A Case of Splenic Histiocytic Sarcoma in a Dog

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ABSTRACT

The present report describes a rare case of splenic histiocytic sarcoma (HS) in a 10 years old Rottweiler dog. In anamnesis owner stated that history of anorexia, weakness and lethargy since from 3 weeks ago. Clinically body temperature, heart and respiratory rate were normal. Anemia diagnosed at the hematological analysis. Transabdominal ultrasonography revealed numerous masses on the spleen and laparotomy decided. Splenectomy performed and the spleen presented to pathological examination. At the gross examination splenomegaly and numerous whitish tumoral foci were observed the spleen. Histopathological examination revealed numerous anaplastic, pleomorphic histiocytic cells in the tumoral masses. According the pathological findings tumors diagnosed as HS.

Keywords: *Histiocytic sarcoma (HS), spleen, dog, pathology.*

BİR KÖPEKTE DALAKTA HİSTİYOSİTİK SARKOMA OLGUSU

ÖZET

Bu olgu sunumunda 10 yaşında Rottweiler ırkı bir köpekte nadir görülen, dalakta histiyositik sarkoma rapor edildi. Hasta sahibinden alınan anamnezde hayvanda 3 haftadır devam eden iştahsızlık, kilo kaybı ve uyuşukluk görüldüğü ifade edildi. Klinik muayenede köpeğin solunum ve kalp frekanslarıyla vücut ısısının normal olduğu saptandı. Hematolojik muayenede anemi teşhis edildi. Abdominal ultrasonografide dalak üzerinde çok sayıda kitle tespit edildi ve laparotomiye karar verildi. Splenektomi gerçekleştirildi ve dalak patolojik muayeneye gönderildi. Dış bakıda splenomegali ve dalak üzerinde çok sayıda beyazımsı renkli tümöral kitleler gözlendi. Histopatolojik muayenede tümöral kitleler içerisinde çok sayıda anaplastik, pleomorfik histiositik hücre olduğu dikkati çekti. Patolojik bulgular ışığında tümör HS olarak teşhis edildi.

Anahtar Kelimeler: *Histiositik sarkoma (HS), dalak, köpek, patoloji*

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INTRODUCTION

Histiocytic sarcoma (HS) is a rare malignant neoplasm of histiocytic cells such as macrophage or dentritic cells (1). Localized histiocytic sarcomas are rapidly growing malignant neoplasms occurring most often in the skin, subcutis, and associated soft tissues of the extremities. Other reported sites for localized form include the spleen, brain, liver, gastric wall and tongue. Disseminated form of histiocytic sarcoma has been reported in the spleen, lung, liver, lymph nodes, bone marrow, central nervous system, kidneys, skeletal muscle, stomach, vertebral bodies, and adrenal glands. Cutaneous involvement is rare. HS generally occur in dogs but there are some reports available in cats. The most commonly effected breeds are Bernese Mountain Dogs, Golden, Labrador, and Flat-coated Retrievers, and Rottweilers, but can occur in any breed (2).There is a general belief that Rottweilers and Bernese Mountain dogs are increased risk for HS, although good epidemiologic data is thus far lacking (1). The disseminated form of the disease has a rapid and aggressive clinical course. The spleen, lung, lymph nodes, bone marrow, skin and subcutis are the commonly involved sites. Liver involvement generally occurs secondary to disease in the spleen. There is no sex predilection and reported age range is 2-11 years (2).

Most of the cases of the HS are of dentritic antigen presenting cell origin, with a similar immunophenotype to cutaneous histiocytoma but different biologic behavior. Fewer cases of HS are of macrophage cell origin. These malignant cells have an immunophenotype characteristic of resident macrophages in the splenic red pulp and the bone marrow, and frequently show marked phagocytosis of erythrocytes (hemophagocytic histiocytic splenic sarcoma) (1). Splenic histiocytic sarcomas are comprised of cells phenotypically characteristic of interdigitating dendritic cells of the White pulp while histiocytic sarcomas arising in periarticular regions have phenotypic evidence of interstitial dendritic cell origin (2).

Grossly, the tumors are comprised of white, multinodular tissue that invades and destroys surrounding tissues. Metastasis to regional lymph nodes has been reported. Splenic histiocytic sarcomas metastasize to the liver. Histologically, histiocytic sarcomas consist of a mixture of pleomorphic, anaplastic, plump, round histiocytic cells and pleomorphic spindle-shaped cells. Tumor cells have abundant eosinophilic cytoplasm and large oval-to-indented or twisted vesicular nuclei. Multinucleated giant cells are common. Neutrophils and lymphocytes may be present as well. Mitotic activity is high and phagocytosis may be evident. Histologic differential diagnoses include a wide variety of other sarcomas (2). The tumor is generally invasive with a high recurrence rate. The prognosis is extremely poor and the condition is rapidly progressive and there no known successful therapy.

