

## Mucocele in the Ventral Surface of the Tongue: A Case Report and Literature Review

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### Introduction

Mucoceleles form in the oral mucosa due to the buildup of saliva, resulting in the enlargement of the affected region [1]. These lesions display a distinct trait of regressing and reappearing in an alternating pattern. This can be attributed to the rupture of the cystic cavity and subsequent re-aggregation of saliva [2]. Following a rupture, these mucoceles can cause the emergence of painful ulcerations that typically heal within a matter of days [3]. Mucoceles are particularly prevalent in the oral mucosa, with a higher frequency of occurrence compared to other regions. However, due to the substantial number of cases that do not undergo histopathological examination, it is challenging to accurately determine the incidence of this lesion [4]. Mucoceles are categorized into two subcategories: mucus extravasation cysts, which are 90% prevalent and resemble pseudocysts due to lack of epithelial lining [2], and mucus retention cysts, which are true cysts formed due to obstruction of the salivary duct [3], with a 10% prevalence [2]. This study aimed to present our case and assess its clinical features and management in comparison to those described in the literature.

### Case report

A 23-year-old female patient with a painless swelling under her tongue for one month, making eating and speaking difficult, was referred for diagnosis and treatment of a tongue lesion. The patient's dental and medical histories were insignificant. Extraoral examination showed no cervical lymphadenopathy or neck asymmetry and revealed no swelling or lymphadenopathy. There had been no previous trauma. Upon intraoral examination, a lesion was discovered lateral to the midline on the ventral surface of the tongue and was a unilateral, mildly

uncomfortable enlargement that was soft to the touch and blanched on digital pressure. The lesion was more than 20 mm in diameter, sessile-based, and bordered with thin mucosa (Figure 1). Although the lesion was asymptomatic, the patient reported difficulties with speech and mastication. The dental and medical histories of the patient were insignificant. The patient also mentioned shrinkage but could not recall any traumatizing incidents. The patient also mentioned shrinkage but could not recall any traumatizing incidents. A clear fluid was obtained through a needle aspiration, ruling out any lesions of vascular origin. The anatomical location of the lesion was suggestive of the involvement of the glands of Blandin and Nuhn, and the lesion was clinically identified as a mucocele.



**Figure 1:** The intraoral examination revealed fluid. a filled, soft, solitary flaccid growth on the ventral surface of the tongue.

The final diagnosis of a mucocele cyst was made based on the clinical findings, and the patient was given the option of having the lesion surgically removed using standard surgical techniques. The lesion was excised under local anesthesia (Figure 2). The patient was given instructions regarding post-operative oral hygiene and care in the event of postoperative pain, analgesics were prescribed. The post-operative pain and edema were insignificant, and symptoms only lasted for a few days.



**Figure 2:** Post-operative healing is observed 7 days after surgical intervention.

**Table 1:** Previously reported mucocele of the tongue.

Author	Year	Patient's age	Sex	Chief complaints	Location	Clinical finding
Basavaraj T Bhagawati, et al. [11]	2021	7 years	Male	Swelling on the ventral surface of the tongue	Ventral surface of the anterior tongue	Fluctuant non-tender
Rayla Bentes Kato, et al. [12]	2021	20 years	Male	Asymptomatic swelling	Midline of the ventral surface of the tongue	Oval-shaped swelling with non-ulcerated mucosa
Ashmitha J Rai, et al. [13]	2007	8 years	Female	Unilateral painless swelling	Lateral of the ventral surface of the tongue	Flaccid, sessile base with more than 15 mm
Saurabh R. Nagar, et al. [14]	2020	11 years	Female	Painless swelling of the tongue	Ventral surface of tongue	Painless, fluid-filled, soft, and solitary flaccid growth measuring about 10 mm × 8 mm
Thiago de Santana Santos, et al. [15]	2012	12 years	Male	Swelling on the ventral surface of the tongue	Ventral surface of tongue	A superficial protruding mass measuring 30×20 mm
Garcia Leon, et al. [16]	2012	10 years	Female	Swelling on the ventral surface of the tongue with occasional pain	Midline of the ventral surface of the tongue	cystic, sessile, reddish mass of progressive growth
Praveen Kumar Pandey, et al. [17]	2018	13 years	Female	Swelling on the lower surface of the tongue	Ventral surface of tongue	Bluish-red, non-tender fluid-filled mass measuring about 2 cm by 1cm
Jhon K Brooks, et al. [18]	2016	22 years	Male	Painful mass on the ventral surface of the tongue	Anterior midline ventral surface of tongue	Firm, non-ulcerated pink-red umblicated papule
N. Graillon, et al. [19]	2019	Age range (7-39)	4 Male/1 Female	Swelling on the ventral surface of the tongue	Ventral surface of tongue near frenulum	Not included
Pandey PK, Gangwar S [17]	2018	13 years	Female	Swelling on the lower surface of the tongue	Ventral surface of the tongue	Cystic fluid aspiration
Jose [20]	2018	7 years	Female	Swelling in relation to the ventral surface of the tongue	Ventral surface of the tongue	pedunculated growth of size 10 mm × 5 mm
Titsinides [21]	2018	74 years	Female	Painless swelling	Middle dorsal midline	Soft mass covered by mucosa 1.5 cm
Hur JH, et al. [22]	2016	32 years	Female	No symptoms	Tongue midline	
	2021					
Our case	2023	23 years	Female	Painless swelling on the ventral surface of the tongue	Midline of the ventral surface of the tongue	Soft, fluctuant, sessile-based swelling measuring more than 20 mm in size

