Salivary Mucocele with Osseous Metaplasia in a Dog

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ABSTRACT. A 4-year-old, male, dachshund was referred to a certain local veterinary hospital because of a soft and fluctuant swelling in the left upper cervical region. The swelling was surgically removed and appeared to be filled with bloody mucus. Grossly, the swelling was identified as salivary mucocele and showed small multifocal whitish ossified tissue on its surface. Microscopically, the wall of salivary mucocele appeared as granulation tissue surrounding mucin, which was composed of loose edematous and vascularized connective tissue containing chronic inflammatory cells such as lymphocytes, plasma cells and macrophages. Characteristically, present case had ossifying components formed by metaplastic spindle cells in the wall of salivary mucocele. Therefore, the present case was diagnosed as salivary mucocele with osseous metaplasia in a dog.

KEY WORDS: canine, osseous metaplasia, salivary mucocele.

A salivary mucocele is an accumulation of saliva that has leaked from a injured salivary gland or duct and is lined with granulation tissue [4, 8]. Salivary mucocles can be classified according to the location into cervical mucocele, sublingual mucocele, pharyngeal mucocele, zygomatic mucocele and complex mucocele [4]. A cervical mucocele is an accumulation of saliva in the deeper part of the intermandibular region or the upper cervical region, while a sublingual mucocele (ranula) is formed in the sublingual region, a pharyngeal mucocele in the adjacent tissue to the pharynx, and a zygomatic mucocele in the ventral part of the globe. A complex mucocele is composed of 2 or more types of mucoceles [4]. The most common places in which mucoceles associated with the sublingual gland develop are the cervical, sublingual and pharyngeal areas. The cause of salivary mucocele is not identified, however, blunt trauma, foreign body and sialolith have been suspected as major causes of salivary mucocele [2]. The saliva leaks from the torn salivary gland or duct, and accumulates in the adjacent tissue. Consequently, the accumulated saliva induces an inflammatory response [1, 4, 8]. To prevent saliva from migrating further, the wall of granulation tissue is developed in response to the inflammation. In the present case, an unusual case of salivary mucocele with osseous metaplasia in a dog is described.

A 4-year-old, male, dachshund was referred to a certain local veterinary hospital because of a soft and fluctuant swelling in the left submandibular region. On physical examination, a soft and fluctuant mass was placed subcutaneously in the left upper cervical region. The mass was relatively movable and painless. Through fine needle aspiration, blood-tinged mucus fluid was observed and a cervical salivary mucocele was suspected. The fluctuant mass was removed with difficulty surgically under general anesthesia owing to the firm attachment of capsule of the fluctuant mass with adjacent connective tissue (Fig. 1). It was referred to Department of Veterinary Pathology, Kyungpook National University for histopathological examination. Grossly, the excised cystic tissue was well demarcated, hollow and filled with bloody mucus. The diameter of the cystic tissue was approximately 3 × 2 cm and it showed small, multifocal, whitish osseous tissue on its surface. The mandibular lymphnode showed normal appearance with no enlargement. The excised cystic tissue was fixed in 10% formalin and embedded in paraffin wax. The paraffin blocks were sectioned routinely at 4 µm thickness and stained with hematoxylin and eosin for histological examinations. Microscopically, there were no salivary acini

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Fig. 1. The fluctuant mass was removed with difficulty surgically owing to the firm attachment of capsule showing whitish osseous tissue (arrow) of the fluctuant mass with adjacent connective tissue.
or ducts in the tissues examined. The cystic tissue appeared as granulation tissues without epithelial linings (Fig. 2). The cystic tissue was composed of highly vascularized fibrous stroma. A spheroid osteoid formation was observed in the inner surface as well as the outer surface of the salivary mucocele wall. The more developed ossification was present in inner surface than outer surface where amorphous spicules of osteoid with neovascularization and proliferation of fibrous connective tissue were mainly present. HE. Bar=200 μm.

Fig. 2. Spheroid osteoid formation (arrow) was observed in inner surface as well as outer surface of the salivary mucocele wall. The more developed ossification was present in inner surface than outer surface where amorphous spicules of osteoid with neovascularization and proliferation of fibrous connective tissue were mainly present. HE. Bar=200 μm.

Fig. 3. More developed ossification had osteoblast-like cells and osteocyte-like cells surrounded by bone matrix. The fibrous connective tissue consists of spindle shaped stromal cells which showed metaplastic ossification (arrow head). HE. Bar = 50 μm.

Extraskeletal ossification is well known, but it is a rare phenomenon in the salivary mucocele of animals. The pathogenesis of osseous metaplasia in the present case is not known clearly. However, trauma and chronic inflammation have been considered as possible causes of ectopic ossification.
tion and calcification in several various cases of dogs [6, 7, 9]. In the present case, chronic inflammation by leaked saliva may be associated to the ectopic ossification. Only one case of salivary mucocele with osseous metaplasia has been reported in veterinary literature [7]. Therefore, the present case will be another rare case of salivary mucocele with osseous metaplasia in veterinary literature.

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REFERENCES