

Cecal lymphoma in a male Rottweiler dog

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Abstract

A 6-year-old male Rottweiler dog presented with a marked weight loss combined with abdominal pain and diarrhea over 3 month. Hematology revealed lymphocytosis, neutrophilia and eosinophilia. Abdominal ultrasound revealed a heteroechoic mid-abdominal mass with a focal hypoechoic area measuring 6.0 x 5.0 cm but with a confusing origin. The mass was resected and intestinal anastomosis was performed after celiotomy. Histopathology of the mass demonstrated massive lympho-proliferative lesions were diagnosed as low grade lymphoma with diffuse small lymphocytic (DSL-plasmacytoid) pattern. The dog was recovered and a one-month ultra sonography follow-up showed no-recurrence.

Key words: lymphoma; cecal diverticulum; weight loss; diarrhea

Introduction

GI mesenchymal tumors are mainly comprised of a series of spindle cell tumors, including GI stromal tumors, leiomyomas, lymphomas, schwannomas, inflammatory fibroid polyps, fibromatoses and leiomyosarcomas (Greenlee et al., 1990; Teske et al., 1994; Davis et al, 2000; Miettinen and Lasota, 2001). Changes in classifications of GI tumors have emerged due to recent advances in immunohistochemistry and electron microscopy since GI stromal tumors in about 95% of cases stain positively for the protein CD117 (Day et al, 2003; Giuly et al.,2003). Differing between benign and malignant GISTs may develop few problems however, GISTs may appear benign both in mitotic counts and lack of cellular atypia, but still behave malignantly (Miettinen et al, 2002). GISTs smaller than 3 cm are generally considered benign tumors (Bonsaing et al., 2007) and GISTs larger than 3-5 cm, with mitotic counts greater than 2/10 high power field or that involved more layers are generally considered high-risk tumors for malignancy (Giuly et al, 2003; Miettinen et al, 2000).The presented case is reported due to its rare occurrence.

Case description

A 45 kg, 6-year male Rottweiler was attended at the surgery clinic of the faculty of Veterinary Medicine, Cairo University, with a history of anorexia, lethargy, cachexia, weight loss, abdominal pain and diarrhea (over 3 month period). Vomiting and seizures were not reported. Vaccinations were up to date and housed mainly indoors, with some time spent out.

Clinical examination

At physical examination, the dog was alert with normal temperature, pulse and respiration, pale mm, and palpation of the abdomen and lymph nodes were normal. Blood sample was collected for complete blood count (CBC), serum biochemical analysis for liver and kidney functions, serum amylase and lipase values for pancreatic lesions and blood parasites. An abdominal ultrasound and thoracic radiographs were performed for any pathological lesions.



Figure 1: Ultrasonographic image of the intestinal mass located at the ileo-cecal junction. Note the overall thickened and disruption wall.

