

# Histological grading and mitotic count of 1937 canine mast cell tumors

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## Introduction

Canine mast cell tumors (MCTs) comprise up to 21% of skin tumors in dogs.<sup>1</sup> They exhibit a variable behavior from being less aggressive to overtly aggressive tumors, with histological grade being an important predictor for more aggressive tumor biology. The 3-tier Patnaik grading system categorizes tumors into grade I, II and III, the 2-tier Kiupel grading system categorizes tumors into low grade and high grade<sup>2,3</sup>. The objective of this study was to provide a descriptive analysis of grade and mitotic count (MC) from a large database of canine MCTs.

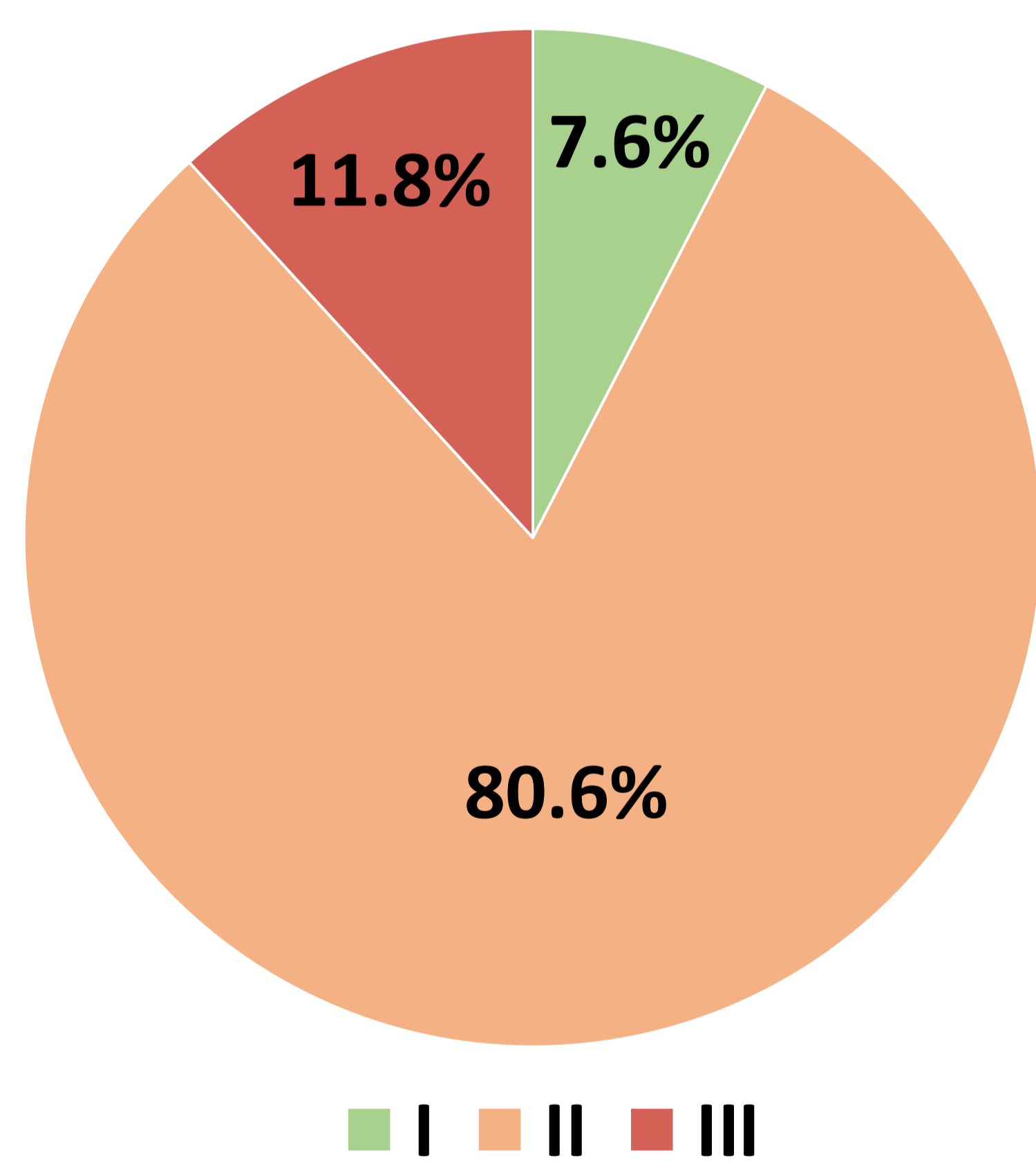
## Materials and Methods

Data regarding grade and MC of MCTs between September 2020 and July 2023 were gathered from 3 independent pathology databases.

