

LONG TERM REMISSION OF A NASAL LYMPHOMA WITH INTRACRANIAL EXTENSION IN A CAT

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Introduction

Lymphoma of the nasal cavity is a rare neoplasm in the cat, but represents the most common nasal tumour of this species¹. It is usually B-cell in origin and affects primarily older FeLV negative subjects². This is generally a localised disease that causes signs mainly restricted to the nasal cavity^{3,4}. The aim of this paper is to describe a feline nasal tumour diagnosed as a lymphoma with an intracranial extension. Radiotherapy and chemotherapy are often effective in obtaining excellent control and prolonged survivals in feline nasal lymphoma⁵. The cat object of this paper is still alive 21 months after the diagnosis of lymphoma.

Clinical case

A 3 years old female domestic shorthair cat was presented for chronic nasal discharge and sneezing. Signs deteriorated over 3 months leading to bilateral epistaxis, facial swelling and right exophthalmos. Findings on physical examination were weight loss, mild dehydration, stertor and a tissue proliferation around the right second upper premolar (Fig 1). The right eye was exophthalmic, with a strabismus and a pervasive corneal opacity. The affected eye also showed photophobia, blepharospasm and epiphora. On ocular examination she had absent menace reaction, and direct and consensual pupillary light reflex in the right eye. In this eye there was also a central corneal ulcer, while Schirmer test and eye pressure evaluation were unremarkable. The only abnormality in blood CBC and chemistry profile and urine analysis was a mild neutrophilic leukocytosis. Serologic tests for FIV and FeLV were negative (FIV-IC, FeLV-IC - Agrolabo s.p.a., Scarmagno, TO - Italy). The diagnostic workup was completed under a light sedation with medetomidine (Domitor®, Pfizer). Dorsoventral intraoral and lateral radiographs of the skull showed a soft tissue opacity of the right nasal cavity with loss of turbinate detail and signs of bone erosion. Ultrasonography revealed the presence of abnormal tissue infiltrating the right retrobulbar space. Nasal swabs were submitted for cytology and bacterial and mycotic cultures. A mixed bacterial flora, sensitive to several antibiotics, was isolated.

A sample obtained from the right nasal cavity by transcutaneous needle aspiration was partly used to prepare smears and partly fixed in formalin 10% and

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included in paraffin. The smears, stained with May Grunwald-Giemsa, demonstrated the presence of medium and large round cells with round or indented nuclei, evident nucleoli e moderately basophilic cytoplasm; these cells were morphologically comparable to lymphocytic cells (Fig 3a). The immunohistochemical examination of the fixed specimen demonstrated that these cells were CD79 positive (Fig 3b). CD79 is a B lymphocytes marker. Thoracic radiographs, abdominal ultrasound and a bone marrow aspiration failed to detect systemic involvement. A diagnosis of stage Ia B-cell lymphoma was therefore made.

The owner decided for a treatment with a chemotherapy multiagent protocol since the nearest radiation therapy centre was 400 km distant. The cyclophosphamide, vincristine, prednisone, doxorubicin protocol ⁶ produced a dramatic improvement of clinical signs and reduction of the head deformity in 3 weeks (Fig 2).

Approximately 5 months after the beginning of chemotherapy the cat began showing anorexia, weakness, ataxia, seizures, left hemiparesis and circling. Echocardiografic evaluation failed to identify doxorubicin-associated cardiomyopathy. The neurologic examination suggested the presence of a lesion of the right forebrain. A helical CT scan (Toshiba Helical Express) of the neuro and splancnocranium was performed in general anaesthesia without and with contrast enhancement. It showed the frontal sinus on both sides containing pathological material and lysis of the right nasal and frontal bones. Contrast agent slightly enhanced frontal sinuses content. CT scan also demonstrated a left shift of the brain midline and the same slight contrast enhancement at the level of both brain frontal lobes (Fig 4). At the owner's request the chemotherapy treatment was discontinued. The cat was only treated with decreasing doses of glucocorticoids for 3 weeks and had a dramatic improvement of the clinical signs and an almost complete recover from neurologic deficits. Twenty-one months after the diagnosis of lymphoma and 16 months after the onset of neurologic signs the cat is still asymptomatic except for a slight left forearm paresis without being subject to any further therapy. Moreover, during this remission period the cat has experienced a normal pregnancy and an uneventful delivery (Fig 5).

Discussion and conclusions

Only very locally aggressive nasal tumours like adenocarcinomas and olfactory neuroblastomas are usually associated with brain invasion ^{1,7}. Feline nasal lymphoma generally causes signs mainly restricted to the nasal cavity and doesn't extend to surrounding structures like cranial and oral cavity ⁴. To the authors' knowledge, this may be the first report of a feline nasal lymphoma with such a locally aggressive behaviour. Also unusual is the age of the patient since the reported median age for this disease in cats is over 8 years ^{2,8}. In a recent paper on 18 cases of feline nasal lymphoma the youngest subject of the group was 7 years old ⁴.