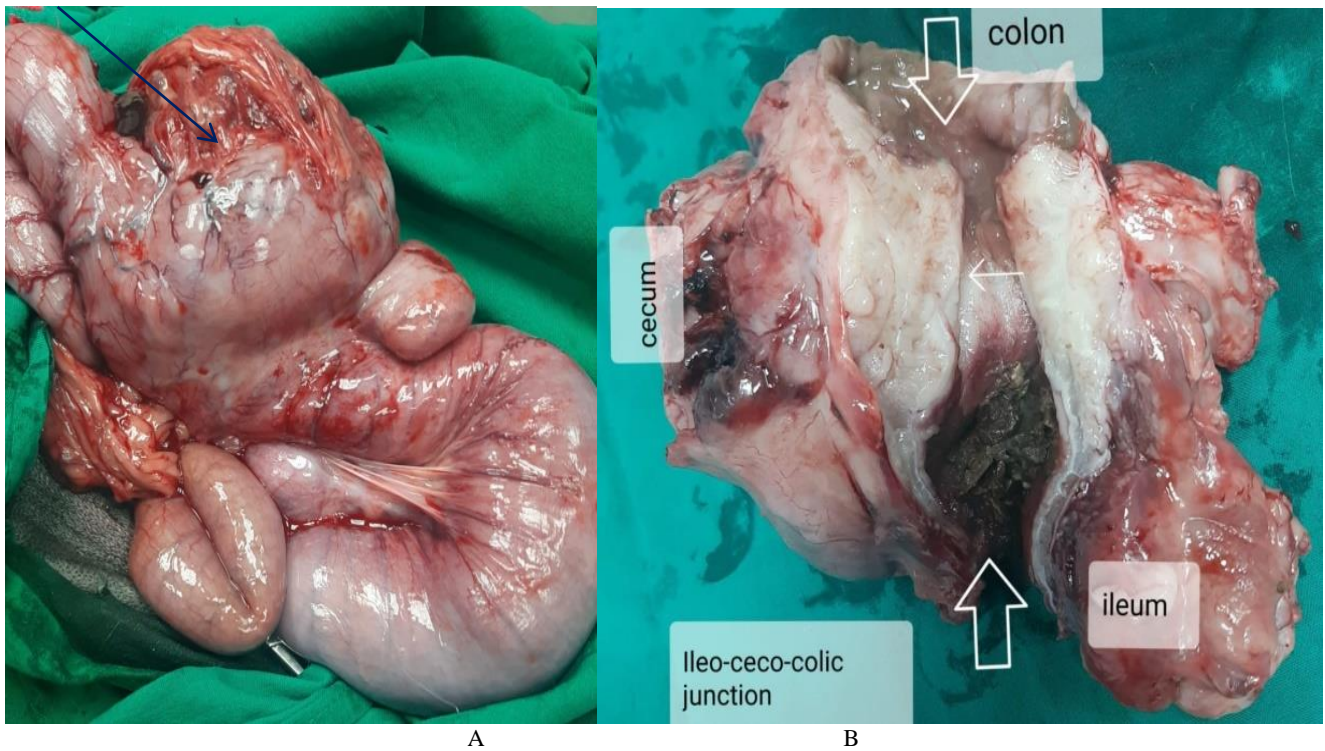
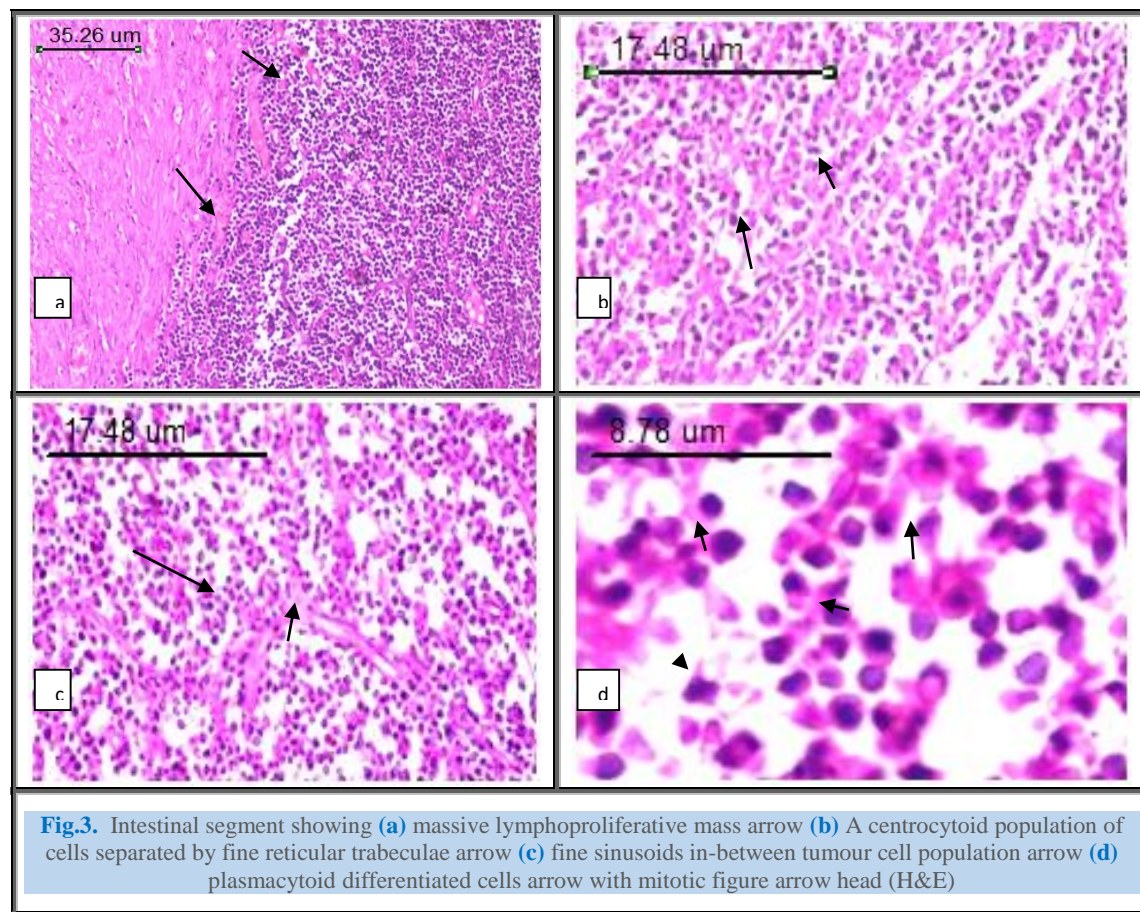


Figure 2: (A) The involved segment of the intestine including the mass (arrow) exteriorized after laparotomy. (B) Cut surface of the enucleated mass, showing a fibrin coated mucosa and hemorrhagic adjacent mucosa.