The aim of this study is to report a case of splenic HS in a Rottweiler dog. This is the first splenic HS cases in a dog in Turkey.

Case report

A 10 years old female Rottweiler dog was brought to the private veterinary hospital in Antalya in Turkey with a history of anorexia, weakness and lethargy since from 3 weeks ago. On clinical examination, heart and respiratory rate and temperature were all within normal ranges. Haematologic parameters were determined using an VetScan HMII (a product of Abaxis) hematologic analyzer.

Erythrocyte (2.36 M/ml), hemoglobin (5.2 g/dL), HTC (17.74%), MCHC (29.1 g/dL), total leukocyte counts (8.01K/ml), and platelet count were 12 K/ml. According to the haematological results severe anemia was diagnosed.

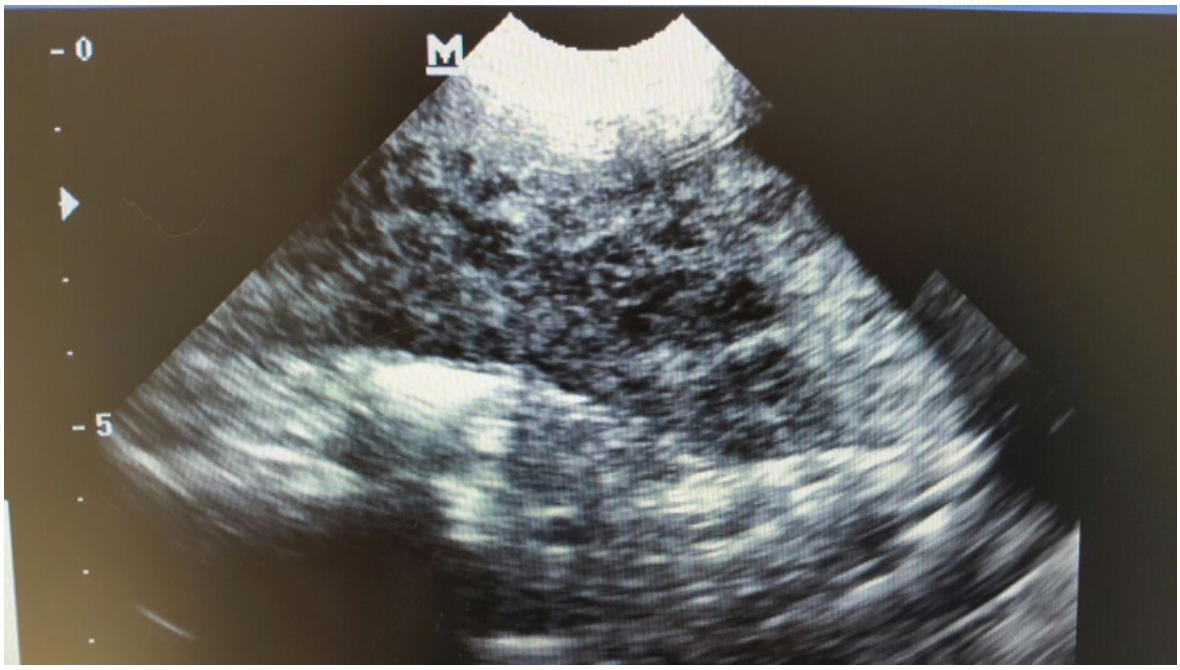

Figure 1: Ultrasonographic image of the mass in the spleen.
Figür 1: Dalaktaki kitlenin ultrasonografik görünümü

Transabdominal ultrasonography was performed using a 5.0 MHz linear array transducer (Mindray DC-6Vet). In ultrasonogrphy of the abdomen revealed a mass on spleen (Fig. 1).

For correct blood values, were given blood-forming drugs and interavenously serum. Haematological analyzers were repeated for five days, but not observed significant changes in results. After fifth days the mass was removed by operation and the mass was presented to the Department of Pathology, Faculty of Veterinary Medicine, Mehmet Akif Ersoy University. The dog died within 5 days after surgery.

At the gross examination marked splenomegaly was observed. Numerous whitish foci were observed both surface and cut surface of the spleen. The foci were irregular and hard. In addition some hemorrhagic areas were also detected in spleen (Fig. 2).

