Case study

Clinical And Therapeutic Approach to Lymphocytic Alimentary Lymphoma in a Cat: Case Report

ABSTRACT

The report aims to describe a case of lymphocytic alimentary lymphoma in a feline. A male, no defined breed, neutered feline patient, 11 years old, presented at a veterinary clinic due to episodes of vomiting. No changes were observed during the clinical examination, and the patient underwent additional examinations. Screening tests revealed abnormalities in the stratification of the intestinal layers, indicating the necessity for a biopsy to investigate the tissue architecture of the affected intestinal segments. Following the diagnosis of alimentary lymphoma, drug treatment was initiated, and the patient continued to be clinically monitored. Lymphoma is a common hematopoietic neoplasm in felines, the diagnosis of which is challenging and requires the utilization of several methods to classify it accurately and direct treatment, thereby alleviating clinical signs.

Keywords: Cat, chemotherapy, intestine, neoplasm.

1. INTRODUCTION

Lymphoma is a malignancy that arises from the clonal proliferation of neoplastic lymphocytes and mainly involves lymphoid organs such as the lymph nodes, spleen, bone marrow, and thymus, but other organs can be affected [1, 2]. Alimentary lymphoma (AL) is characterized as a neoplastic infiltrate in the gastrointestinal tract and is the main anatomical form of the disease in cats, followed by mediastinal and multicentric lymphomas [3, 4, 5]. Furthermore, there are different ways to classify alimentary lymphomas, which are based on histological and immunophenotypic characterization, through mitosis rates [6, 7].

The disease has risk factors linked to its occurrence, such as age and the presence of concomitant illnesses, such as feline viral leukemia (FeLV) and feline viral immunodeficiency (FIV), which have oncogenic and immunosuppressive potential, predisposing the patient to the development of lymphomas [8]. Symptoms include emesis, diarrhea, inappetence or anorexia, reduced body condition score (BCS) and, less frequently, polyphagia, polyuria, polydipsia and prostration [4]. The diagnosis is based on laboratory evaluation, imaging tests, cytology, histopathology and immunohistochemistry, the latter being a technique used to promote the characterization of the immunophenotype of the neoplasm by determining the cell type involved in the lymphoma [9].

The treatment instituted may be clinical, when there are no neoformations, or chemotherapy, which may be associated with immunosuppressive medications, in order to prevent neoplastic proliferation and control gastrointestinal clinical signs [10]. Thus, based on information obtained from the literature on alimentary lymphoma in felines, the present study aims to report a case of the disease in a cat, presenting clinical-pathological aspects,

diagnostic methods used for screening, definitive and differential diagnosis, the therapy used and the prognosis of the patient in question.

2. PRESENTATION OF CASE

A neutered 11-year-old male cat of no defined breed weighing 4.2 kilograms, with a normal body condition score of 6/9, and a history of intermittent vomiting was seen at a private veterinary clinic. No significant alterations were observed on physical examination, and the diagnostic approach was based on abdominal ultrasound (USG) and hematological and biochemical tests (blood count, urea, creatinine, alanine aminotransferase (ALT), alkaline phosphatase (ALP), symmetrical dimethylarginine (SDMA), urinalysis, and urine protein/creatinine ratio).

USG showed thickening of the intestinal walls (jejunum 0.31 cm, ileum 0.30 cm, colon 0.18 cm) without loss of stratification. There was a slight increase in ALP to 120 IU/L (reference range for the species: 0–93 UI/L), thrombocytopenia of 240 thousand/mm with platelet aggregates, mild polycythemia, and a slight increase in creatinine to 2.5mg/dL (reference range for the species: 0.8–1.8 mg/dL). Thus, the therapeutic protocol was initiated with oral administration of prednisolone 1 mg/kg, maropitant citrate 2 mg/kg, omeprazole 1 mg/kg, and commercial symbiotic 1 mg. However, the emetic symptoms returned after the prednisolone was stopped.

