Morphology and immunoreactivity of canine and feline extramedullary plasmacytomas

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Abstract

The aim of the study was the evaluation of morphology and immunophenotype of canine (19 cases) and feline (7 cases) extramedullary plasmacytomas. Tumours, located in skin, oral cavity and spleen were surgically excised, fixed and processed for histopathology and immunohistochemistry (CD79α, CD18, proliferating cell nuclear antigen, metallothionein). Histologically, tumours were classified into mature, cleaved, asynchronous, polymorphous blastic, hyalin, or monomorphous blastic type. All evaluated tumours showed cytoplasmic expression of CD79α antigen. The expression of CD18 was observed in canine cutaneous and splenic tumours. In canine tumours expression of metallothionein was low to moderate, while in feline plasmacytomas – absent or low. In canine tumours, the mitotic index and proliferating cell nuclear antigen index were positively correlated with the expression of metallothionein. In feline tumours no correlation between mitotic index, proliferating cell nuclear antigen and metallothionein was found. This is the first study describing expression of metallothionein in canine and feline extramedullary plasmacytoma.

Key words: plasma cell tumour, metallothionein, dog, cat, immunohistochemistry

Introduction

According to the classification of the World Health Organization, plasma cell tumour is the neoplasm arising from mature B-cells, producing immunoglobulin (Ig) (Valli et al. 2002). Canine and feline plasma cell tumours can be divided into: multiple myeloma (MM) and solitary plasmacytoma with solitary osseous plasmacytoma and extramedullary plasmacytoma (EMP) subtypes. Cutaneous EMP, together with canine cutaneous histiocytoma, neuroendocrine tumours, transmissible venereal tumour, mast cell tumours, and cutaneous lymphoplasmocytic lymphoma are included in the group of round cell tumours. Due to its nonspecific morphology, EMP is often misdiagnosed, therefore immunohistochemistry is necessary for definitive diagnosis (Morton et al. 1986, Baer et al. 1989, Ramos-Vara et al. 2007). Tumour cells express CD79α, a transmembrane protein which is a part of B-cell antigen receptor (BCR). This protein is specific to B lymphocytes and plasma cells (Schrenzel et al. 1998, Ramos-Vara et al. 2007). Due to antibodies production, detection of the lambda chain subunit of immunoglobulin is a useful diagnos-