Subcutaneous Peripheral Nerve Sheath Tumors in 32 Dogs: Studies on Pathological and Immunohistochemical Characterization

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ABSTRACT A total of 32 canine peripheral nerve sheath tumors (PNSTs), 19 malignant PNSTs (MPNSTs), and 13 benign PNSTs (BPNSTs) were diagnosed by histological features and immunohistochemical results. In this study, the affected dogs were 16 (53.3%) females, 14 (46.7%) males and 2 unknown sexes. The peak incidence of the PNSTs was between 7 to 14 years of age (89.7%; 25/29). Breed at the highest risk was mongrel dogs (60.7%; 17/28). The limbs were the most frequent site (79.3%; 23/29) followed by the trunk (17.2%; 5/29) and head (3.4%; 1/29). Grossly, the tumor mass was found in the subcutaneous tissue with alopecia and occasional ulcerations. Tumors with the appearance of nodule-like neural bundles were also noted. Microscopically, PNSTs were mainly composed of spindle or S shape cells arranged in wavy bundles, palisading, storiform, and whorl fashions. The predominant tumor cells of MPNSTs were either plump spindle or round in shape with epithelioid characteristics, mixed with multinucleated giant cells occasionally. There were two MPNSTs with cartilaginous metaplasia, and six MPNSTs presented with extensive necrotic foci accompanied with thrombosis in 3 of 6 cases. Regarding to 13 BPNSTs, all exhibited a typical feature of either schwannoma or neurofibroma. Only 2 of 9 schwannomas had Antoni type A and B features. The 4 neurofibromas presented with extensive collagen deposition likened to shredded carrots appearance, which tumor cells arranged in hypocellularity. Immunohistochemically, the expression of vimentin 100% (32/32), laminin 96.9% (31/32), S-100 87.5% (28/32), nerve growth factor receptor (NGFR) 84.4% (27/32), neurofilament 50.0% (16/32), NSE 31.3% (10/32), a-SMA 6.3% (2/32), and desmin 3.0% (1/32) were found in PNSTs. PNSTs failed to demonstrate expression of cytokeratin, factor VIII, and GFAP. On conclusion, PNSTs occur in the subcutaneous tissue of dogs, which share histological similarities with other spindle cell tumors. Comprehensive studies on microscopically findings and immunohistochemical characterized provide a useful and practical method to differentiate PNSTs from other spindle cell tumors. [Yu YC, Hsiao CH, Lee CC, Pang VF, Jeng CR, Wang FL, Cheng CH, *Liu CH. Subcutaneous Peripheral Nerve Sheath Tumors in 32 Dogs: Studies on Pathological and Immunohistochemical Characterization. Taiwan Vet J 32(2): 101-115, 2006. *Corresponding author TEL.: 886-2-3366 1297, FAX: 886-2-2363 3289, E-mail: chhsuliu@ntu.edu.tw]

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