Results

CBC showed moderate leukocytosis with absolute neutrophilia (41.80%), lymphocytosis (41.40%), monocytosis (10.60%) and eosinophilia (4.08%). Serum biochemical analysis was within the normal range. Examination for blood parasites was negative. Thoracic radiology showed no pathology. Abdominal ultrasonography detected a heteroechoic mid-abdominal mass with a focal hypoechoic area measuring 6.0 x 5.0 cm but with confusing origin (fig.1). The remainder of the intestinal tract and viscera were unremarkable. Neither lymph adenopathy nor free fluid were noted. Surgical abdominal exploration under general anesthesia revealed an invasive mass at the ileo-cecal junction. The mass including the involved part of the intestine was resected with subsequent intestinal anastomosis. The abdomen was lavaged with sterile saline solution. The anastomosis site was omentalisated and the abdominal wall was closed routinely. The enucleated mass including the resected intestinal part was fixed in 10% formal saline and submitted for histopathology (Fig.2 A & B). The dog postoperative recovery was uneventful and kept under supportive and antibiotic therapy for one week. Clinical and ultrasonography follow-up one month later showed no evidence of mass recurrence.

Histopathological examination

Tissue specimens from tumor mass and intestinal segment were fixed in 10% neutral buffered formalin. The fixed specimens were then trimmed, washed and dehydrated in ascending grades of alcohol, cleared in xylene, embedded in paraffin, sectioned at 4-6µ thickness and stained by hematoxylin and eosin were used (Bancroft et al., 2013).

Massive lymphoproliferative lesions were diagnosed as low grade lymphoma with diffuse small lymphocytic (DSL-plasmacytoid) pattern. The histological section dominated a monotonous morphology of the tumour cell population, mainly composed of uniform small oval tumour cells. The tumour mass was closely attached to external muscular layer of the intestinal wall forming bulky nodular formation containing uniform, small-sized cells. The architecture is diffuse, the mitotic index is low and mitoses may not be observed. The nuclei appeared the same size as a canine erythrocyte and uniformly round. The chromatin pattern was coarsely aggregated. Nucleoli were absent or there may be one small, usually central nucleolus. The cytoplasm was usually scant and poorly staining. In this case histological sections demonstrated a diffuse homogeneous population of small cells with low mitotic rate and plasmacytoid differentiated cells. A centrocytoid population of cells with eccentrically localized basophilic nucleus and adjacent layer of lighter cytoplasm resembling to plasma cells. The stroma consisted of fine sinusoids, or fine reticular networks with unique, visible trabeculae (Fig. 3).

Discussion

According to clinicohistopathological data, the definitive diagnosis of the presented case is low grade lymphoma with small lymphocytic pattern. With respect to the patient's presented reported signs, there were crampy abdominal pain associated with anorexia, bloating, diarrhea and weight loss. Almost similar signs have been reported in dogs with stromal intestinal tumors (Frgelecova et al, 2013; Maia et al., 2009; Greenlee et al., 1990; Greenlee 1988). Although most dogs with lymphoma are characterized by the presence of non-painful peripheral lymphadenopathy

(Greenlee et al., 1990), the present case showed normal peripheral lymph nodes. Hematology revealed neutrophilia, lymphocytosis, monocytosis and eosinophilia which indicate intense inflammatory response.

The histological grades of canine lymphomas were classified as low (small lymphocytic or centrocytic lymphomas) or intermediate to high (diffuse large cell, centroblastic, and immunoblastic lymphomas) (Greenlee et al., 1990). Clinical staging is an important factor in predicting survival and response to treatment in man (Lieberman et al., 1986). The present case was diagnosed as low grade lymphoma which is rarely noticed in dogs and usually goes unrecognized by most owners with improved survival rate while almost all dogs may have advanced grades (intermediate or high) (Madewell 1975). Treatment was by surgical excision of the lesion and intestinal anastomosis without chemotherapy since ultrasonographic examination follow-up for one month indicated no recurrence.

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