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Nasopharyngeal mast cell tumour in a horse

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Summary

A case of nasopharyngeal mast cell tumour is presented as an unusual cause of epistaxis in a horse.

Introduction

Nasopharyngeal neoplasia is not common in horses. Tumours previously reported at this site include lymphosarcoma (Meschter and Allen, 1984; Lane, 1985), squamous cell carcinoma (Schuh, 1986) and undifferentiated adenocarcinoma (Baker, 1975). Equine mast cell tumours, both solitary and generalised, are usually confined to the skin and subcutis (Altera and Clark, 1970; Riley, Yovich and Howell, 1991).

Epistaxis has several well recognised causes including exercise induced pulmonary haemorrhage (Mason et al., 1983), progressive ethmoid haematoma (Cook and Littlewort, 1974; Boles, 1979; Haynes, 1984 and Greet, 1985) and guttural pouch mycosis (Cook et al., 1968). Less common causes include ulcerative rhinitis, nasal polyps and turbinate bone necrosis (Cook and Littlewort, 1974). Nasal and nasopharyngeal tumours form an unusual cause of epistaxis.

Case Report

History

A seven-year-old, part-Thoroughbred mare was referred to the Department of Veterinary Surgery, University of Bristol for investigation of bilateral epistaxis. The mare had been hunted uneventfully three days before a nasal discharge of any kind was first noted. Initially the discharge was serosanguinous, mainly right-sided, scanty and intermittent. It was present when at rest in the stable as well as when lightly hacked. True epistaxis then developed and gradually increased in volume before becoming bilateral. No adventitious respiratory noise was heard. The duration of epistaxis at presentation was five days.

Clinical findings

At clinical examination the horse was in good body condition. The rate and character of respiratory movements were normal and no coughing was heard. There was evidence of blood at both nostrils and a very slow drip of dark blood was observed. The mucous membrane colour was pink, capillary refill time and packed cell volume were within normal ranges. No facial asymmetry, swelling or pain was observed and percussion of the paranasal sinuses provoked normal resonance. There was no palpable lymphadenopathy of the intermandibular or parotid areas.

Videoendoscopy revealed no abnormality of the nasal mucosae, ethmoturbinates or auditory tube diverticula. An oval mass was identified, approximately 5 cm in diameter, attached to the right nasopharyngeal wall approximately 13 cm rostral to the tip of the epiglottis. The mass projected into the lumen of the airway and had an irregular slightly nodular surface which easily bled on contact. The full extent of the attachment of the lesion could not be determined. Blood was visible in the left and right nasal meati. No discharge was visible in the trachea.

Standing lateral radiographs of the head showed an area of increased soft tissue density at a level immediately caudal to the sixth maxillary cheek tooth. This area was partly superimposed by the rostral border of the vertical ramus of the mandible and therefore it was not possible to see a discrete caudal border to the lesion.

A biopsy of the mass was taken, via the videoendoscope, for histological examination. The tissue was composed of a mixture of vascular connective tissue covered by pseudostratified columnar epithelium, isolated epithelial fragments and clotted blood. There was some variation in epithelial cell size with occasional mitotic figures. This was considered to represent either an epithelial neoplasia or hyperplastic epithelium overlying a tumour. A definitive diagnosis was not made from the biopsies alone. In view of the inaccessibility of the mass for conventional surgical resection and the prospect of further severe epistaxis if the lesion was left untreated, euthanasia was performed.

Postmortem findings

At postmortem examination significant findings were limited to the nasopharyngeal region as identified antemortem. A mass measuring approximately 6 x 3 x 2 cm was located in the right nasopharynx attached to the underlying muscular tissue by a pedicle. The cut surface was

cream coloured and there were several irregularly shaped dark foci, up to 3 mm in diameter, scattered throughout the mass.

Histological examination of three sections stained with haematoxylin and eosin revealed the mass to be composed of sheets of cells with round to oval nuclei and ample amounts of pale cytoplasm covered by hyperplastic pseudostratified ciliated columnar epithelium. Occasional mitotic figures were seen and numerous eosinophils were present in a diffuse pattern with occasional focal clusters. The dark foci seen grossly were areas of necrosis with strongly eosinophilic material and nuclear debris. There was no invasion of the underlying muscular tissue. A further section stained with toluidine blue showed the pale cells staining metachromatically, confirming their identity as mast cells. The histological appearance of this tumour is typical of equine mast cell tumours described previously (Altera and Clark, 1970).

Discussion

In the dog, mast cell tumours are found in the dermis or subcutaneous tissues especially in the skin of the upper posterior limbs, perineal and preputial regions. These tumours can also arise in viscera, commonly spleen, liver or kidney, or occasionally as focal tumours in abberant sites such as lymph nodes, larynx, trachea and gastrointestinal tract (Theilen and Madewell, 1987). One case of a focal mast cell tumour of the larynx has been reported (Beaumont et al, 1979) and a further case of a dog with multiple skin lesions and involvement of the lips, tongue and "perilaryngeal tissues" was published (Smith and Fowler, 1961).

In cats the visceral or leukaemic forms of mast cell tumours have been reported more frequently than the cutaneous forms, although mast cell tumours are among the most frequently recognised malignant cutaneous neoplasms in the cat (Theilen and Madewell, 1987).

In the horse, mast cell tumours are most frequently recognised involving the skin and subcutaneous tissues (Altera and Clark, 1970). In a series of equine cutaneous mast cell tumours the mean age of affected animals was seven years four months; no breed prediliction was observed, but males were affected much more frequently than females (Altera and Clark, 1970). Cutaneous lesions can occur anywhere on the body but the head is most frequently involved. No reported cases of intranasal or nasopharyngeal mast cell tumours have been found by the authors.

In this case the biopsy results provided an inconclusive diagnosis. Retrospectively a further section was prepared from a deeper level of the biopsies and stained with toluidine blue. Examination revealed aggregations of mast cells in the underlying connective tissue which were absent from the original sections. Although the outcome of the case was not dependant on misleading biopsy specimens, this report does underline the limitations of transendoscopic sampling for histopathology.

Postmortem examination revealed no evidence of metastatic spread from the nasopharygeal lesion and no previous cases with metastases have been reported.

The presenting sign of bilateral epistaxis would be consistent with several disease processes, such as pulmonary haemorrhage, bilateral ethmoid haematomas or an ethmoid haematoma which had extended around the caudal aspect of the midline septum. The fact that the signs were bilateral indicates that the origin of the epistaxis was likely to be caudal to the caudal limit of the midline septum. A diagnosis of a nasopharyngeal mass was readily obtained in this case due to easy visualisation of the lesion on videoendoscopy. Surgical access for resection of the mass would have been difficult due to its relatively rostral position in the nasopharynx. With the benefit of hindsight, if a Nd-YAG laser system had been available resection of the base of the lesion may have been feasible as no metastases were present and the neoplastic tissue only penetrated to a depth of 3 mm into the right nasopharyngeal wall.

This case demonstrates that mast cell tumours are not only located at cutaneous sites and may present as a very unusual cause of epistaxis in the horse.

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