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Malignant histiocytosis in a German Shepherd Dog – a case report

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Summary

Malignant histiocytosis is a systemic and progressive neoplastic disease with invasive proliferation of neoplastic histiocytes. A wound and swelling under the right forelimb and a mass on the pulvinus are shown on a German Shepherd dog. Histiocytosis is diagnosed pathologically. For necropsy; the smooth masses are located on right forelimb pulvinus, proximal metacarpal joint and adhering the tendon of cubiti joint. It infiltrates the prescapular and retropharyngeal lymph nodes, kidneys, lungs and epidermis. Neoplastic cells and multinuclear giant cells are shown as anaplastic characteristics with eosinophilic cytoplasm and vesicular nuclei with high mitotic activity.

Keywords: histiocytosis, dog

Malignant histiocytosis is an atypical histiocytosis and precursor's progressive, systemic and proliferative characteristic neoplastic disease. It has generally been seen in Bernese Mountain Dogs and Rottweilers, Doberman Pinschers and Flat-coated Labrador Retrievers; however it can also be seen in Golden Retrievers (1, 4, 6, 10). It can develop in both cats and dogs (6). Male dogs are predisposed to this disease, seen in average being 7-year-old (7). The lesions related to this disease, are shown on lungs, lymph nodes, liver, spleen, kidney, brain, bone marrow and skin (1, 3, 5, 6). The lesions are round shaped and have anaplastic properties, showing nucleus formation with high mitotic activity. The significant difference is the result from erythrocytes which can occasionally be phagocyte the other blood cells (8-11).

Fig. 1. a) and b) Clinical views of the right forelimb of the dog. c) Mediolateral radiological view of the right forelimb on postoperative 21st day

Malignant histiocytosis is generally seen in Bernese Mountain Dogs, Rottweilers, Doberman Pinschers, Flat-coated Labrador Retrievers and Golden Retrievers with neoplastic development. In this paper the subject is a German Shepherd Dog, although no such cases of the breed were encountered in literature (2, 6). In addition, this neoplastic disease is usually seen on middle aged (on an average; 7-year-old) dog, but this case here is 1.5 years old.

This study reveals the clinical and the pathological findings of malignant histiocytosis on a German Shepherd Dog for our colleagues.

Case description

Malignant histiocytosis was determined in a 1.5-year-old, male German Shepherd Dog, with a complaint of a wound under the right forelimb, brought to Ankara University, Faculty of Veterinary Medicine, Department of Orthopaedics and Traumatology. A mass with 7.0 cm diameters was observed on the right forelimb. After first pathological evaluation, histiocytosis was diagnosed. On postoperative 21st day, the right forelimb was completely swollen and thickened and the wound was enlarged on the pulvinus (fig. 1a and 1b). Because of the weight loss and the patient's owner's request, euthanasia was performed.

For necropsy; smooth masses with ulcerated surfaces (3.0 × 11.0 cm) were located on the pulvinus of right forelimb; one was located on the proximal area of the metacarpal joint and its mediopalmar face, (6.5 × 4.0 cm) (fig. 2a); and the other was located on the medial side of art. cubiti proximally, adhered with the tendon (2.5 × 2.5 cm) pointed, their cross-sectional surfaces being yellowish, white-colored and smooth shaped. The right prescapular lymph node was sized 6.5 × 7.0 × 3.0 cm and it was approximately 110 grams in weight, its cross-sectional surface being moist with hemorrhagic areas (fig. 2b). As for, the right retropharyngeal lymph node, its size was 9.0 × 7.5 × 5.0 cm and 180 grams in weight with its cross-sectional area also being moist. The left kidney was shrunk and a smooth and brown-white colored mass with 1.5 cm diameters (fig. 2c) close to the cortex on its cross-sectional surface was shown. The other one was 1.0 cm diameters with the same characteristics observed on the left cranial lobe of the lung (fig. 2d) and its cross-sectional surfaces were smooth with grey-white colored focuses (fig. 2c and 2d). Histopathologically, the epidermis had lost integrity over a large area on the tumoral masses of the right front limb. Tumor metastases were formed by similar cells encountered on prescapular and retropharyngeal lymph nodes, kidneys and lungs.