Subsequently, an incisional biopsy was performed by celiotomy of the duodenum, jejunum, and ileum and the results of the histopathological exam suggested chronic, mild to moderate lymphoplasmacytic duodenitis, jejunitis, and ileitis associated with villous shortening (Fig. 1). In addition, an immunohistochemical analysis (IHC) was requested, which showed an intense infiltrate of clonal lymphocytes, thus favoring the diagnosis of low-grade intestinal lymphoma with a T immunophenotype.

Given the definitive diagnosis, a chemotherapy protocol was instituted with oral chlorambucil 20 mg/m^2 every 5 days. Prednisolone 1 mg/kg orally every 24 hr, ondansetron and omeprazole 1mg/kg orally every 12 hr for 7 days were maintained before and after chemotherapy. After 8 weeks, the patient showed clinical improvement and is currently stable, with a gradual reduction in prednisolone and the same chemotherapy protocol. This fact demonstrates that the prognosis is favorable, considering the combination of medications and clinical improvement.

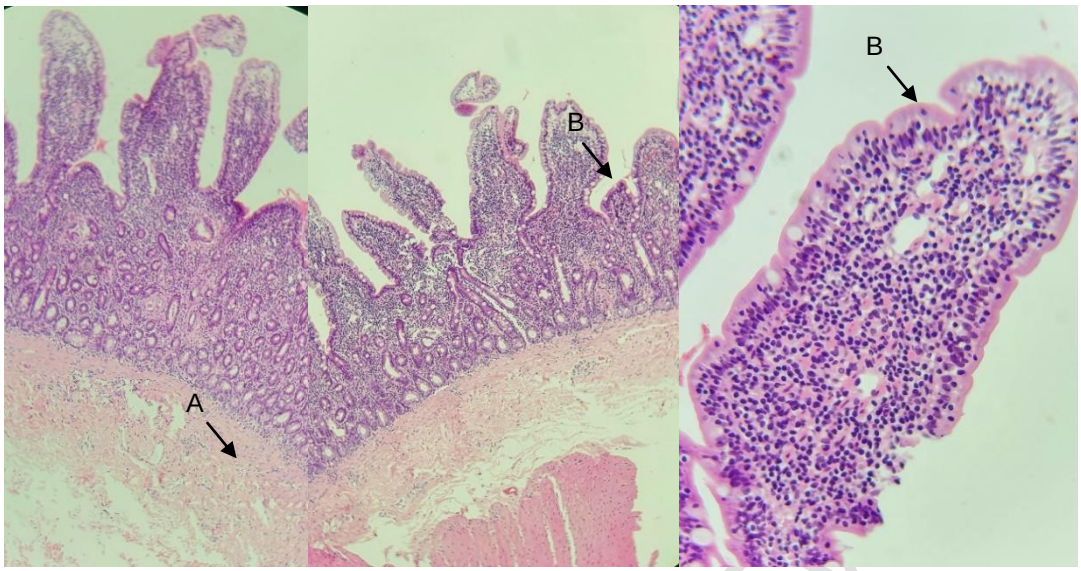

Fig. 1. Images of the histopathological examination of small cell alimentary lymphoma in the small intestine. There is moderate to marked lymphoplasmacytic infiltrate in the lamina propria (A) and villous shortening (B).

3. DISCUSSION

The patient in this report was an 11-year-old male cat, with expected risk factors for the occurrence of the disease, as AL is more prevalent in older cats and occurs more often in males, but there is no scientific confirmation of sexual predisposition or a relationship with castration [8, 6]. In addition, the most frequent symptoms include emesis, diarrhea, anorexia, and weight loss, which were observed in the patient [8].The literature demonstrates that 70% of cats with alimentary lymphoma presented isolated vomiting as a clinical sign, as seen in the patient in this report [10].

In addition, the request for complementary tests made it possible to establish differential diagnoses, such as lymphoplasmacytic enteritis [11]. USG is a fundamental method for assessing abdominal structures and, when it was performed on the patient in question, it showed morphological intestinal changes, characterized by thickening of the walls of several intestinal segments, a finding that is common in 90% of cats affected by AL [9].

