

# ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2014 – Mock Exam

## CASE 10 Cytology, Imprint smear, lymph node cat- Metastasis of histiocytic sarcoma

Cytologic Description	Points
<b>Style</b>	1
Good cellularity	0,5
Good staining	0,5
Lightly blue amorphous background (lymph stasis)	1
Purple granules in the background (mast cell granules)	0,5
Neoplastic discrete round cell population	1
Cell vary in size from 18/20 microns up to 50/70 microns	1
Well distinct margins	1
Intermediate to low N/C ratio	1
Abundant blue cytoplasm	0,5
Occasional fine vacuolation with no distinct margins	0,5
Oval to round paracentral nuclei	1
Lacy chromatin	0,5
One variably distinct large nucleolus	0,5
Occasional mitoses	0,5
Anisocytosis/anisonucleosis	0,5
Elevate numbers of bi to multinucleated neoplastic giant cells with up to 30 nuclei	1
<b>Other cells</b>	0
Prevalence of small mature lymphocytes	1
Reactive lymphocytes	1
Mature plasmacells	1
Mast cells (normal mature)	1
Occasional neutrophils	0,5
<b>Morphologic Diagnosis:</b> Histiocytic sarcoma/metastasis of histiocytic sarcoma (inflammation granulomatous only 1 point)	3
	20

Moore PF. A review of histiocytic diseases of dogs and cats. Vet Pathol. 2014 Jan;51(1):167-84.

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**Table 1.** Histiocytic Diseases of Dogs and Cats.

Disease	Species	Cell of Origin	Key Morphological Features	Immunophenotype
Histiocytoma	Dog	LC	Lesions have an epidermal focus ("top-heavy") and intraepidermal foci are common. Histiocytes have diverse nuclear morphology (round, ovoid, indented, or complex nuclear contours). Multinucleated cells and cytologic atypia are rare.	CD1a, CD11c/CD18, E-cadherin
Cutaneous Langerhans cell histiocytosis	Dog	LC	Multiple cutaneous lesions are observed. Metastasis to lymph nodes and internal sites is possible. Lesions are otherwise identical to histiocytoma but may have a higher frequency of multinucleated cells and cytologic atypia.	CD1a, CD11c/CD18, E-cadherin
Pulmonary Langerhans cell histiocytosis	Cat	LC	There is multinodular to diffuse involvement of all lung lobes. Lesions consist of cohesive histiocytic infiltrates, which obliterate terminal airways and extend to pleural surfaces. Birbeck's granules observed by TEM.	CD1a, <sup>2</sup> CD18, E-cadherin
Cutaneous histiocytosis	Dog	IDC activated	Vasocentric lesions are focused on mid-dermis to subcutis ("bottom heavy"). Lesions are pleocellular but are dominated by histiocytes and lymphocytes. Lympho-histiocytic vasculitis is commonly observed. Histiocytes lack cytologic atypia, and multinucleated giant cells are rare. Skin draining lymph nodes may be infiltrated.	CD1a, CD4, CD11c/CD18, CD90
Systemic histiocytosis	Dog	IDC activated	Lesions are identical to cutaneous histiocytosis in skin. Lesions extend to lymph nodes, ocular and nasal mucosa, and internal organs.	CD1a, CD4, CD11c/CD18, CD90
Histiocytic sarcoma	Dog, cat	IDC	Mass lesions are observed in spleen, lung, lymph node, and other primary tissue sites. Histiocytes are pleomorphic, mononuclear, and multinucleated giant cells with marked cytological atypia.	CD1a, CD11c/CD18
Histiocytic sarcoma—hemophagocytic	Dog, cat	Macrophage	Mass lesions are lacking. Diffuse splenomegaly and insidious infiltration of liver, lung and bone marrow are consistently observed. Splenic red pulp is expanded by erythrophagocytic histiocytes. Mononuclear and multinucleated giant cells with cytologic atypia are common. Alternatively, histiocytes may have little cytological atypia.	CD1a (low), CD11d/CD18 (dog)
Feline progressive histiocytosis	Cat	IDC	Skin nodules and plaques are observed. Lesions occupy the dermis with an epidermal focus. Intraepidermal foci (40%) occur. In early lesions, histiocytes have minimal cytologic atypia. In later lesions, histiocytes manifest cytological atypia as described for histiocytic sarcoma.	CD1a, CD11 <sup>b</sup> /CD18, CD5 (50%)
Dendritic cell leukemia	Dog	IDC	Predominant blood and bone marrow involvement is observed. There is diffuse infiltration of spleen, lung, and liver. Histiocytes manifest moderate cytologic atypia in blood and tissues.	CD1a, CD11c/CD18

Abbreviations: IDC, interstitial dendritic cell; LC, Langerhans cell; TEM, transmission electron microscopy.  
<sup>2</sup>CD1a expected, not assessed to date.  
<sup>b</sup>CD11c expected but not currently assessable in cats.