

Marked Emperipolesis by Malignant Neoplastic Cells: Three Cases in Dogs

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Emperipolesis is the presence of intact haemopoietic cells within tissue cells of the host. In emperipolesis, both the host cell and the cell that gets internalized by the host cell stay viable without any structural or functional alterations. Occasionally, neoplastic cells also show emperipolesis. It has been suggested that emperipolesis is an immune evasion mechanism used by neoplastic cells. This report describes clinical and cytological features of severe emperipolesis observed in two dogs diagnosed with cutaneous squamous cell carcinoma and one dog diagnosed with mammary carcinoma. The first case was a 3-year-old German shepherd diagnosed with a nail bed squamous cell carcinoma in the left thoracic limb. The neoplastic epithelial cells showed extremely high anisocytosis and anisokaryosis and approximately 70% of the neoplastic cells contained 1-5 intracytoplasmic neutrophils indicating severe emperipolesis. Some of the neoplastic cells contained lightly basophilic intra-cytoplasmic spherical structures suspected to be viral inclusions. Plain lateral radiographs of the left carpus showed mild bone lysis in the digits just beneath the mass. The dog was treated by surgical excision of the tumour and digit amputation. The second dog was a 6-year-old male Rottweiler with a nail bed squamous cell carcinoma in the pelvic limb. Except for the location, absence of bone lysis in radiographs and presence of viral inclusions in cytological preparations, all other features were similar to the first case. The third case was a mammary carcinoma diagnosed in a 6-year-old female mixed breed dog. Severe neutrophilic emperipolesis was identified in neoplastic epithelial cells and peripheral blood monocytes. The mammary neoplasm was treated by surgical excision. All three dogs died 2-3 months after surgery and tumour metastasis was suspected although necropsies could not be performed for confirmation. Current findings suggest that emperipolesis should be further explored as it may prove to be a criterion of malignancy.

Keywords: Emperipolesis, Criteria of Malignancy, Squamous Cell Carcinoma, Mammary Carcinoma