



Histologic grading of canine mast cell tumors: Does growth model matter?

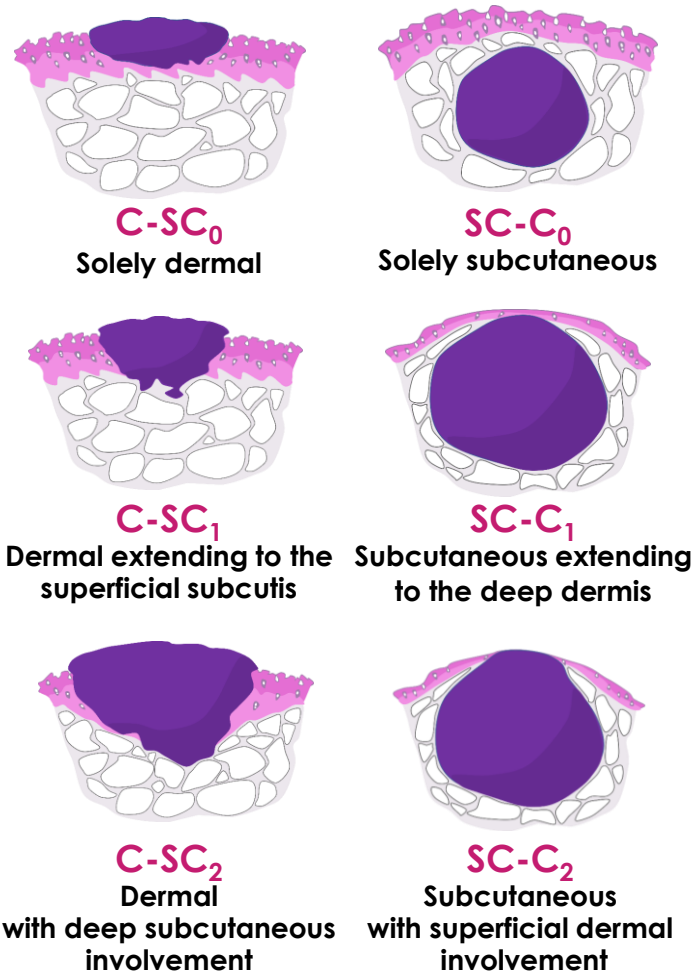


Figure 1. MCT growth models identified in the present study.

Objective. The histologic grading of canine mast cell tumor (MCT) has been validated only for the cutaneous form. For MCTs originating from the subcutis, with or without dermal involvement, the application of grading is not standardized, thereby affecting patient management. The aim of this study was to assess the prognostic utility of Kiupel two-tier grading system in MCT with different histologic growth models (GM) and to evaluate the prognostic impact of the GM itself.

Materials and Methods. Seventy-six dogs with 91 MCTs undergoing exeresis of the primary tumor and regional/sentinel lymphadenectomy at the University Hospital of the Department of Veterinary Medical Sciences (University of Bologna) were prospectively included. Histologically, tumors were classified into 6 GM-based categories (**Figure 1**).

Results. At univariable analysis, variables significantly associated with both an increased risk of tumor progression and tumor-related death included Kiupel high grade and presence of one or more HN3 lymph nodes. At multivariable analysis, only Kiupel high grade retained prognostic significance (HR = 39.3; P = 0.001 and HR = 35.3; P = 0.002, respectively). C-SC₂ tumors had the highest frequency of overt nodal metastases (31%) and tumor progression (19%) and a one-year survival rate of 84.6%. The remaining one-year survival rates were 100% for C-SC₀ and C-SC₁, 95.5% for SC-C₀, 92.9% for SC-C₂, and 91.7% for SC-C₁.

Conclusions. Cutaneous MCTs with deep subcutaneous invasion (C-SC₂) have a more aggressive biologic behavior compared with primarily subcutaneous MCTs with secondary dermal involvement (SC-C₁₋₂), thus the differentiation of these patterns in histopathologic reports might hold prognostic relevance. Kiupel's histologic grading seems to correctly identify canine MCTs with aggressive biologic behavior, including subcutaneous MCTs with or without dermal invasion, that currently lack specific guidelines.