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IMMUNOREACTIVITY OF CANINE AND FELINE MAST CELL TUMOURS

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Cutaneous mast cell tumours comprise 7 to 20% of the neoplasms affecting the skin of dogs and cats (6). Histologically, mast cell tumours are characterized by a diffuse to multinodular proliferation of mast cells (4). According to the extent of involvement, cellularity and cell morphology, mitotic index and stromal reaction mast cell tumours are graded in three stages: I well differentiated; II intermediate and III anaplastic (6). The percentage of anaplastic mast cell tumours is highly variable in the literature varying between 21% and 77% (5, 6). Frequently the histopathological diagnosis of this poorly differentiated neoplasia is difficult. In most laboratories metachromatic stains (Toluidine blue, Azure A, Thionin) or fuchsin aldehyde are used for the diagnosis of undifferentiated tumours although some authors have indicated that granules in immature mast cells may be difficult to stain (3).

Immunocytochemical techniques have proved to be useful tools in the diagnosis of neoplastic diseases and many veterinary laboratories are using them for the diagnosis of difficult neoplasia (7). Human mast cells react positively to antisera against vimentin, common leukocyte antigen (CLA), α1-antitrypsin and lysozyme (2). This study was performed to determine the immunoreactivity of canine and feline mast cell tumours to a broad range of antisera.

Mast cell tumours from 22 dogs and 7 cats have been investigated previously, all tumours had been diagnosed histopathologically. Specimens were fixed in formalin and embedded in paraplast. Tissue sections from each case were stained for αl-antitrypsin (αl-AT), lysozyme (lys), S-100 protein (S100), keratin (ker) and desmin (des) with the peroxidase-anti-peroxidase method and for vimentin (vim) with the indirect immunoperoxidase procedure. The method has been published in detail elsewhere (1, 7).

The immunoreactivity of the tumours to the markers used in this study can be observed in Table 1. In short, all mast cell tumours reacted intensely positive for vimentin and most of the tumours (15 out of 22 dogs and 6 out of 8 cats) reacted positively for α1-AT (Fig. 1). Five canine tumours also showed immunoreactivity of different intensity with the antibody α1-AT. The percentage of grade I tumours which reacted with the anti α1-AT antibody was significantly higher than the percentage of grade III tumours (Table 1).

According to our findings, neoplastic mast cells exhibit the following immunoreactivity: they react strongly with antivimentin antibodies and apparently they contain large amounts of antiproteases, especially α1-AT although a minor proportion contains lysozyme. These immunohistochemical findings are similar to those described for human mast cells and support the concept that mast cells belong to the «leukocyte family» (2). Immunocytochemical demonstration of these markers can be useful in the histopathological diagnosis of mast cell tumours.

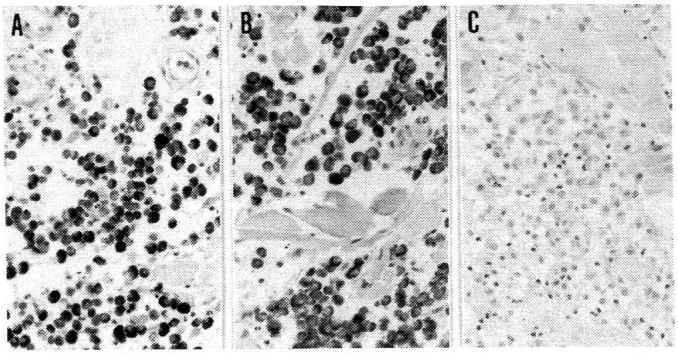

Fig. 1: Canine mast cell tumour (Grade II).
A. Immunoreactivity to αl-antitrypsin
B. Immunoreactivity to vimentin
C. Absence of reactivity in negative control

Table 1

Type of tumour	Number of cases	Ker	Vim	Des	S100	αl-AT	Lys
Canine mastocytoma Grade I	6	0	6	0	0	5	2
Canine mastocytoma Grade II	8	0	8	0	0	6	1
Canine mastocytoma Grade III	8	0	8	0	0	4	2
Feline mastocytoma	7	0	7	0	0	6	1

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