Canine Granular Cell Tumor of the Tongue

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Introduction
Granular cell tumors (GCTs) are rare in human beings and domestic animals (1, 3, 6, 11). In animals, GCTs have been reported in various species, but more often described in dogs and horses (7). In dogs, GCTs most occur in the oral cavity and always benign (10). The animal tongue especially in the dog is an infrequent position for any benign or malignant tumors (4). From our knowledge, there is no any report of canine lingual granular cell tumor in a dog in Thailand. The aim of this case study is to describe the histology and special strain of granular cell tumor on the tongue of a dog.

Case report
A 9-year-old, 9 kg, male mixed breed dog was referred to small animal Teaching Hospital, Chulalongkorn University because of mild oropharyngeal dysphagia. Physical examination revealed an 1 inch in diameter of pink irregular rounded mass located at dorsal surface of base of the tongue. The duration of growth of this mass was 3 months. Histologically, routine H&E sections revealed a well demarcated mass with focal ulceration of the overlying epithelium (Fig. 1). At the ulcerative site revealed moderate degree of neutrophilic lymphoplasmacytic infiltration. Submucosal areas of the mass consisted of large round to polygonal neoplastic cells that had abundant acidophilic granular cytoplasm (Figure 2). The tumor cells had a marked tendency to form nests, which were separated by a delicate network of reticulin fibers. Some of tumor cells arranged in epitheloid like pattern. Individual cell nuclei were round to oval and centrally located and had 1 or 2 nucleoli. Mitotic figures were rare. For the periodic acid Schiff or PAS, Most neoplastic cells stained strongly positive red-pink color of the intracytoplasmic granules (Fig. 3). The intensity and size of the granules varied from site to site. For Luxol fast blue S staining, the intracytoplasmic granules of the tumor cells stained different shades of pink-rose to bluish-red (Fig. 4).

Discussion
Granular cell tumors have been reported in a variety of species and at a wide range of sites (2). Oral cavity especially at the tongue was the most common position in the dogs. GCTs in dogs also occurred in lung, skin, mediastinum, diaphragm and central nervous system (10). In horses, GCTs have been reported generally in the lungs (5). In cats, the tumor has been described in the vulva, tongue and digit (7). In avian species, there were also reports of GCTs in the periorbital region of a cockatiel and the metacarpal region of a parrot (9). In our case report, we demonstrated granular cell tumor on the tongue of a dog. From the histology, the tumor in this dog was benign in appearance. PAS and Luxol fast blue S were performed to confirmative diagnosis of this tumor. PAS sections of this case showed positive pink-red in the granules of the tumor cell’s cytoplasm. The pink-rose to bluish-red of Luxol fast blue S positive staining confirmed that intracytoplasmic granules were PAS positive elements. The positive reaction to PAS indicated the presence of glycogen that might be a myelin breakdown product such as sphingomyelin. Currently, the most human GCTs were confirmed as the neurogenic origin (12). In animals, a difference in results of histochemical and immunohistochemical studies of GCTs suggested a nonuniform histogenesis of these tumors. The results supported a multiple embryonic origin of there neoplasms and do not indicate a specific cellular lineage (7, 8). In our study, we still not elucidate the possible histogenic classification of this case. A variety of immunohistochemistries such as S-100, desmin and vimentin should be performed.

References
Fig. 1  Focal ulceration of overlying epithelium, H&E, 190 x

Fig. 2  Pleomorphic neoplastic cells with granular eosinophilic cytoplasm, H&E, 390 x.

Fig. 3  Prominent positive PAS staining of tumor cells, 390x.

Fig. 4  Positive Luxol fast blue staining of tumor cells, 390x.