The relationship between basal and luminal cytokeratins with histopathologic characteristics of canine mammary gland cancer

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Abstract

Neoplasia occurs mostly in mammary glands in female dogs and mammary gland cancer is one of the causes of death in these animals. Cytokeratins are one of the most important tumor markers for identification of tumor prognosis.

In this study, 120 canine malignant tumor samples of mammary glands were studied. From each sample, a section was taken for hematoxylin-eosin staining and two sections for immunohistochemical staining of markers CK5/6 and CK7. Histopathology slides were evaluated by light microscope.

The results show that the presence of markers CK7 and CK5/6 had no significant relationship with tumor grade and type (p < 0.05).

However, it seems that unlike humans, CK5/6 and CK7 is not an independent prognostic factor in canine mammary gland tumors.

Key words: canine mammary gland tumors, basal cytokeratin, luminal cytokeratin

Introduction

The prevalence of mammary neoplasms was reported 199 per 100,000 female dogs (Santini et al. 2002). Recent studies on gene expression have identified two major groups of breast cancer cells, one with basal/myoepithelial characteristics and the other with luminal characteristics (Gama et al. 2010). The important point is the prognosis of basal type cancers because they are associated with poor clinical outcome. Basal tumors are hormone receptor-negative and express genetic characteristics of basal and myoepithelial cells (Gama et al. 2010).

Intermediate filaments (IFs) are one of the most important types of tumor markers, whose presence or absence is very important (White and Hahn 2003). A large group of IFs is known as cytokeratins, which are specific for epithelial cells and carcinomas. Most malignant tumors are highly consistent, due to their strong cytoskeleton which is made of cytokeratin pro-