

A DOG WITH NODULAR LINGUAL LESIONS

Ioannis L. Oikonomidis^{1*}, Melpomeni K. Tangalidi², Dimitra Psalla³, Serafim Papadimitriou², Maria Kritsepi-Konstantinou¹, Mathios E. Mylonakis²

¹Diagnostic Laboratory, School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

²Clinic of Companion Animal Medicine, School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

³Laboratory of Pathology, School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

*Corresponding author: Email address: ekonomidis.john@gmail.com

CASE PRESENTATION

Specimen: Giemsa-stained scrape smear of a nodular lingual lesion.

Signalment: Dog, Rottweiler, 5.5-year-old, intact male, 50 kg.

History/presenting complaint: Outdoors lifestyle, update with vaccinations and deworming. Progressively worsening multifocal, lingual lesions for over 1 year.

Clinical signs: Multiple reddish, crater-like nodules on the tongue (Figure 1).



Figure 1

Hematology: Eosinophilia (2,050/ μ l, reference intervals: 0-600/ μ l), confirmed with manual differential white blood cell count.

Serum biochemistry: Unremarkable.

Task: Evaluate and interpret the cytology images (Figure 2 and 3).

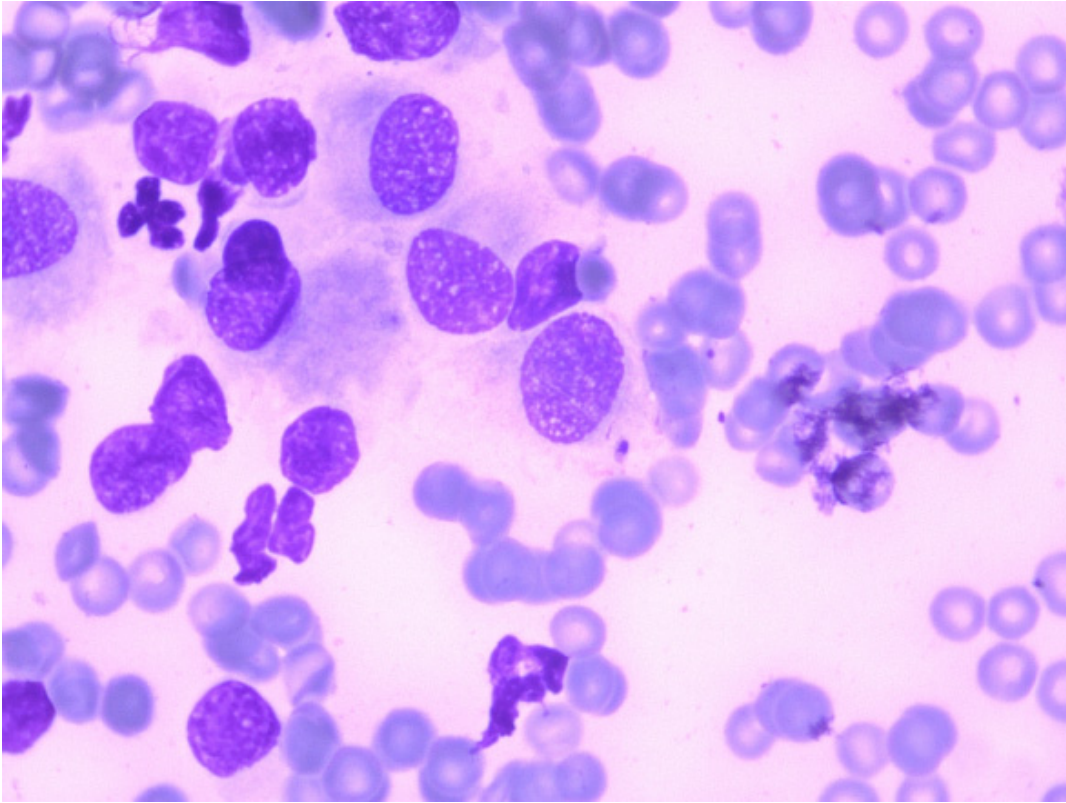


Figure 2 (100x objective)

