

OCT-4 and P63 immunohistochemical implication in canine prostatic carcinogenic process

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Abstract

In human medicine, OCT-4 is an important prognostic marker for prostate cancer (PCa) and the loss of this protein is associated with poor prognosis. Despite being a marker for stem cell, normal prostatic epithelial cells are positive for OCT-4 in humans, however, in canine PCa, no studies with this marker were performed. Due to importance of canine model for prostatic human disease, we performed immunohistochemistry stain for OCT-4 and P63 in canine prostatic lesions to verify the role of stem cells in canine PCa. We selected 10 normal prostatic tissue, 15 proliferative inflammatory atrophy (PIA) and 14 PCa for immunohistochemical staining using peroxidase method and 3,3' diaminobenzidine tetrachloride (DAB) in DakoCytomation autostainer Classic platform. For antigen retrieval the slides were incubated in TRIS-EDTA buffer (pH 9.0) in a pressure cooker. The antibody against OCT-4 and P63 were monoclonal mouse antibodies, used at a 1:50 and 1:100, respectively. The immunolabelling was performed by a polymer method. A negative control was performed for both antibodies by omitting the primary antibody and substituting with Tris-buffered saline. For each lesion a score was given: 1- 0-25% of positive cells; 2- 26 to 50% of positive cells; 3- 51 to 75% of positive cells and 4- more than 76% of positive cells. The slides were read by two pathologists at the same time. Chi-square or Fisher exact test was used to determine the association between the categorical variables. Concerning the p63 protein expression, we found a higher number of p63-positive basal cells (>75%) in the PCa and PIA tissues when compared to the normal prostate (P=0.0002). All secretory epithelial cells of normal samples (10/10) were positive for OCT-4 and the basal cells were P63 positive. Basal cells of normal prostate tissue were negative for OCT-4. In PCa there was a loss of OCT-4 expression with P63 positive tumors cells. In PIA we found cells with P63+ and OCT-4+ phenotype. In dogs there is an involvement of P63 positive cells in PCa and similarly to what happens in humans, the prostatic carcinogenesis process of canine prostate is associated with loss of OCT-4.

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