



ECVP/ESVP Summer School in Veterinary Pathology



Marie Curie Training Courses

Summer School 2005 – Reproductive System B874/04

ID B-874/04

TISSUE FROM A DOG

Mammary gland

Extending in the deep dermis there is a nodular (1.3x1 cm) moderately cellular, well-demarcated, expansile and encapsulated neoplasm.

The tumor is formed by epithelial components (epithelial and myoepithelial cells) and mesenchymal components (mixed tumor). Epithelial cells are forming tubules, some of them filled with eosinophilic secretion. Myoepithelial cells display in nests and whorls and mucinous-filamentous basophilic areas (myxomatous areas). Neoplastic mesenchymatous component is integrated by newly formed cartilaginous tissue and mature cartilaginous tissue that is transformed in several areas in well-differentiated osseous tissue that includes bone marrow. Newly formed cartilaginous tissue is surrounded by myxomatoid myoepithelial and fibrotic areas.

Differentiation of stroma is difficult in the mesenchymatous tumor area. There is a moderately fibrotic stroma among epithelial, myoepithelial and cartilaginous tissue (desmoplastic stroma). The stroma surrounding epithelial and myoepithelial areas is scant. Thickening of basement membranes is observed.

The tubules are formed by medium (15-30 μ m) cells with indistinct cell borders, scant acidophilic cytoplasm and large oval central nuclei with fine granular chromatin and a basophilic evident nucleolus. Myoepithelial cells are medium in size (20-25 μ m) and spindle or stellate in shape with indistinct borders, scant clear cytoplasm with oval to elongate, central nucleus with hypochromatic finely stippled chromatin.

The cartilaginous cells are medium (15-30 μ m) to large (30-50 μ m) in size, with distinct borders and occasionally surrounded by a circular dense basophilic substance (extracellular matrix). The cytoplasm is acidophilic, vacuolated or clear, situated into lacunae, with very variable nuclei in size, round to oval shape and mostly finely stippled chromatin.

In all cells, marked anisocytosis and anisokaryosis are seen. Some chondrocytes show karyomegaly. Mitosis are rare, less than 1 mitosis per HPF.

Mineralization of cartilaginous and osseous extracellular matrix is focally seen.

Multifocal inflammatory aggregates of lymphocytes and plasma cells are located in the stroma and in capsular perivascular position. Some scattered macrophages are filled with a brown pigment (hemosiderin; siderocytes).

Finally, proliferations of mammary gland ductules, some of them filled with eosinophilic material and covered by flattened cells (secreting lobular mammary hyperplasia), are seen outside the encapsulated described nodule.

Morphological diagnoses: Benign mixed tumor of mammary gland.