**Discussion**

Here, we presented a case of a mucocele in the ventral surface of the tongue in a 23-year-old female. Mucoceles are most commonly found on the lower lip, as it is prone to injury, followed by the floor of the mouth, the ventral tongue, and the buccal mucosa [1]. Mucoceles, which are found on the lower lip, are less common than on the anterior ventral surface of the tongue, where they are located near the lingual tonsils, Weber glands, and circumvallate papillae. They may also form on the base of clefts between foliate papillae and von Ebner serous salivary glands. Children are more likely to experience oral cavity pathologies, with mucous extravasation cysts accounting for 87.5% of cases [3]. To date, several cases of mucoceles have

been reported with different Clinical ministrations. A collection of mucoceles of the tongue is shown in Table 1. Mucocele ranks as the 17<sup>th</sup> most prevalent salivary gland lesions observed within the oral cavity [5]. Clinically, mucocele are characterized by their spherical shape and fluctuant nature. They can appear as single or multiple lesions, ranging in color from a normal pink to a deep blue. Typically, they do not cause any symptoms. The deep blue color is a result of tissue cyanosis and vascular congestion, which is further accentuated by the stretched overlying tissue and the translucency of the accumulated fluid beneath. In some cases, these nodules may rupture, leading to slightly painful erosions. The most common location for extravasation mucoceles is the lower lip, which can be attributed to para-functional habits such as lip biting and lip sucking, as well as

trauma. These mucoceles are predominantly found in children and young patients, with equal incidences in both sexes. However, they are rarely seen in children under the age of one [6]. Although oral mucoceles rarely cause symptoms, they can occasionally interfere with speech, mastication, swallowing, and external swelling, as in our case [7]. The mucoceles that extend to the ventral surface of the tongue on the floor of the mouth are frequently misdiagnosed and confused with them [3]. Typically, mucoceles exhibit mobility and possess a soft and elastic consistency, which is contingent upon the amount of tissue covering the lesion. However, in the case of a drained mucocele, there would be no fluctuation, while a chronic mucocele accompanied by fibrosis would display reduced fluctuation. In retention-type mucoceles, a cystic cavity is observed, characterized by a distinct epithelial wall lined with cuboidal cells. This particular type demonstrates a lesser degree of inflammatory reaction. On the other hand, the extravasation type is akin to a pseudocyst, lacking an epithelial wall, and exhibiting inflammatory cells and granulation tissues. Despite the absence of an epithelial covering surrounding the mucosa, this type is well-encapsulated [8]. The diagnosis of a superficial mucocele is determined based on the historical and clinical evidence. The characteristic features of a mucocele, such as its location, history of trauma, sudden onset, fluctuating size, bluish hue, and texture, play a vital role in confirming the diagnosis [6]. The mucocele diagnosis in this study was based on the evaluation of factors including the anatomical site, size, flaccid nature, and asymptomatic nature of the lesion. Confirmation of the diagnosis and exclusion of salivary gland tumors necessitate the submission of the excised tissue for pathological investigations. In our specific case, the mucocele was excised and subsequently forwarded to the pathological department to validate the diagnosis. The conventional method for addressing this issue is to surgically remove the mucosa and glandular tissue below the muscle layer. While a simple incision of the mucocele can provide temporary relief by draining its contents, the lesion is prone to reappear once the wound has fully healed [5]. The main goal of treating mucocele is to completely remove the lesion to prevent recurrence. To prevent relapse, we must make sure that the diseased tissue, together with the affected and nearby glands, is eradicated [9,10].

### Conclusion

Given that mucoceles are frequently disregarded or omitted, it is crucial to encompass mucoceles as a differential diagnosis for any observed growth on the midline of the ventral surface of the tongue in females during their second decade of life. Should this matter be neglected, it may result in further complications, such as excessive growth, that could hinder the process of mastication and interfere with swallowing. Superficial mucoceles may naturally regress and generally do not necessitate treatment; however, larger mucoceles must be surgically excised.

### Declarations

**Author contribution:** Said ahmad sorosh miri did the surgery, revised manuscript, led the study. Fariha Kamal: collected data. Adamkhan alipour: wrote the manuscript.

**Consent:** Written informed consent was obtained from the patient for publication of this case report and any associated images.

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