Bilateral plunging ranula
A case report


Abstract. A case of bilateral plunging ranula is described.

Ranulas can be divided into three types; sublingual, plunging, and sublingual-plunging. A sublingual ranula develops in the floor of the mouth, while a plunging ranula is recognized as a soft cystic swelling in the submandibular or upper cervical region. When a sublingual ranula has a cervical extension through the mylohyoid muscle, the term “sublingual-plunging ranula” is used. Plunging and sublingual-plunging ranulas occur less frequently than the sublingual type. The development of two discrete plunging ranulas in the same patient is especially rare. Only one case of bilateral presentation of a plunging ranula can be found in the English literature. This report describes another such rare case.

Case report
A 19-year-old woman visited a dental clinic, complaining of a painless swelling in her left submandibular region. Aspiration was performed, and the swelling subsided quickly. A few weeks later, however, the swelling recurred, and she consulted our clinic for further examination.

Extraoral examination revealed a soft cystic lesion with a slight fluctuation from the left submandibular to the cervical region (Fig. 1). Intraoral examination revealed no swelling in the floor of the mouth. Because fluctuation was found on palpation, a puncture was done to confirm the content of a cystic lesion, and a yellow, mucinous, and rather transparent solution was aspirated. Ultrasonography was used to determine the location and size of the lesion. The result showed a cystic lesion (35x13 mm) located anterior to the left submandibular gland and under the mylohyoid muscle (Fig. 2). From these findings, the lesion was diagnosed as a plunging ranula. Under general anesthesia, through an intraoral approach, the sublingual gland was removed and the cyst was marsupialized. A part of the sublingual gland extended into the submandibular region through the mylohyoid muscle at the lingual side of the left canine and first premolar.

Two years later, the patient returned to our clinic, complaining of a soft swelling with a pain in the right submandibular region that had developed 2 days earlier. Extraoral examination revealed a cystic swelling from the right submandibular to the cervical region (Fig. 3). Intraorally, the same swelling was present. Ultrasonic examination revealed a cystic lesion (30x25 mm) with a uniform reflex located anterior to the submandibular gland. The cystic image appeared in both the sublingual and submandibular regions, piercing the mylohyoid muscle. On the evidence of the clinical symptoms and ultrasonic findings, the second lesion was also diagnosed as a sublingual-plunging ranula. Surgery was performed under general anesthesia by the same procedure used earlier.

The postoperative course was uneventful, and there has been no sign of recurrence to date.

Discussion
Ranulas usually occur unilaterally, and bilateral ranulas are quite rare. There is...
Fig. 3. Extraoral view of swelling of right submandibular region before second surgery.

only one reported case of bilateral plunging ranula in the submandibular region. Thus, it is possible that the second lesion was caused by traumatic injury from the first surgery, or that the lesion was recurrent. However, surgery for the first lesion did not extend beyond the midline of the floor of the mouth, and the ultrasonic examinations clearly revealed that the first and second cystic lesions were in different locations. Therefore, we consider the plunging ranulas in this case to have occurred independently.

There has been considerable debate in the literature as to whether the ranula is an extravasation phenomenon (pseudocyst) or a retention phenomenon. The vast majority of ranulas are now recognized as extravasation cysts arising from the sublingual gland, because an epithelial lining is not commonly present. In particular, the plunging ranula is almost exclusively formed by mucous extravasation from the sublingual gland. The cause of extravasation, however, remains unclear. The bilateral presence of a plunging ranula as in the case presented may indicate a latent susceptibility to the development of plunging ranula. It is suggested that a cervical or submandibular extension of ranula might be facilitated by mylohyoid herniation. Indeed, in the left plunging ranula described here, a part of the sublingual gland extended to the submandibular region through the mylohyoid muscle. Thus, anatomic variations of the sublingual gland may be involved in the occurrence of plunging ranula.

References


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