ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2009 – Clinical Pathology 34

History:

14 years old female mongrel dog with dyspnea due to the presence of an abundant thoracic effusion

CBC reveals a moderate neutrophilic leukocytosis, biochemistry is consistent with slight chronic renal failure, serum protein electrophoresis WRI

Physico-chemical analysis of the effusion: yellow, transparent, total proteins = 2,0 g/dL, SG = 1022; cells = 1,4 x 10^3/□ l

Cytological description:

Hemodiluted sample with high cellularity.

On a finely granular eosinophilic background due to proteinaceous material a mixed population of cells is present.

The most evident population consists of single or (more frequently) clustered very large and pleomorphic cells. Clusters of cells are medium-sized and often have a tridimensional structure and an adenomatous (glandular) pattern is also seen.

Cells belonging to this population are round to oval, with marked anisocytosis (cell size ranging from about 20 to 100 microns) with abundant deeply basophilic cytoplasm often characterized by a perinuclear halo and/or by evident vacuolization and by a thickened and more intensely basophilic cell border. Nuclei of these cells have evident cytological findings of malignancy like anisokaryosis, variable chromatin pattern (form reticular to coarse). Multiple, variably sized and irregularly shaped prominent nucleoli are present, Occasional binucleated cells belonging to this population can also be found.

The additional cell population relatively abundant in the sample is an inflammatory population mostly composed by neutrophils, that occasionally show signs of degeneration (kariolysis and kariorexis) but no bacterial phagocytosis. Frequent macrophages with intracytoplasmic phagocytised cellular debris and occasional reactive mesothelial cells are also detectable on the sample.

Cytological diagnosis:

Malignant epithelial neoplasia, probably adenocarcinoma.

Comment:

Although carcinoma is often difficult to be distinguished from mesothelioma, in this case the adenomatous pattern, the presence of clusters, and the general features of neoplastic cells is much more consistent with carcinoma than with mesothelioma. If any doubt persists (on the basis of clinical presentation or of follow up), immunocytochemical staining useful to further address the differentiation between the two neoplasms (e.g.: cytokeratin and/or vimentin) is recommended.

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The adenomatous pattern detected in some cluster of cells is consistent with a glandular origin. Consider the possibility of a metastatic origin of the tumour (e.g. mammary neoplasm?)

SCORING

Comment on cellularity and background	1 pt
Presence of a “neoplastic population”	0,5 pts
Description of general features (polymorphism, clusters, patterns)	1 pt
Description of cytoplasms	0,5 pts
Description of nuclear features	1 pt
Nucleoli and binucleated cells	0,5 pts
Additional inflammatory population	
Neutrophils	1 pt
Other cells	0,5 pts
Diagnosis	1 pt
Comment	
Dd with mesothelioma and immunohistochemistry	0,5 pts
Possible metastatic origin	0,5 pts
TOTAL	**7 pts**