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Cytologic subtypes of canine transmissible venereal tumor

Canine transmissible venereal tumor (CTVT) is a transplantable neoplasm that has stimulated much scientific effort to determine its cell of origin, mode of transmission, and reasons for spontaneous regression¹ as well as similarities with other types of animal and human cancers.² In 1994, on the basis of the hypothesis that different cytomorphologic types of CTVT may have different biologic behaviors, including response to chemotherapy and aggressiveness, our diagnostic service adopted a practical classification system that places the tumor into 3 subtypes: plasmacytoid, lymphocytoid, and mixed.³ The aim of this letter is to draw attention to this simple and reliable classification system that may permit a better understanding of CTVT variants and establishment of more adequate therapeutic planning.

The lymphocytoid subtype is characterized by > 60% round cells with finely granular cytoplasm containing few clear vacuoles; nuclei are centrally located and are round

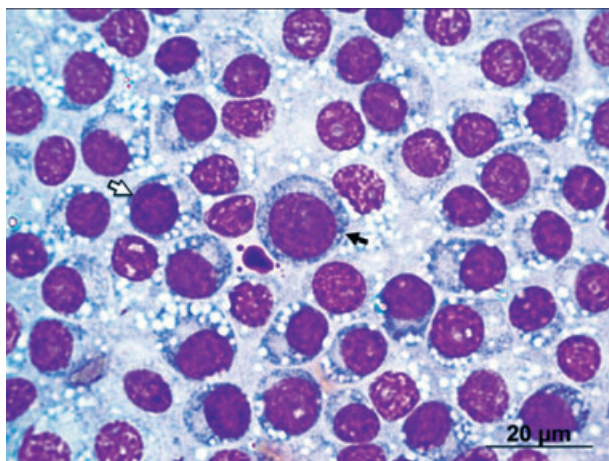


Figure 1. Fine-needle aspirate of a canine transmissible venereal tumor, consisting of cells of both lymphocytoid (black arrow) and plasmacytoid (white arrow) subtypes. Giemsa.

with a coarse chromatin pattern and 1–2 distinct nucleoli (Figure 1). The plasmacytoid subtype is composed of > 60% ovoid cells with more abundant cytoplasm, several clear vacuoles, and an eccentrically located nucleus. The mixed type contains both lymphocytoid and plasmacytoid cells, with neither type exceeding 59% of total cells.⁴

Although some authors classify CTVT as typical and atypical subtypes, we believe that the classification system proposed by us is more dependable, as it relies on more objective morphologic features, reducing inter- and intra-observer bias. Moreover, our studies demonstrate that plasmacytoid subtypes are associated with a greater number of DNA breaks and increased expression of permeability glycoprotein (P-gp), suggesting the existence of different cell lines.^{4–8} A transmembrane protein, P-gp acts as an efflux pump for vincristine and doxorubicin, reducing intracellular drug concentration to nonlethal levels and thus contributing to chemoresistance.³

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