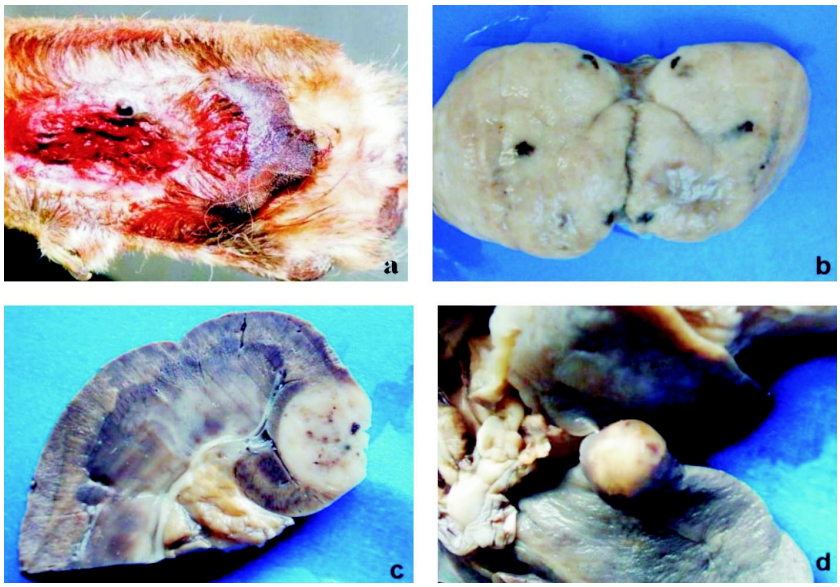

Fig. 2. a) A mass with ulcerated surface on the pulvinus of the right forelimb; b) Metastasis on the right prescapular lymph node; c) Metastasis on the left kidney; d) Metastasis on the left cranial lobe of the lungs

The tissue samples were determined with the bumper formaldehyde 10% and with routine methods after being passed the alcohol and xylol series and later they were fixed to paraffin. When the paraffin blocks gained 5 micron thickenings, they were painted with hematoxilen × eosin (H – E) observed with light microscope.

For microscopic evaluation, the integrity loosening of epidermis was seen widely on the tumor masses with eosinophilic cytoplasm, vesicular nucleus oval or round shaped (fig. 3a). Standing out among these cells were polynucleus giant cells and macrophages; phagocyte eosinophils and thin stroma. In the surrounding areas, neoplastic cells, macrophages; phagocyte erythrocytes, lymphocytic infiltrations and hemorrhagic places were seen. The tumor metastasis had been formed on prescapular and retropharyngeal lymph nodes (fig. 3b), kidneys (fig. 3c) and lungs (fig. 3d) by similar cells. In addition to these findings, chronic nephritis was observed on both kidneys.

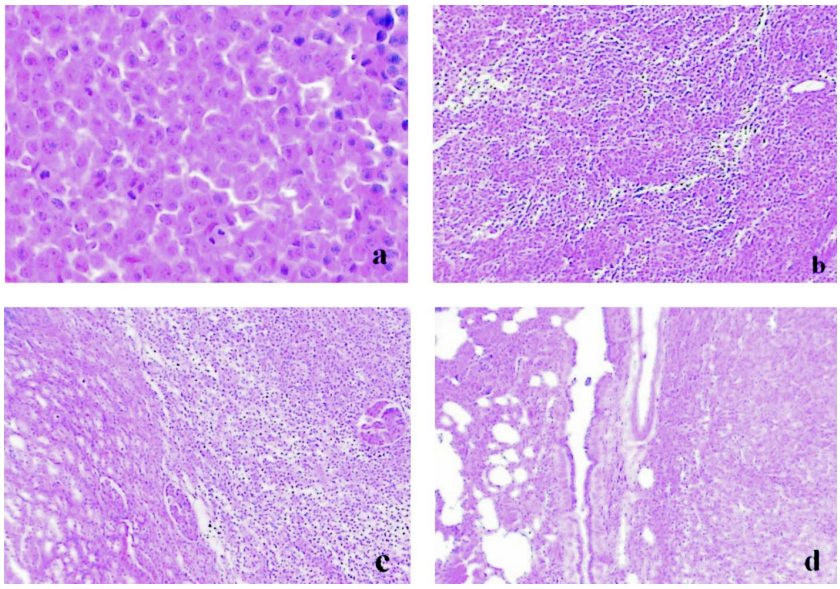

Fig. 3. a) Neoplastic cells forming with high mitotic activity of the epidermis on the right forelimb (H × E, × 400); b) Microscopic view of tumor metastasis on prescapular and retropharyngeal lymph nodes (H × E, × 100; c) Microscopic view of tumor metastasis on kidney (H × E, × 100); d) Microscopic view of tumor metastasis on the lungs (H × E, × 400)

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