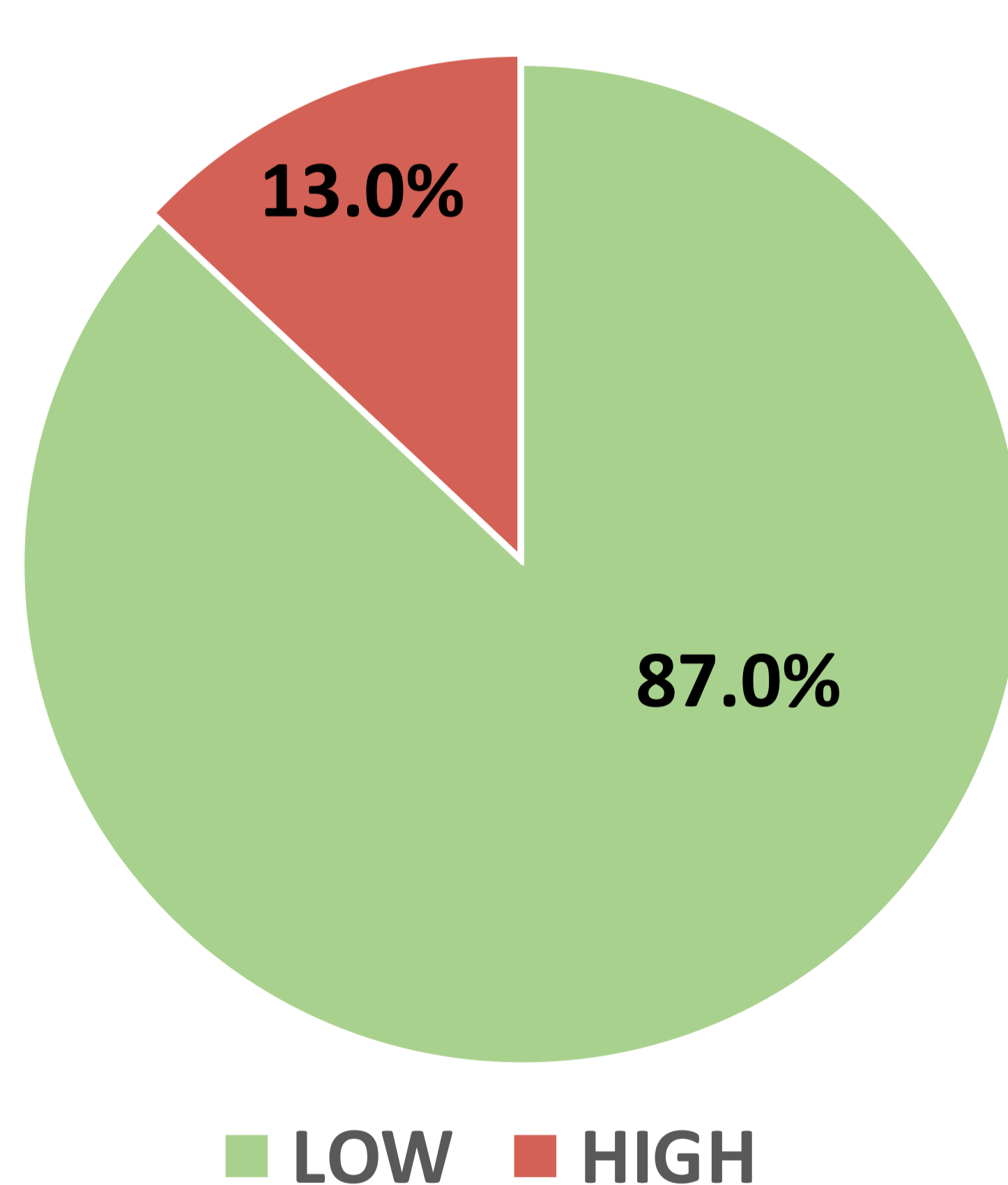
## Results

In 1608/1937, at least one grading system was applied and of all MCTs, 1446/1937 (74,7%) had a MC of 0.

