



# ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2014 – GEMS (200)

Case 05-6-1-1. Tissue from an MMTV-IGF1R transgenic mouse:

## Description:

Salivary gland. The section consists of a multilobular, unencapsulated, centrally necrotic neoplastic mass bordered on one surface by haired skin. The neoplasm is composed of lobules which vary in cellular appearance and density. The lobules are composed of numerous, closely-packed serous acini, suggesting that this is a parotid salivary gland. In different lobules, the serous cells contain varying amounts of eosinophilic cytoplasm, ranging from abundant to scant. Some nuclei are large and open-faced; others are small and more densely chromatic. A few mitotic figures (less than 1/high-powered field) are present. In other lobules, small aggregates of cells are densely packed, while others have more normal morphology. In a few areas, the cells form numerous small ductules. In some of the lobules, the central serous epithelial cells undergo coagulative necrosis, in which cell outlines are preserved, cytoplasm is densely eosinophilic, and nuclei are condensed and fragmented (pyknosis and karyorrhexis). Some lobules are separated by widened interstitial septa that are edematous, contains plump, immature fibroblasts, and neutrophils. Blood vessels in the septa contain marginated neutrophils. In an extensive region underlying the skin, necrosis is extensive and includes both coagulative and caseous necrosis. Areas of extensive hemorrhage are present in the necrotic zone. A mild infiltrate of neutrophils and a zone of fibroplasia separate the necrotic zone from the haired skin.

Diagnosis: Salivary adenocarcinoma, multicentric, with necrosis

Interpretation: Over-expression of the insulin-like growth factor-1 receptor (IGF1R) is reported in many tumor types and can cause neoplasia. In this case, the IGF1R transgene is driven by the mouse mammary tumor virus promoter that is active in mammary and salivary gland cells. This explains why the tumor localized to the salivary gland in this case. The variation of morphology from lobule to lobule suggests that the origin of this neoplasm may be multicentric. That is consistent with multiple independent transformation events, driven by overexpression of the IGF1 receptor.