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Prognostic significance of lymphatic invasion in canine bladder urothelial carcinoma

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Introdução

Urothelial carcinoma (UC) also known as transitional cell carcinoma, is the most common malignant tumor of the canine urinary bladder and provides a model for the study of human bladder cancer. UC can be classified according to its location, histological type, grade of differentiation, and local invasion. However, the existing literature has limited data on the clinicopathologic features of these tumors and their prognostic value. Due to the difficulty of treating bladder tumors in dogs and the lack of prognostic markers, the aim of this study was to retrospectively evaluate the natural cases of UC in these animals, correlating the clinical and pathological data, in a group of 32 dogs with bladder UC.

Casuística e Métodos

The clinical data of the cases, including age, breed, sex, and treatment option, submitted to the State College of São Paulo (UNESP) and the private laboratory VetPat (São Paulo/Brazil), were collected between January 2000 and November 2019. Inclusion criteria included patients who underwent tissue biopsy or surgical procedures for histopathological diagnosis, availability of formalin-fixed and paraffin-embedded tissue samples, clinical information, and the histological diagnosis of bladder UC. For each case, formalin-fixed and paraffin-embedded sections were stained with hematoxylin-eosin and histologically evaluated. Survival analysis and prognostic value were performed in association with the type of treatment, histological subtype, histological grade, presence of muscle invasion, and presence of lymphatic invasion.

Resultados

The most prevalent histological subtype was the papillary and infiltrating UC, followed by the non-papillary and infiltrating subtypes. Dogs with neoplastic lymphatic vessel invasion had a lower overall survival rate than those without lymphatic invasion. Dogs that received vinblastine in addition to surgery had a higher overall survival when compared with animals that received carboplatin in addition to surgery.

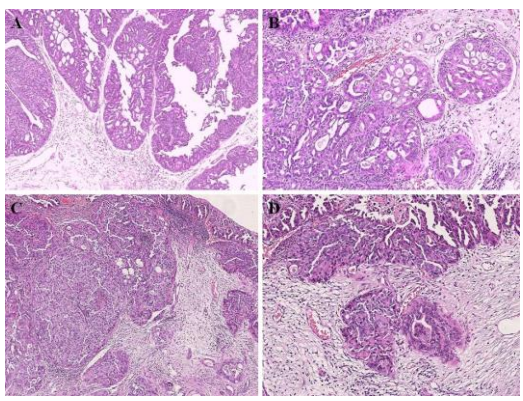

Figure 1. Histological type photomicrograph of canine UC. A. UC papillary. HE, 5x magnification. B. The same tumor of "A", focusing on tumor infiltration. HE, 10x magnification. C. UC non papillary and infiltrating. HE, 5x magnification. D. The same tumor of "C", focusing on tumor infiltration. HE, 10x magnification.

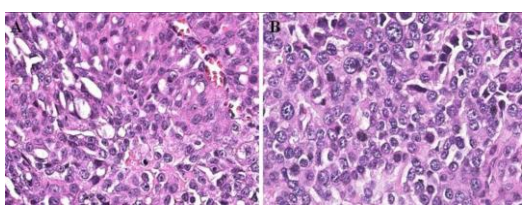

Figure 2. Histological grading photomicrograph of canine bladder UC. A. UC with histological grade II, HE, 40x magnification. B. UC with histological grade III, HE, 40x magnification. |enlarged nucleus, anisokariosis and multiple evident nucleoli in grade III are evident, when compared with grade II.

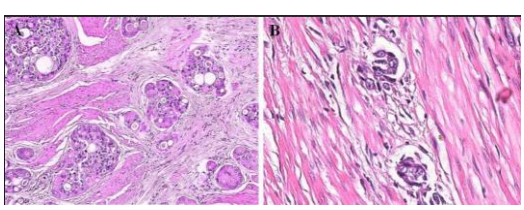

Figure 3. Histological photomicrograph of invasive canine bladder UC. A. UC with muscular infiltration (case 21), HE, 10x magnification. B. UC with lymphatic infiltration (case 12), HE, 40x magnification.

Conclusões

This study evaluated the prognostic value of different treatment options and histological features of canine bladder UC. In particular, lymphatic invasion, a feature rarely considered in the available literature, proved to be a significant negative prognostic factor. The results reported above encourage further studies on the canine bladder UC, not only for application in translational research with human disease, but also for developing new therapies that enable better prognosis and quality of life in veterinary medicine.

Contato

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