Biopsy by celiotomy allowed histopathological analysis of the deeper layers of the intestinal segments and evidenced a lymphoplasmacytic infiltrate, confirming the indication of the exam for diagnosis [12, 7]. However, IHC was used due to the difficulty in defining the diagnosis through histopathology, and contributed with immunophenotyping to determine the cell type involved in the lymphoma [13]. Finally, in addition to supportive treatment, antineoplastic chemotherapy based on the combination of prednisolone and chlorambucil was administered because this is an effective option for treating feline AL [3].The prognosis for cats with lymphocytic alimentary lymphoma is generally favorable for those diagnosed and treated with chlorambucil and prednisolone. With this treatment protocol, the median survival time ranged from 18 to 48 months [7].

4. CONCLUSION

Alimentary lymphoma behaves differently between animal species. The clinical manifestation and case management through laboratory tests, ultrasound and, in some cases, histopathological examination, are not sufficient to differentiate this type of neoplasia from inflammatory bowel disease. In treatment, the use of chemotherapy in larger doses and intervals was a viable and effective alternative in this case, as it made it possible to control the symptoms presented, but its use must be associated with the patient's clinical monitoring, and there may be a need for therapeutic adaptation. if there are adverse effects.

REFERENCES

1. Ferreira MBF. Ultrasonographic, radiographic and clinicopathological findings of feline metastatic renal lymphoma – case report. Federal University of Paraiba. 2018;34.

2. Krick EL, Sorenmo KU. A review and update on gastrointestinal lymphoma in cats. In: Little SE, editor. Feline Internal Medicine. 7th edition. Rio de Janeiro: Elsevier; 2017.

3. Norsworthy G. 2018. The Feline Patient. 5th edition. Wiley Blackwell. 2018;381-384 & 935-939.

4. Rissetto K, Villamil JA, Selting KA, Tyler J, Henry CJ. Recent trends in feline intestinal neoplasia: an epidemiologic study of 1129 cases in the Veterinary Medical Database from 1964 to 2004. J Am Anim Hosp Assoc. 2011;47:28-36.

5. Valli VE, Jacobs RM, Norris A, Couto CG, Morrison WB, McCaw D, Cotter S, Ogilvie G, Moore A. The histological classification of 602 cases of feline lymphoproliferative disease using the National Cancer Institute working formulation. J Vet Diagnosis Invest. 2000;12:295–306.

6. Stein TJ, Pellin, Mackenzie Pellin BS, Howard S, Chun R. Treatment of Feline Gastrointestinal Small-Cell Lymphoma with Chlorambucil and Glucocorticoids. J Am Anim Hosp Assoc. 2010;46(6):413-417.

7. Wilson HM. Feline Alimentary Lymphoma: Demystifying the Enigma. Top Companion Anim Med. 2008;23(4):177-184.

8. Pope KV, Tun AE, McNeill CJ, Brown DC, Krick EL. Outcome and toxicity assessment of feline small cell lymphoma: 56 cases (2000-2010). Vet Med Sci. 2015;1(3):51-62.

9. Moore PF, Rodriguez-Bertos A, Kass PH. Feline gastrointestinal lymphoma: mucosal architecture, immunophenotype, and molecular clonality. Vet Pathol. 2012;49:658-668.

10. Barrs V, Beatty J. Feline alimentary lymphoma: 1. Classification, risk factors, clinical signs and non-invasive diagnoses. J Feline Med Surg. 2012;14(3):182-190.

11. Nogueira MM, Melo MM. Feline lymphocytic alimentary lymphoma-A literature review. Brazilian Journal of Hygiene and Animal Health. 2020;14:1-15.

12. Gieger T. Alimentary lymphoma in cats and dogs. Vet Clin of North Am Small Anim Pract. 2011;41:419-432.

13. Lingard AE, Briscoe K, Beatty JA, Moore AS, Crowley AM, Krockenberger M, Churcher RK, Canfiel PJ, Barrs VR. Low-grade dietary lymphoma: clinicopathological findings and response to treatment in 17 cases. J Feline Med Surg. 2009;11:692-700.