

# Prognosis After Surgical Treatment of Kiupel High-Grade Cutaneous Mast Cell Tumors

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## In the Literature

Moore AS, Frimberger AE, Taylor D, Sullivan N. Retrospective outcome evaluation for dogs with surgically excised, solitary Kiupel high-grade, cutaneous mast cell tumours. *Vet Comp Oncol*. 2020. doi: 10.1111/vco.12565

## FROM THE PAGE ...

Cutaneous mast cell tumors (MCTs) are common and diverse in clinical appearance and behavior and account for  $\leq 20\%$  of skin cancers in dogs.<sup>1</sup> Predicting this seemingly unpredictable behavior is challenging.

Histopathologic grade and mitotic index are the most common factors used in predicting prognosis<sup>2-5</sup>; however, there are several shortcomings if these criteria are used alone. The 3-tier (ie, Patnaik) system is criticized for its subjective grading criteria.<sup>6,7</sup> The 2-tier (ie, Kiupel) system uses more objective grading criteria,<sup>5</sup> but studies evaluating this system have indicated several significant limitations.<sup>5</sup>

Considering the limitations of these grading systems, this study hypothesized that a subset of dogs with localized Kiupel high-grade cutaneous MCTs may have a better outcome than suggested by the original literature.<sup>2,5,8,9</sup> In this retrospective study, the outcomes and prognostic factors for dogs with Kiupel high-grade cutaneous MCTs presented without overt metastasis were evaluated. All dogs received curative intent surgical excision of the MCTs, with or without chemotherapy.

A total of 49 dogs were evaluated. Some dogs were not completely staged, although lymph nodes were reported to be of clinically normal size in all dogs. Forty-five MCTs were histologically completely excised. Three of the 4 dogs with histologically incomplete margins underwent re-excision. Chemotherapy (with a variety of protocols) was recommended for all dogs, but only 33 dogs received this treatment.

Local tumor recurrence developed in 9 (18.4%) dogs at a median of  $\approx 158$  days postoperation. Regional lymph node metastasis was diagnosed via cytology in 6 (12.2%) dogs at a median of  $\approx 273$  days postoperation. New MCTs developed in 15 (30.1%) dogs at a median of  $\approx 495$  days postoperation.

Median survival time (MST) for all 49 dogs was 1046 days, with 1- and 2-year survival rates being 79.3% and 72.9%, respectively. Dogs with MCTs with mitotic counts <15/10 hpf had a longer MST (1645 days) as compared with dogs with MCTs with mitotic counts  $\geq$ 15/10 hpf (162 days). Dogs with smaller tumors (<25 mm) had an improved MST (1645 days) as compared with dogs with larger tumors ( $\geq$ 25 mm; MST, 252 days). Chemotherapy did not appear to improve survival in this study.

This study suggests that the prognosis for dogs with clinical stage 1 (ie, no overt metastasis at time of initial diagnosis), Kiupel high-grade cutaneous MCTs receiving good local tumor control (ie, complete excision) is good, especially for those with low mitotic index and smaller tumor sizes.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Adequate surgical control of solitary Kiupel high-grade MCTs may provide longer survival time, especially for dogs with tumors <25 mm and mitotic counts <15/10 hpf.
- 2** Grade alone should not be used to predict outcome in these patients; clinical stage and selected treatment also contribute to the outcome.
- 3** Full clinical staging, specifically regional lymph node histopathology, is recommended for dogs with Kiupel high-grade MCT.

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▲ **FIGURE 1** Solitary cutaneous MCT (40 mm) on the right lateral hock. Histopathology confirmed Kiupel high-grade MCT with 20 mitotic figures/10 hpf. The tumor was removed with clean but close margins. Prognosis was guarded to fair due to tumor size (>25 mm), >15 mitotic figures/10 hpf, and clean but close excision.



▲ **FIGURE 2** Solitary cutaneous MCT (10 mm) on the caudal left popliteal region. Histopathology confirmed Kiupel high-grade MCT with 10 mitotic figures/10 hpf. The tumor was removed with complete margins. Prognosis was good due to the small tumor size (<25 mm), <15 mitotic figures/10 hpf, and complete excision.