The progression of the tumour in the CNS despite chemotherapy, that seemed otherwise effective against this tumour, could be explained by the incapability of the agents used, apart from prednisone that was suspended on day 28, of passing the blood-brain barrier. As the owner declined further advanced diagnostic imaging of

the brain the explanation of the long term remission of neurologic signs without drugs is open to different speculative interpretations. The CNS signs were probably caused mainly by nervous tissue edema and intra-cranial pressure increase that were well controlled with glucocorticoids; these also delay the growth of the lymphoma⁷. The long symptom-free period may suggest a slow growth of the tumour mainly in the frontal lobes of the brain, as tumours with this location and rate of growth are often associated with prolonged periods without or with only mild neurologic signs^{7,9}. However the long survival of this subject is in agreement with the findings reported in literature on nasal lymphoma in FeLV negative cats treated with radio or chemotherapy².

References

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Abstract

This paper describes a clinical case of a cat affected by a nasal lymphoma with an intracranial extension. After a brief description of the symptoms, the results of the clinical examination and of the diagnostic procedures are illustrated. The therapy instituted and the follow up of the patient are then reported. Considerations concerning the peculiarities of the clinical case together with a brief review of the scientific literature on this topic are also discussed.

Riassunto

Questo articolo descrive un caso clinico di un gatto affetto da un linfoma nasale con estensione intracranica. Dopo un breve descrizione dei sintomi vengono illustrati i risultati della visita clinica e delle procedure diagnostiche eseguite. Quindi viene riportato dagli autori l'approccio terapeutico utilizzato e informazioni riguardanti il *follow up* del paziente. Completa l'articolo la discussione delle caratteristiche peculiari del caso clinico e della letteratura scientifica disponibile sull'argomento.

Key words

Cat, nasal lymphoma, chemotherapy.

Parole chiave

Gatto, linfoma nasale, chemioterapia.

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Figure 1: *facial swelling, right exophthalmos and tissue proliferation around the right second upper premolar in the cat at time of first presentation.*



Figure 2: images of the cat 3 weeks after the beginning of chemotherapy.

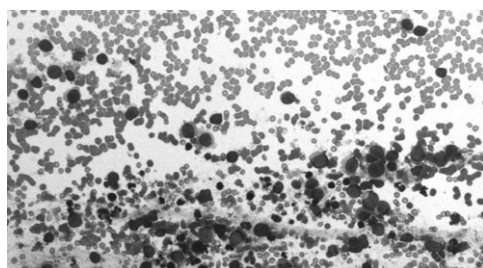


Figure 3a: cytology: in an erythrocytic context presence of medium and large round-cell with round or indented nuclei, evident nucleoli e moderately basophylic cytoplasm (lymphocytic cells). (May Grunwald-Giemsa, original magnification 20X).

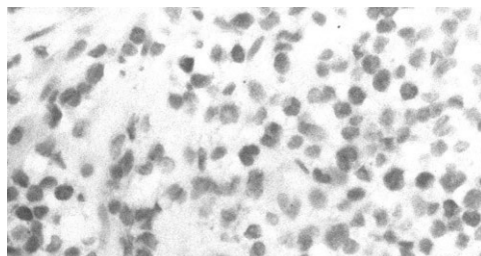


Figure 3b: histology: CD79 positivity of the lymphocytic cells (original magnification 40X).

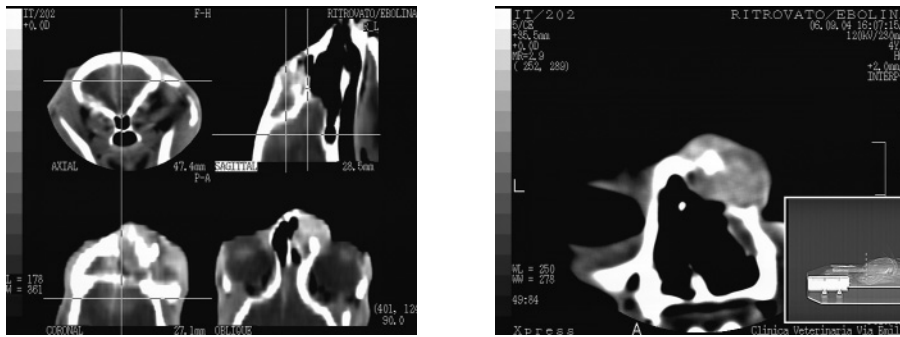


Figure 4: axial, sagittal and coronal CT sections of the frontal and orbital region with contrast enhancement showing the tumour.



Figure 5: the cat and her kittens a few days after birth.