



Diagnostic Exercise

From The Davis-Thompson Foundation*

Answer Sheet

Case #**188**; Month: **May**; Year: **2022**

Title: Encephalic and auricular/nasopharyngeal lymphoma in a cat

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Clinical History: A 9-year-old male neutered domestic longhair cat with acute onset depression and anisocoria was euthanized with pentobarbital overdose due to the rapid and progressive nature of the clinical signs.

Autopsy Findings: A well demarcated, white, firm, elongated mass completely occluded the right horizontal ear canal, extended into the auditory tube, and protruded into the nasopharynx (Fig. 1). The right tympanic bulla was filled with translucent, gelatinous material. A relatively well demarcated, white, soft plaque was attached to the leptomeninges and infiltrated into the outer neuroparenchyma of the ventral right temporal and piriform lobes of the brain (Fig. 2). No connection was observed between the auricular/nasopharyngeal and encephalic lesion.

Gross Images:

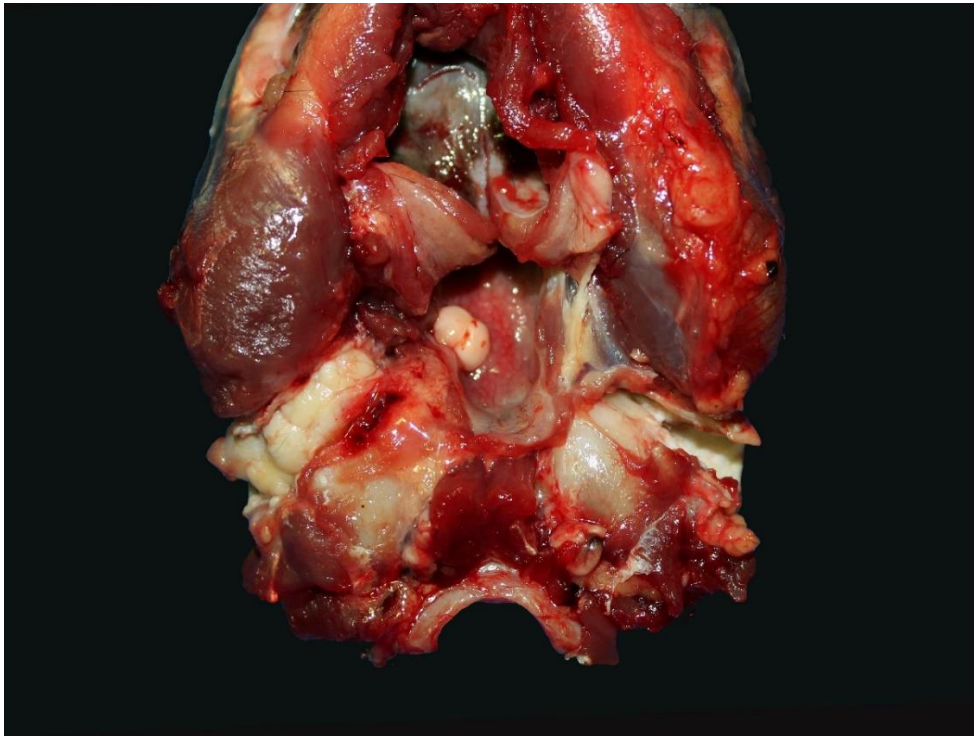


Figure 1. A well demarcated, white, firm, elongated mass completely occludes the right horizontal ear canal and protrudes into the nasopharynx.

