Scientific Report

Sublingual sialocele (ranula) in a German shepherd dog

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Summary

The diagnosis and treatment of sublingual sialocele (ranula) in a 2-year-old male German shepherd are described. The condition was associated with switching to a diet consisting of chicken bones. The diagnosis of ranula was obvious from clinical findings and confirmed by needle aspiration. Treatment included the surgical removal of the mandibular-sublingual gland complex followed by ranula needle aspiration. No recurrence was reported. This report as the first clinical report of canine ranula in Iran, emphasizes the fact that the sublingual sialocele is not a true cyst but a reactive structure.

Keywords: Salivary gland, Sublingual Sialocele, Ranula, Dog

Introduction

Salivary mucocele is the most common clinically recognized disease of the salivary glands in the dogs (Smith, 2000). A mucocele is an accumulation of saliva in the subcutaneous tissue and consequent tissue reaction to saliva. The mucocele has a nonepithelial nonsecretory lining consisting primarily of fibroblasts and capillaries. The cause of salivary mucocele is rarely identified (Durtnell, 1977; Bellenger and Simpson, 1992; Boydell et al., 2000; Smith, 2000). The present report describes the first clinical report of canine sublingual sialocele (ranula) in a German shepherd dog that was fed a large amount of chicken bone in Iran.

Case history

A two-year-old male German shepherd dog was presented with a large ulcerated swelling located left lateral to the tongue in the sublingual tissue (Fig. 1). The complaints of the owner, were gradual enlargement of a soft, fluctuant, painless sublingual mass, oral bleeding and abnormal prehension after the introduction of a diet consisting of a large amount of chicken bones (restaurant’s leftovers).

Under light general anesthesia (intramuscular injection of the mixture of acepromazine (Kela laboratoria NV, Belgium), 0.2 mg/kg and ketamine HCl (Rotexmedica GmbH, Germany), 5 mg/kg), palpation and aspiration of the sublingual swelling were performed. On palpation a soft and fluctuant mass was recognized in the sublingual tissue just lateral to the tongue. Multiple superficial ulcers from mucosal entrapment between teeth were also noted. Mucocle centesis revealed a stringy and blood-tinged mucoid fluid resembling the saliva. A smear of the fluid was stained with periodic acid-Schiff (PAS) stain to confirm the diagnosis. Based on the findings a diagnosis of ranula was made. Sialography was not performed. Haematology, serum biochemistry and urine analysis did not reveal any significant abnormalities. The owner did not permit a biopsy specimen to be obtained from the wall of the swelling for histopathological examination.

Removal of the mandibular-sublingual gland complex was selected and performed. With the animal in right lateral recumbency under general anesthesia, the cranial neck area was clipped and prepared for aseptic
surgery. A 5 cm skin incision was made over the mandibular salivary gland. The thin platysma muscle was penetrated and the incision was continued more deeply until the fibrous capsule covering the mandibular gland which was reached and penetrated. The gland was separated from the capsule by blunt dissection. Blunt dissection was continued rostrally with a pair of Metz scissors to free up the glands further. Tunneling of the sublingual gland and duct underneath the digastric muscle was achieved for complete removal of the rostral polysomatic part of the sublingual gland. Dissection of the sublingual gland was continued as far rostral as possible and then a hemostat was placed across the rostral part of the dissected gland and pulled caudally (Fig. 2). This process was continued until the sublingual gland and duct tore. No ligatures were used. The incision was closed by apposing the capsule edges and subcutaneous tissues with 3/0 polyglactine 910 (Vicryl®, Ethicon Ltd., U. K.), followed by skin sutures with 2/0 nylon (Dr. Hammer and Co. GmbH, Howmedica-Gruppe, Germany). Following resection of the glands, the sublingual mucocele was drained by needle aspiration (Fig. 3). Recovery was uneventful and the dog was discharged the same day. The dog was reassessed at weekly intervals for the first month after surgery. On each occasion, no further swelling in the sublingual tissue was seen at examination.

Discussion

Salivary mucocele is a collection of mucoid saliva that has leaked from a damaged salivary gland. The sublingual gland is most frequently affected (Durtinell, 1977; Spangler and Culbertson, 1991; Harvey, 1993). As with any fluid in body tissues, saliva takes the path of least resistance. The most common sites for collection of the extravasated saliva are the subcutaneous tissues of the intermandibular or cranial cervical area (cervical mucocele) and the sublingual tissues on the floor of the mouth (ranula) (Mapes and Anderson, 1984; Waldron and Smith, 1991; Harvey, 1993).

The incidence of salivary mucocele in the dogs reportedly is less than 0.5%. Although the condition has been reported in the dogs as young as 6 months of age, it occurs most often in the dogs between 2 and 4 years of age. Salivary mucocele occurs more frequently in German shepherds and miniature poodles (Smith, 2000).

Blunt trauma (choke chain), foreign bodies and sialoliths have been suggested as the causes of salivary mucocele (Harvey, 1993; Smith, 2000; Hedlund, 2002). In the current dog, it is possible that the chicken bones chewed by the animal may have crushed the sublingual gland against the mandible, resulted in tearing of a gland or duct and leakage of saliva into the surrounding tissue.

Clinical signs depend on the location of mucocele (Hedlund, 2002). In this case, oral bleeding was caused by trauma during chewing.

Diagnosis of salivary mucocele is mainly based on clinical signs, history and results of paracentesis (Smith, 2000). Sialography can also be used to confirm the diagnosis (Glen, 1972; Harvey, 1993). Despite this, in the present case, careful observation, palpation and aspiration of the swelling were successful to identify the affected side. Thus the sialography was not indicated.

Various approaches have been used to treat the salivary mucocele, from which definitive treatment is removal of the damaged salivary gland to prevent further accumulation of mucus and drainage of the mucocele (Harvey, 1993; Smith, 2000). Repeated drainage or injection of cauterizing or anti-inflammatory agents does not eliminate mucocele. However, there would be complications due to subsequent surgery leading to abscessation or fibrosis (Brooks et al., 1995; Hedlund, 2002). In this case complete resection of the mandibular-sublingual gland complex was done because the sublingual gland is intimately associated with the mandibular salivary gland duct and removal of one would traumatize the other (Hedlund,2002). Traditional belief was that a mucocele was a true cyst with a secretory lining. The fact that a mucocele is not a cyst but is a reactive and encapsulating structure has prompted surgical removal of the affected gland-duct complex (Smith, 2000). This also provides a much greater chance of preventing recurrence (Harvey, 1993).
Recurrence following mandibular-sublingual gland resection is less than 5% in reported series of cases (Glen, 1972; Harvey, 1993). In the present case, lack of recurrence following surgical removal supports the idea that the ranula is not a true cyst but a reactive structure.

As an alternative to drainage of the ranula by needle aspiration, redirection of salivary flow by marsupialization has also been suggested (Smith, 2000; Hedlund, 2002). However this is not likely to provide satisfactory long-term results, because the lining of the mucocele is fibrous or inflammatory tissue (Harvey, 1993). Furthermore, in this case, the risk of food materials accumulation within the sublingual pouch created by marsupialization, accounted for the adoption of the needle aspiration method.

**Acknowledgment**

The author gratefully acknowledges Professor H. Seifi for reviewing this report, his valuable advice and encouragement.

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**Fig. 1: Intraoperative appearance of the mucocele (ranula). Note the areas of ulceration**
Fig. 2: The excised mandibular-sublingual gland complex that is retracted caudally by a hemostat

Fig. 3: The mucocele is drained following resection of glands using an 18-guage needle and a 20 ml syringe. Note the blood-stained viscid saliva
References