction caused by a mast cell tumor.

Methods

Case description

A 23-year-old crossbred riding pony mare was presented to the Equine Clinic of the University of Veterinary Medicine Hannover with a history of chronic hemorrhagic epiphora affecting the left eye. Clinical examination revealed a large, proliferative soft tissue mass located at the nasal opening of the nasolacrimal duct, resulting in partial to complete obstruction of the lacrimal drainage system. The lesion had progressively increased in size over time and was associated with persistent ocular discharge and intermittent bleeding. A comprehensive diagnostic workup was performed, including detailed endoscopic evaluation and radiographic examination of the affected nasolacrimal pathway to assess the extent of the lesion and its involvement of surrounding structures. Based on the diagnostic findings, surgical excision of the mass was indicated and subsequently performed. Long-term outcome and possible recurrence were assessed via structured telephone follow-up 1.5 years postoperatively, focusing on resolution of clinical signs, functional outcome, and owner satisfaction.



Fig. 1: Severe hemorrhagic epiphora from the left eye.

Results

Diagnostic workup and surgical intervention

The diagnostic evaluation revealed complete obstruction of the nasolacrimal duct by a soft tissue mass measuring approximately 10 × 15 × 3 cm. Based on these findings, surgical intervention was indicated. Prior to surgery, the horse received flunixin-meglumine (Flunido[®], 1.1 mg/kg body weight i.v., s.i.d.) and trimethoprim-sulfadiazin (Equibactin vet.[®] 333/67 mg/g in 30 mg/kg body weight per os, b.i.d.), which was continued for two days postoperatively. Sedation was achieved using an initial intravenous bolus of romifidine (Sedivet[®], 0.03 mg/kg body weight), followed by a constant rate infusion (CRI) of romifidine in saline (Sedivet[®], 0.05 mg/kg body weight/h i.v.). Butorphanol (Butorgesic[®], 0.04 mg/kg body weight/h i.v.) was added to the CRI to provide additional analgesia. Complete excision of the lesion was performed in the standing horse under sedation, following a left infraorbital nerve block and local infiltration with mepivacaine. The mass was surgically removed without complication. To maintain postoperative patency of the nasolacrimal duct and to prevent stricture formation during healing, a temporary intraductal stent was placed using a 5.0 Fr, 70 cm open-end ureteral catheter. Correct positioning was confirmed, and the catheter was secured and left in situ for a period of six weeks. The horse recovered uneventfully, and no immediate postoperative complications were observed.

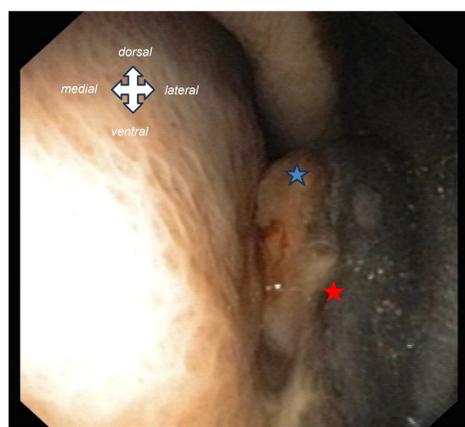


Fig. 2: Endoscopic view of the left nasal passage: The nasal septum is visible medially. The ostium of the nasolacrimal duct is located at the mucocutaneous junction (red asterisk), with the mast cell tumor visible caudal to it (blue asterisk).



Fig. 3: Laterolateral radiograph of the skull: A soft tissue mass is visible caudal to the nostril (blue asterisk), without involvement of the paranasal sinus system or the proximal portion of the nasolacrimal duct.

Histopathology

Histopathological examination revealed a mast cell tumor characterized by multifocal, nodular to diffuse proliferations of well-differentiated mast cells, accompanied by marked eosinophilic infiltration and multifocal eosinophilic granulomas. Neoplastic cells showed mild anisocytosis and anisokaryosis, with no mitotic figures observed. Surgical margins could not be reliably assessed due to sampling limitations. Based on histomorphological features, the prognosis was considered favorable, and recurrence or metastatic disease was not expected.

