

Histiocytic Disease Complex

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Histiocytes are leukocytes derived from the bone marrow that are important in phagocytosis (macrophages) and antigen presentation (dendritic cells). Dendritic cells are responsible for initiation of the immune response. Their main function is to educate naïve T cells during the induction of the primary immune response and act as sentinels for recognition of antigen. Dendritic cells are named according to their location in the body. For example, Langerhans cells are dendritic cells present within the skin and mucosal epithelium whereas interstitial cells are dendritic cells present within non-lymphoid organs.

Canine histiocytic disease can be classified into three categories including nonmalignant neoplastic (cutaneous histiocytoma), nonmalignant nonneoplastic (reactive histiocytosis-both cutaneous and systemic), and malignant neoplastic disease (localized histiocytic sarcoma, disseminated histiocytic sarcoma, and hemophagocytic histiocytic sarcoma).

Cutaneous histiocytoma is a benign epitheliotropic neoplasm that typically occurs in dogs < 3 years of age on the head, pinnae, neck, and limbs. The appearance of the lesion is small (<2.5 cm), firm, and dome-like. These masses are fast growing, non-pruritic, and painless. Typically histiocytomas regress in 1-3 months. Surgical removal is usually curative and is indicated for persistent nodules that are ulcerated, infected, or that occur in older patients. Multiple histiocytomas appear to be more common in Shar Peis, but can occur in any breed. Delayed regression of multiple histiocytomas can occur with lesions persisting for up to 10 months. Fine needle aspiration can be used to diagnose cutaneous histiocytomas and often histopathology is also utilized. Immunohistochemistry (IHC) may be helpful in ruling out malignant disease.

Reactive histiocytosis often manifests as plaques and nodules causing cutaneous or systemic disease. Cutaneous lesions can “wax and wane” and involve the skin, subcutis, and draining lymph nodes while systemic lesions may lead to other clinical signs related to specific organ involvement (nasal mucosa, orbital tissue, sclera, lung, liver, spleen, bone marrow). Systemic histiocytosis commonly affects Bernese Mountain dogs, Rotweillers, Irish wolfhounds, and Labrador retrievers. While biopsy is necessary to confirm both diagnoses, cutaneous and reactive histiocytosis lesions are identical histologically. Differentiation between the two disease processes is based on location of the lesions and the presence or absence of systemic signs. Treatment for cutaneous histiocytosis often involves immunosuppressive therapy, surgical removal (if local disease), or tetracycline/niacinamide combinations. Prognosis is variable for cutaneous

and systemic histiocytosis and both may require prolonged immunosuppressive therapy. Relapse is likely to occur with systemic histiocytosis.

Malignant neoplastic histiocytic disease includes both disseminated and localized histiocytic sarcoma. Labrador retrievers and Bernese Mountain dogs appear to be predisposed to developing histiocytic sarcomas. Although the disease is rapidly growing, dogs with localized histiocytic disease are usually not ill and have solitary lesions of the joints, subcutis, or skin. Solitary lesions can also occur in other sites including the lung, brain, nasal cavity, and bone marrow. Frequent sites of metastases include the lungs, lymph nodes, and abdominal viscera. The metastatic rate ranges from 60-91%. Outcome for treatment appears to be better with a combination of local and systemic therapy. Differentiation of localized and disseminated histiocytic sarcoma is made by the location of the lesion(s) and the presence or absence of systemic signs. Disseminated histiocytic sarcoma involves multiple organs and can metastasize to the liver, lung, spleen, and lymph nodes. There is no consistently effective therapy for disseminated histiocytic sarcoma, but a combination of therapies (chemotherapy and radiation) may be attempted.