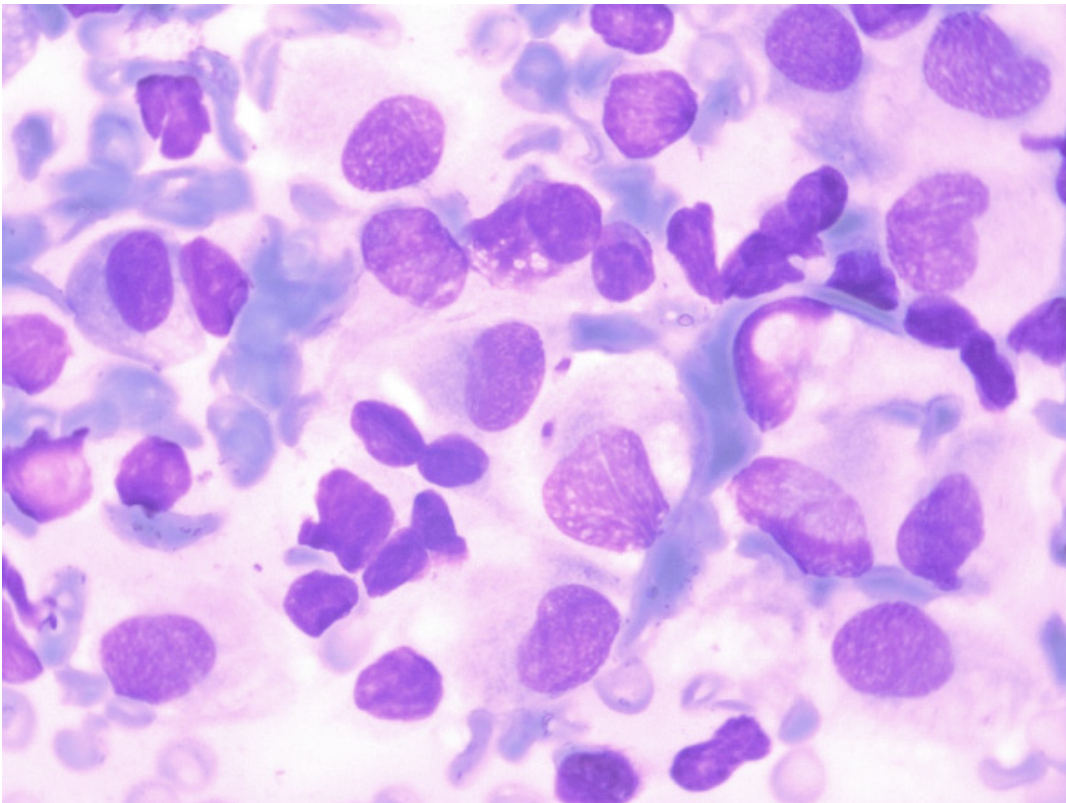


Figure 3 (100x objective)

Cytology

Giemsa-stained lingual nodule scraping smears (Figure 2 and 3): In a hemorrhagic background, several macrophages were observed. The majority of them had an epithelioid appearance. Plasma cells, flame cells, small lymphocytes and blood-associated neutrophils were occasionally seen. Cells of mesenchymal origin, most consistent with fibroblasts were rarely witnessed. *Leishmania* spp. amastigotes were visualized extracellularly along with scattered bacteria of the normal oral flora.

Giemsa-stained bone marrow aspiration smears: Normocellular marrow with all hematopoietic lineages being sufficiently represented. Eosinophilic and basophilic hyperplasia. No evidence of *Leishmania* spp. amastigotes after reviewing 1,000 microscopy fields (100x objective lens).

Lingual nodule histopathology

A multifocal coalescing severe inflammation extending from the superficial to the deep lamina propria of the tongue was noticed. The inflammatory infiltrate consisted mainly of epithelioid macrophages and plasma cells admixed with moderate amount of lymphocytes and neutrophils. The overlying mucosal epithelium presented spongiosis and exocytosis of leukocytes. Based on the histopathological finding the morphological diagnosis was severe chronic nodular granulomatous glossitis.

Ancillary testing

Serology:

IFA titer for anti-leishmanial antibodies: 1/400 (cut-off titer: $\geq 1/100$).

Point-of-care ELISA for *Dirofilaria immitis* antigen and *Ehrlichia canis*, *Anaplasma phagocytophilum*, *Borrelia burgdorferi* antibodies: Negative.

Knott's test for microfilariae: One microfilaria was found after extensive sediment search, consistent with *Dirofilaria immitis*.

Treatment

Allopurinol at 15mg/kg BW PO BID for a 6-month-period was prescribed.

Clinical and clinicopathological follow-up

Clinical reevaluation two months after the institution of allopurinol treatment indicated that the lingual nodular lesions had almost completely regressed. However, eosinophilia (3,140/ μ l, reference intervals: 0-600/ μ l), which was confirmed again on blood smear cytology, was persistent.

Definitive diagnosis

Chronic nodular granulomatous glossitis due to *Leishmania* spp. infection.

Discussion

In this dog, the diagnosis of chronic nodular granulomatous glossitis, attributed to *Leishmania* spp. infection was established, based on lingual nodules cytology, histopathology, IFA-based serum anti-leishmanial antibodies and rapid resolution of the lingual lesions following institution of *Leishmania*-specific treatment. Noteworthy, a thorough physical examination and clinicopathological investigation were unremarkable, while *Leishmania* spp. amastigotes were not found during the meticulous review (1,000 100x objective lens microscopy fields) of stained bone marrow cytological smears, possibly suggesting a sequestered tissue invasion.

Leishmania-associated lingual lesions have been rarely reported. To the authors' knowledge, only six cases have been previously described¹⁻⁶. In the majority of the cases, the lingual lesions were seen in the context of the multisystemic manifestations of the disease. Interestingly, it has been proposed that *Leishmania*-associated glossitis may represent a form of localized mucosal leishmaniosis⁵. The latter hypothesis appears to be plausible in this case, based on the absence of the typical clinical and clinicopathological manifestations of the disease and the negative bone marrow cytology for *Leishmania* spp. amastigotes. Of note, the cytological examination of bone marrow has a very high diagnostic sensitivity in canine leishmaniosis⁷. In conclusion, leishmaniosis should be included in the differential diagnosis of nodular glossitis in the dogs residing in endemic areas or those with travel history suggestive of potential exposure to the parasite.

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