EVALUATION OF SURVIVIN, AN INHIBITOR OF APOPTOSIS, IN CANINE URINARY BLADDER TISSUES

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ABSTRACT

Introduction: Survivin, an inhibitor of apoptosis, is overexpressed in human urinary bladder transitional cell carcinoma (TCC). The objectives of this study were to evaluate expression of survivin in canine TCC, cystitis, and normal urinary bladder, and correlate expression with cell proliferation index. The hypothesis was that survivin is overexpressed in canine urinary bladder TCC.

Materials and Methods: Immunohistochemistry (IHC) with an anti-survivin antibody was performed on archival canine TCC, cystitis, and normal urinary bladder tissues. Reverse-transcriptase polymerase chain reaction (PCR) was performed on fresh-frozen tissues (when available). Ki-67, a marker for cell proliferation, was also evaluated by IHC.

Results: Nuclear survivin was present in 27/41 TCC, 12/24 cystitis, and 0/46 normal bladders. Differences between TCC versus normal and cystitis versus normal were significant. Cytoplasmic survivin was present in 7/41 TCC, 2/24 cystitis and 17/46 normal tissues; differences between normal and cystitis were significant. Six of 6 TCC samples, 4/7 cystitis, and 11/22 normal bladder tissues were positive for mRNA, but levels were not significantly different. Tissues with nuclear survivin had a significantly higher Ki-67 score than those without.

Conclusions: As in human tissues, survivin is present in canine TCC. While the presence of survivin in cystitis and normal bladder demonstrates that this is unlikely to be a biomarker for cancer, nuclear survivin is present in TCC and cystitis tissues, but not normal bladder. Nuclear survivin may to play a role in cell proliferation and therefore, may be a target for therapy and prognostic tool for canine bladder tumors.