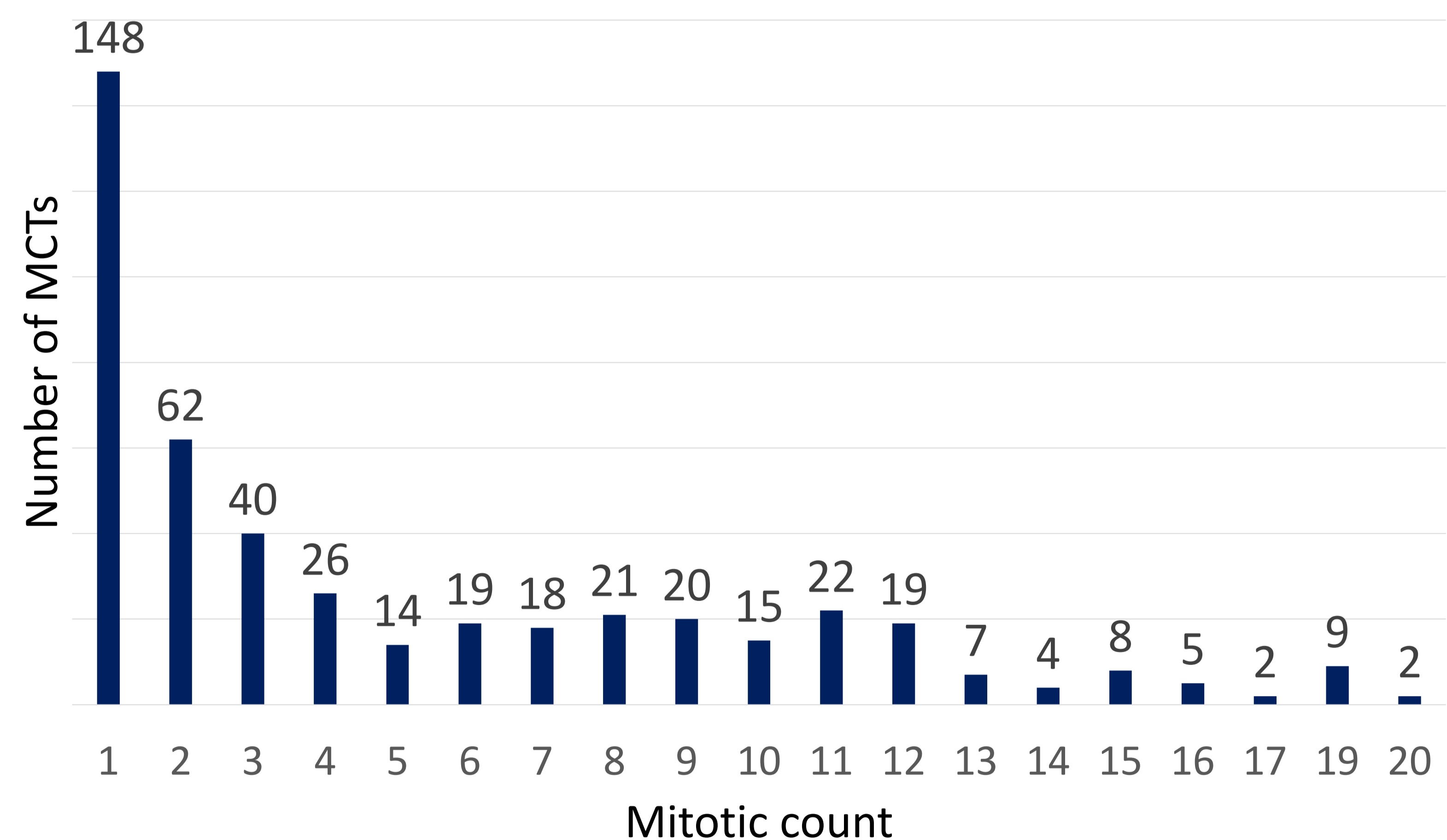
Patnaik Grade (n = 1322)



Kiupel Grade (n = 1608)



MCTs with a MC higher than 0 (n = 491)



## Conclusion

The majority of MCTs exhibits an intermediate-low grade histological appearance, and more than 10% is attributed a high grade. Whether this correlates with a more aggressive clinical behavior should be evaluated in prospective studies. Mast cell neoplasia is a common skin tumor in dogs and our data provide useful information for clinicians when discussing the disease with dog owners.

## References

<sup>1</sup> Macy DW. Canine mast cell tumors. *Vet Clin North Am Small Anim Pract.* 1985;15(4):783-803. doi:10.1016/s0195-5616(85)50036-4

<sup>2</sup> Kiupel M., Webster, J. D., Bailey, K. L., Best, S., Delay, J., Detrisac, C. J., Fitzgerald, S. D., Gamble, D., Ginn, P. E., Goldschmidt, M. H., Hendrick, M. J., Howerth, E. W., Janovitz, E. B., Langohr, I., Lenz, S. D., Lipscomb, T. P., Miller, M. A., Misdorp, W., Moroff, S., ... Miller, R. (2011). Proposal of a 2-tier histologic grading system for canine cutaneous mast cell tumors to more accurately predict biological behavior. *Veterinary Pathology*, 48(1), 147-155. 10.1177/0300985810386469

<sup>3</sup> Patnaik Patnaik, A. K., Ehler, W. J., & Macewen, E. G. (1984). Canine cutaneous mast cell tumor: Morphologic grading and survival time in 83 dogs. *Veterinary Pathology*, 21(5), 469-474. 10.1177/030098588402100503