



Letter to the Editor

Classification of skin melanocytic neoplasms in dogs: morphology features

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Veterinary and human dermatology presents similar diseases which in turn makes comparative pathology an important branch of both sciences. However, it is important to note that proper application of classification schemes considering the species studied are very important in making comparisons.

Human pigmented epithelioid melanocytomas also known as animal-type melanomas, a well known clinical entity in human pathology does not have histological features similar to canine melanoma (5). Instead, the human disorder is more related to canine melanocytomas on the basis of recent published articles (6) and our experience. Based on the statement that animal models can be used for investigating human pigmented skin diseases (5) we believe that some key-points need to be addressed in order to better understand the biological behavior of the neoplasm and to contribute to further comparative studies.

Histopathologic variants in dogs may be compound, dermal or junctional depending on skin level affected; epithelioid, spindle, mixed, dendritic, clear cell type or signet-ring type depending on cellular morphology. The term nevus is not used in veterinary dermatopathology (7).

According to Smedley RC *et al.* (6) parameters such as mitotic index, nuclear atypia, degree of pigmentation, lymphatic invasion, ulceration, level of invasion of the surrounding tissues and Ki67 index are the most reliable criteria in predicting malignancy when used together.

Mitotic index is one of the most commonly used prognostic factors in predicting malignancy in canine melanocytic neoplasia (6). A mitotic index ≥ 3 per 10 hpf was correlated with shorter survival times (2, 4). An infrequent mitotic activity as described by the authors does not constitute a reliable index since it does not provide an objective scale. In addition, the animal had no recurrence

or metastasis after more than one year after complete neoplasm excision and presented a benign behavior since initial clinical presentation.

Nuclear atypia have a high positive predictive value for epithelioid and spindle neoplasms (6) Poorly differentiated neoplasms have complex nucleolus characterized by larger and less-regular shape and connection to inner nuclear membrane by thin strands of chromatin (6,8). A percentage of benign neoplastic melanocytes may show atypical multiple nucleoli with mild anisokaryosis (8).

Degree of pigmentation in predicting malignancy cannot be reliably assessed since there are currently no objective measures of this parameter (6). However, it is mandatory to submit intensely pigmented neoplasms to bleaching in order to better evaluate cellular details, since melanin granules can obscure nuclear features that provide fundamental diagnostic information in melanocytic neoplasms (3)

Ulceration is defined histologically as the absence of an intact epidermis overlying a significant portion of the primary tumor (3) and was shown to be an independent prognostic factor associated with skin melanomas both in humans and dogs (1,4).

At this point it is important to remember that that epithelioid and spindle cells are not exclusive of canine melanomas. Approximately two-thirds of canine melanocytomas have combined spindle and epithelioid morphology (3). In addition all cytomorphological subtypes seen in the canine malignant counterpart can also be seen in the benign one.

Canine melanocytic neoplasms when correctly classified are potential models to study human melanocytic proliferations. Moreover, the knowledge of particular biological behaviors regarding different neoplasms in different dog breeds, and what phylogenetic gains lead to these differences can provide useful information to

conjecture new theories on tumor invasiveness, immunologic surveillance and treatment strategies.

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