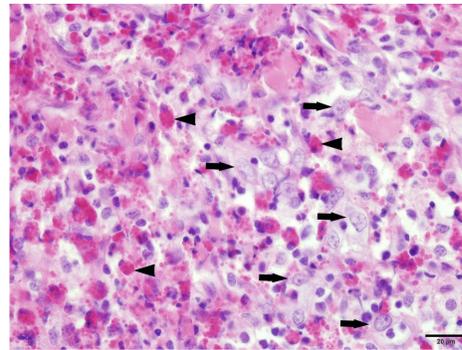


Fig. 4: Nasal mast cell tumor, biopsy: infiltration of moderately pleomorphic, neoplastic cells (arrows) accompanied by numerous eosinophilic granulocytes (arrowheads); HE.

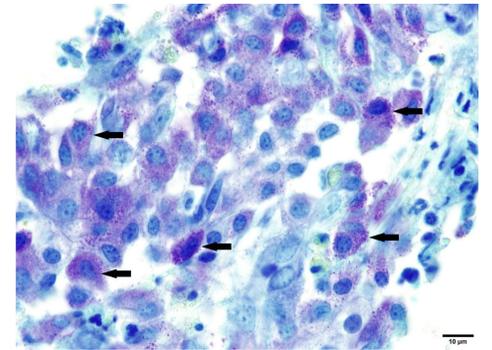


Fig. 5: Nasal mast cell tumor, biopsy: demonstration of variable amounts of magenta-coloured metachromatic granules in the cytoplasm of neoplastic mast cells; Toluidinblue-stain.

Outcome

Postoperative healing progressed uneventfully by secondary intention and was associated with a favorable short-term clinical outcome. The surgical site showed progressive granulation and epithelialization without evidence of excessive inflammation or infection. Following removal of the temporary intraductal stent after six weeks, the nasolacrimal duct remained patent along the previously stented tract, and a new, functional nasal opening had successfully formed, allowing effective lacrimal drainage. Pathohistological examination of the excised tissue confirmed the diagnosis of a mast cell tumor. At clinical re-examination six weeks postoperatively, the horse demonstrated complete resolution of hemorrhagic epiphora and no signs of discomfort, local recurrence, or impairment of nasolacrimal duct function. Long-term follow-up conducted via structured telephone interview 1.5 years after surgery revealed sustained clinical improvement, with no reported recurrence of the mass, no evidence of epiphora, and continued patency of the nasolacrimal duct. Overall, both short- and long-term outcomes were considered excellent.

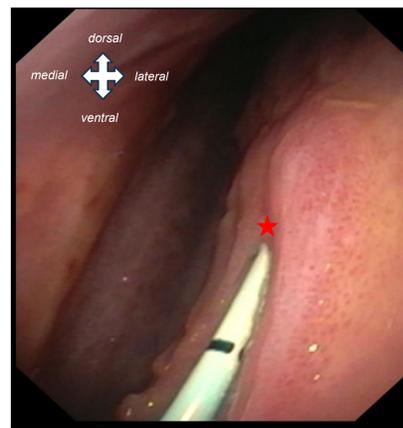


Fig. 6: Endoscopic view of the left nasal passage 6 weeks postoperatively: The nasal septum is visible medially. A newly formed ostium of the nasolacrimal duct is located slightly caudal to the original opening, with the nasolacrimal stent still in place (red asterisk). No evidence of tumor recurrence is observed.



Fig. 7: Left eye 6 weeks postoperatively: No evidence of epiphora is present. The nasolacrimal stent remains in situ, exiting through the ventral punctum.

Discussion and Conclusions

- Mast cell tumors represent a rare differential diagnosis in horses with nasolacrimal duct obstruction and hemorrhagic epiphora
- Surgical excision, combined with temporary nasolacrimal duct stenting, can restore duct patency and achieve favorable short- and long-term outcomes. Surgical excision of equine mast cell tumors is usually curative, and incomplete excision or biopsy may be followed by spontaneous remission (7)
- Additional therapeutic options, including intra- or sublesional corticosteroid injection, cryosurgery, and radiotherapy, may be considered depending on tumor location, size, and extent (7)

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