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MAST CELL DENSITY IN CANINE MAMMARY TUMOURS: A PROGNOSTIC FACTOR

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Mast cell involvement in tumour growth and progression has been demonstrated in several human and animal tumours. Previous studies have shown that mast cell density (MCD) in malignant human breast tumours is significantly higher than in benign tumours. Mammary tumours are the most frequent neoplasms in bitches and constitute an important problem in veterinary medicine. The limited findings currently available reveal that MCD in canine malignant mammary tumours is high compared to benign tumours. However, the comparisons done in previous studies have not taken into consideration of the histological grade of the tumour, a more accurate and quantitative prognostic factor. The current study was designed to compare the MCDs in canine mammary tumours of different histological grades. Eighteen samples of canine mammary tumours reported during the period of 2010 to 2012 to the Veterinary Pathology Laboratory, University of Peradeniya were used in this study. Toluidine blue stained sections were used for histopathological tumour grading according to the criteria published by World Health Organization in 1999. Ten fields per slide were examined at 400x magnification, to determine the mean MCD. The mean MCD for each tumour grade was calculated using the mean MCD for each tumour. Mean MCDs of different tumour grades were compared using a one-way analysis of variance followed by Tukey's multiple comparison test. Out of the 18 mammary tumours there were eight Grade I tumours, five Grade II tumours and five Grade III tumours. In terms of MCD, Grade I tumours were significantly different from Grade II and Grade III tumours ($P<0.05$). However, there was no significant difference between Grade II and Grade III tumours. The current study clearly show that low grade tumours have low MCD and high grade tumours have high MCD which is more indicative of involvement of mast cells with canine mammary tumour growth and progression rather than participation in tumour rejection. Moreover the results indicate that MCD can be used as a prognostic factor for canine mammary tumours and suggest beneficial effects of adjunct therapy with mast cell inhibitors during tumour treatments.