Figure 2: Gross appearance of the spleen, splenomegaly and numerous tumoral masses in the spleen.
Figür 2: Dalağın makroskobik görünümü, splenomegali ve dalakta çok sayıda tümöral kitleler

Tissue samples were taken from the spleen and fixed 10% neutral formalin solution. Then samples were routinely processed and embedded in paraffin, 5μm sectioned and stained with hematoxylin-eosin (HE).

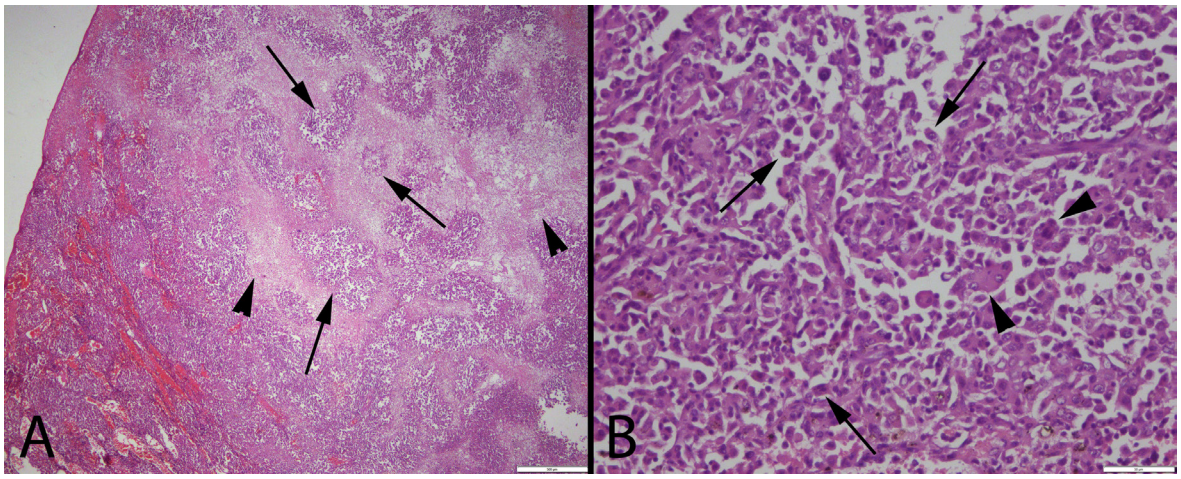

Figure 3: Histopathological appearance of the tumor. (A) Tumoral masses (arrows) and necrotic areas (arrow heads), HE, Bar= 500µm, (B) Appearance of the anaplastic pleomorphic tumoral cells (arrows) and giant cells (arrow heads), HE, Bar= 50µm.
Figür 3: Tümörün Histopatlojik Görünümü. (A) Tümöral kitleler (oklar) ve Nekrotik bölgeler (ok başları), HE, Bar= 500µm, (B) Anaplastik Pleomorfik tümöral hücrelerin Görünümü (oklar) ve dev hücreler (ok başları), HE, Bar= 50µm.

At the histopathological examination of the spleen numerous tumoral foci that consisted of numerous histocytic cells were observed. The tumoral masses were well circumscribed but unencapsulated. The tumoral cells exhibited marked anaplasia, pleomorphism and giant cells. Necrotic areas were commonly observed in the tumoral masses. Mitotic figures and invasion were common findings. Hemorrhages especially near the necrotic areas were also noticed (Fig 3). According to the histopathological findings the tumor diagnosed as splenic HS.

DISCUSSION

Malignant tumors originated from histiocytes and they have been rarely reported in animals (3, 4). Histiocytic tumors are occasionally reported in dog, cat, and cattle. In most reported animal cases, it has been described as single, often invasive, soft tissue mass in skin or subcutis (5, 6, 7). In this study a case of HS described in spleen in a dog.

HS cases was originally described in Bernese Mountain Dogs but has since been documented in Golden and Labrador Retrievers and Rottweilers. It is likely that cases in other breeds will be reported as well (1, 2). In this case the dog belongs the Rottweiler breed and predisposition these breed supported in present report.

Grossly, the tumors are comprised of white, multinodular tissue that invades and destroys surrounding tissues. Metastasis to regional lymph nodes has been reported. Splenic histiocytic sarcomas metastasize to the liver (2). In this study the gross appearance of the tumors closely resembles to the classical knowledge but there were no gross metastasis was observed in regional lymph nodes or liver.

At the microscopical examination of the histiocytomas generally revealed presence of histiocytic cells with nuclear enlargement, nuclear atypia and numerous a typical mitoses. Bizarre and giant cells were widely scattered and in some cases inflammatory infiltrates may be seen (1, 2, 8).

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