that are known to have very high recurrence rate. To the best of the knowledge of the authors, this is the first patient in the existing literature where this fact was emphasized while addressing aggressive benign lesions like CGCT.

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The Application of Absolute Ethanol in the Treatment of Mucocele of the Glands of Blandin–Nuhn

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Abstract: Mucocele of the anterior lingual salivary glands is a more common cystic lesion, especially in patients aged less than 20 years. The study is aimed to observe the effect of treatment by injection of absolute ethanol instead of surgery. Fourteen outpatients diagnosed as mucocele of the glands of Blandin–Nuhn were selected. These patients, after blood investigation, were treated by injection of absolute ethanol at the Department of Oral and Maxillofacial Surgery, Tianjin Hospital for Stomatology, totaling 14 patients from 2013 to 2015. Of them, males and females were 7 patients, respectively. The age range was from 6 to 30 years, with an average age of 14.4 years. Lesion dimensions ranged from 0.2 x 0.3 to 1.5 x 1 cm, with an average dimension of 0.9 x 0.6 cm. Eleven lesions presented as a polypoid mass and 3 lesions appeared papillary. Mucoceles were observed on the midline ventral surface of the tongue tip in 10 patients, and the lesions were located on the left and the right of the midline in 3 and 1 patients, respectively. Three patients underwent an incomplete excision of the lesion performed in other hospitals.

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The authors report no conflicts of interest.
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To the best of our knowledge, there is no report about absolute ethanol injection for treating the mucocele. The new method was attempted for observing the effect of therapy. In the study, although some patients, whose lesions were larger in size, received more than 1 intraluminal injection, a satisfactory result was achieved without severe comorbidity. The patients or their parents could actively cooperate for the evident effect and the simple process. According to the mucous ingredients and the histological characterization that a torn end of a main duct of a minor salivary gland is found to communicate with the mucus pool surrounded by connective tissue, it is our speculation, for the functionary mechanism of absolute ethanol, that it denature the ingredients to deposit and make the epithelial cells near the gap of a mucous tubule dehydration and necrosis, which may lead to an inflammatory reaction followed by development of scars that can close the gap to prevent the mucus from overbrimming.

In conclusion, injection of absolute ethanol is a simple, minimvasive, effective, and economic method with few complications for therapy of mucocele compared with the surgery. Important is shucking off the bad habits for avoiding recurrence of mucocele.

DISCUSSION

The glands of Blandin–Nuhn resembling a horseshoe, namely the anterior lingual glands, are located near the tip of the tongue and embedded within muscle beneath the tongue ventrum. These glands are mainly mucous and are not lobulated or encapsulated. There are orifices of 4 or 5 ducts near the lingual frenulum.6,7 So, mucocele will be prone to occur when the glands are injured, and an incomplete removal of the lesion results in recurrence more easily as well as very soon.

Surgical excision of the lesion including Blandin–Nuhn glands is a primary and conventional treatment approach. It is sometimes important of a clear demarcation of the lesion to perform a complete and easier surgery, because collapse of the lesion resulting from an extravasation of mucus or its recurrence may lead to an inconvenient exploration during the operation. To improve the visual access, an alternative method is injection of ultraflow rubber base impression material or alginate impression material into the lesion presurgically, but the method is suggested to not be used because of a foreign body reaction by some scholars. If the lesion is on the midline ventral surface of the tongue, it will be necessary to excise the bilateral glands for preventing the recurrence. Meanwhile, the younger patients must be hospitalized and undergo the surgery under general anesthesia, which may not be accepted by some parents.

Absolute ethanol as a sclerosant proved to be safe and effective, has been applied in treatment of renal tumors, cysts, and vascular malformations. To the best of our knowledge, there is no report about absolute ethanol injection for treating the mucocele. The new method was attempted for observing the effect of therapy. In the study, although some patients, whose lesions were larger in size, received more than 1 intraluminal injection, a satisfactory result was achieved without severe comorbidity. The patients or their parents could actively cooperate for the evident effect and the simple process. According to the mucous ingredients and the histological characterization that a torn end of a main duct of a minor salivary gland is found to communicate with the mucus pool surrounded by connective tissue, it is our speculation, for the functionary mechanism of absolute ethanol, that it denature the ingredients to deposit and make the epithelial cells near the gap of a mucous tubule dehydration and necrosis, which may lead to an inflammatory reaction followed by development of scars that can close the gap to prevent the mucus from overbrimming.

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