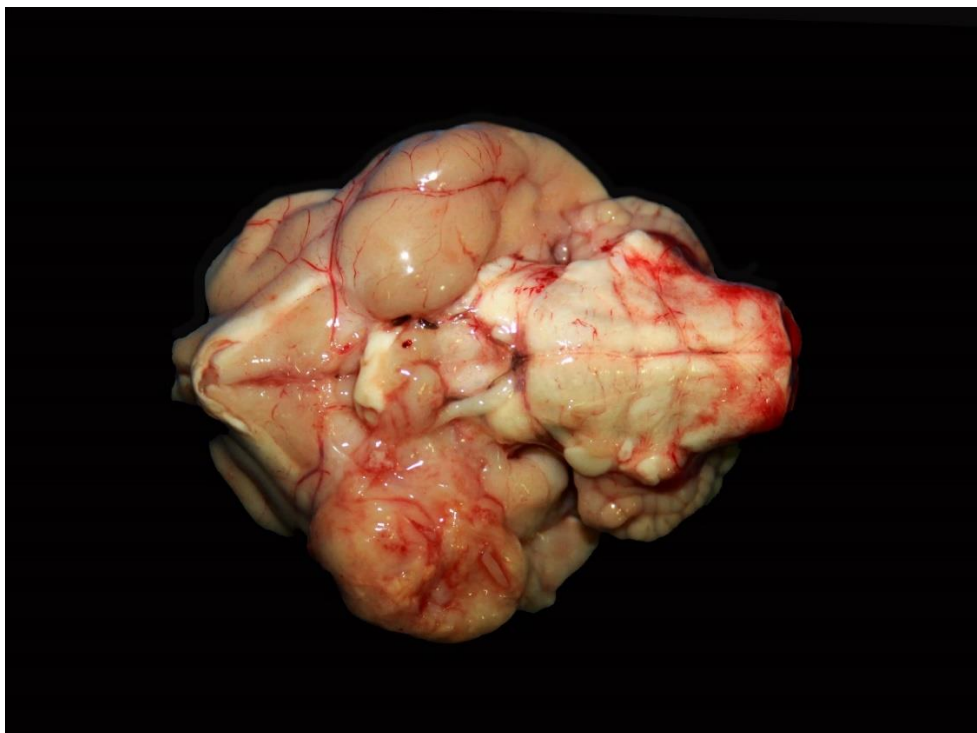


Figure 2. A relatively well demarcated, white, soft plaque is attached to the leptomeninges of the ventral right temporal and piriform lobes of the brain.

Differential Diagnoses:

Round cell neoplasm (lymphoma, plasma cell tumor, histiocytic sarcoma).
 Meningioma.
 Primary ear canal neoplasm.
 Inflammation (granulomatous lesion).

Most Likely Diagnosis:

Lymphoma.

Diagnostic Confirmation:

Lymphocytic or other round cell immunomarkers.

Histologic Findings

The auricular, nasopharyngeal, leptomeningeal, and neuroparenchymal lesions consisted of densely cellular, poorly delineated, invasive sheets of large neoplastic lymphocytes with moderate pleomorphism supported by a fine fibrovascular stroma or pre-existing tissues (Fig. 3). Neoplastic cells had distinct borders, a moderate amount of pale eosinophilic cytoplasm, and large round nuclei with dispersed chromatin and prominent nucleolus. Anisocytosis and anisokaryosis were moderate, with occasional karyomegaly and multinucleation throughout. The mitotic count was 8 per 2.37 mm² (equivalent to ten FN22/40x fields). Extensive areas of necrosis were present throughout the neoplasm.

Immunohistochemistry (IHC) for CD3 and CD20 was performed for diagnostic confirmation and neoplastic cell immunophenotyping. Neoplastic lymphocytes exhibited strong membranous immunolabeling for CD3 (Fig. 4). Histologic and IHC features were consistent with a low-grade, large peripheral T cell lymphoma not otherwise specified.

