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Clinical utility of nasal lavage cytology and predictors of nasal biopsy success in dogs with nasal masses

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Nasal tumours account for approximately 1–2% of all canine neoplasms. Diagnosis relies on compatible clinical findings combined with identification of a nasal mass on CT scanner or rhinoscopy. Establishing the exact nature of a nasal mass is essential for treatment planning but remains challenging due to sampling limitations and tumour characteristics. The primary aim of this retrospective study was to evaluate the diagnostic performance of nasal lavage cytology compared with endoscopic-guided nasal biopsy in dogs diagnosed with a nasal mass. A secondary objective was to identify predictive factors of successful biopsy sampling using univariate and multivariate logistic regression models. Evaluated variables included biopsy specimen size, demographic data, and CT characteristics (mass location and extent, size, contrast enhancement and presence of cavities). Dogs with a nasal mass identified on CT images and/or rhinoscopy were retrospectively searched over a six-year period through medical record review (n=68). Among these, the 52 dogs with an available endoscopic-guided nasal biopsy report were included. Of these, 12 also had a nasal lavage cytology report available for comparative analysis. Two additional dogs had a nasal lavage cytology report but no biopsy report. A definitive histopathological diagnosis was established in 38 dogs (73.1%): carcinoma (n=29; 76.3%), sarcoma (n=8; 21.1%), and undifferentiated tumour (n=1; 2.6%). Histopathological results were inconclusive in 14 dogs (26.9%): inflammatory changes (n=12), epithelial proliferation (n=1), and vascular proliferation (n=1). Nasal lavage cytology yielded a diagnosis of nasal carcinoma in 4 dogs (confirmed by histopathology (n=2) or no biopsy available (n=2)), inflammation in 5 dogs (subsequently diagnosed as carcinoma (n=3) and sarcoma (n=2)), and was non-diagnostic in 5 dogs (carcinoma (n=3), sarcoma (n=1), and inconclusive histopathology (n=1)); leading to an overall sensitivity of 28%. In the multivariate logistic regression analysis, the likelihood for conclusive biopsy results significantly increased with the size of the biopsy specimen (adjusted OR=9.51; 95%CI=1.05-85.9; *P*=0.045) and decreased in the presence of cavities on CT images (adjusted OR=0.11; 95%CI:0.01-0.87; *P*=0.04). No other studied variable was significantly associated with biopsy success. In conclusion, nasal lavage cytology showed low sensitivity for characterising nasal masses in dogs and should not be relied upon as a standalone diagnostic modality. However, it may occasionally allow early identification of nasal carcinoma, pending histopathological confirmation. In this study sample, absence of mass cavities on CT images and larger biopsy specimen size were independent predictors of nasal biopsy success; supporting the use of techniques maximising tissue yield during endoscopic sampling.

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