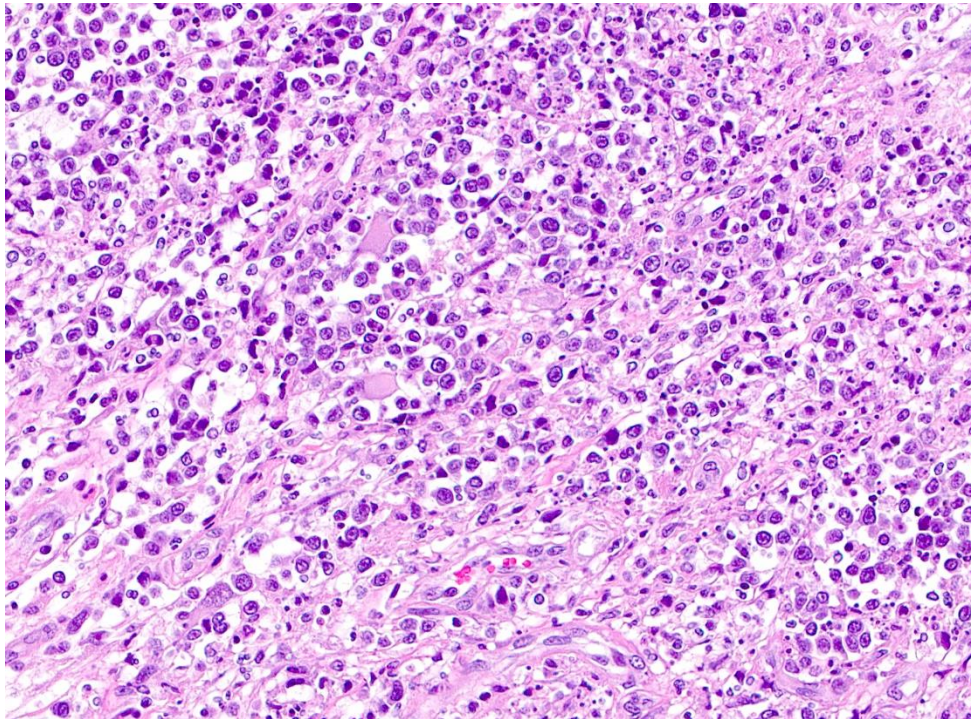


Figure 3. Superficial neuroparenchyma (right piriform lobe), lymphoma, cat. Sheets of neoplastic lymphocytes partially efface the neuroparenchyma. There are cell and nuclear debris throughout.

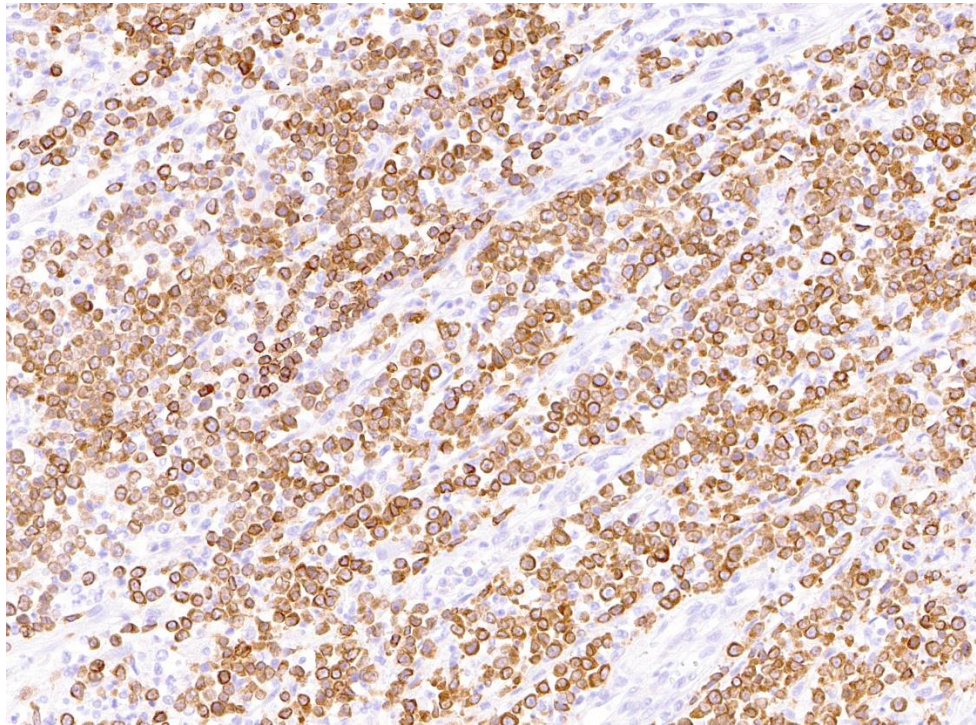


Figure 4. Superficial neuroparenchyma (right piriform lobe), lymphoma, cat. Neoplastic lymphocytes exhibited strong membranous immunolabeling for CD3.

Discussion

Histologic findings were consistent with a T cell lymphoma involving the auditory canal, nasopharynx, and brain. Lymphoma is the most common hematopoietic neoplasm of cats worldwide, occurring mainly as gastrointestinal, mediastinal, multisystemic, and extranodal lymphoma (1-4). The current case was consistent with an extranodal lymphoma, given the lack of neoplastic cell infiltration within the examined lymph nodes (4). The neoplasm caused significant destruction of the affected tissues, but no gross or histologic connection was observed between the auricular/nasopharyngeal and encephalic neoplasm. It is plausible that the current case could be represent a primary encephalic lymphoma with extension or metastasis to the ear and nasopharynx (5), but that assumption could not be confirmed. In addition, a primary tympanic T cell lymphoma extending to the nasopharynx and central nervous system has been reported in a cat (2), suggesting that the same could have occurred in the our case.

A diagnosis of lymphoma can usually be based on histology, but IHC is a reliable tool for diagnostic confirmation and neoplastic cell immunophenotyping (1). The increased cell pleomorphism and the presence of binucleated neoplastic cells in our case prompted us to consider a plasma cell tumor and a histiocytic sarcoma as additional possibilities during routine examination. However, our IHC results were confirmatory of a T cell lymphoma and no further testing was necessary (1).

References:

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