

Case Report

# Management of oral mucocele by surgical excision in a pediatric patient: A case report

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## ABSTRACT

Mucocele is a benign fluid cyst that is the 17<sup>th</sup> most common oral salivary gland lesion. Young children are more prevalent to have mucocele but can also affect all the age groups. Clinical findings are used to make the majority of diagnoses. If a mucocele is left untreated, it leads to scar tissue formation and can be painful, especially in the case of deep mucoceles. A 12-year-old female patient came to the department with the complaint of swelling on the right side inner aspect of the lower lip that had been present for 1 year. Clinical examination revealed a soft, well-defined, non-tender, raised solitary, pale-colored, and nodular growth with a smooth surface on the labial mucosa between the vermilion border of the lower lip and the labial sulcus. It was roughly 1 × 1 cm in size. The diagnosis was made as a mucocele. A conventional surgical excision procedure was selected for the case due to the low risk of recurrence. It was performed with a scalpel and the excised mucocele clearly demonstrated extravasation type mucocele. In a 6-month follow-up, the lesion had regressed entirely with no recurrence. The surgical removal of the lesion, as well as the associated minor salivary gland, managed to produce satisfactory results.

**Keywords:** Mucocele, Soft tissue, Surgical excision, Diascopy, Pediatric dentistry

## INTRODUCTION

The word “Mucocele” comes from the Latin words Mouco (mucus) and Coele (cavity). Mucocele is a fluid cyst that can form in the oral cavity, appendix, gall bladder, paranasal sinuses, or lacrimal sac. The 17<sup>th</sup> most commonly diagnosed salivary gland lesion is mucocele.<sup>[1]</sup> The incidence seems to be high, around 2.5 lesions for every 1000 people.<sup>[2]</sup>

### Types

Extravasation and retention mucocele are the two kinds of mucocele in the oral cavity. Extravasation mucoceles seem to be common in children, while retention mucoceles are extremely rare.<sup>[3]</sup> Extravasation mucocele occurs in minor salivary glands and is caused by fluid leaking from ruptured salivary gland ducts.<sup>[4]</sup> These extravasation mucoceles go through three stages of development. During the first phase, mucus diffusely spills from the excretory duct into surrounding connective tissues. Granuloma formation occurs during the resorption phase as a result of foreign body reactions. In the third stage, a pseudocapsule forms around the adjacent mucosa.<sup>[5]</sup> The retentive type of mucocele is caused by an obstruction in the salivary duct, commonly involved in ducts of major salivary gland.

## Etiopathogenesis

- Trauma
- Obstruction of salivary gland duct
- Lip biting and tongue thrusting habit are aggravating factors.

Mucoceles are cystic swellings that are soft and often pale-blue in a color that usually resolves spontaneously.<sup>[6]</sup> The blue color is due to cyanosis of tissue above, and fluid retention below also known as vascular congestion. The color of a lesion varies depending on its size, vicinity to a surface, and overlying tissue thickness. When a mucous retent swelling appears below the tongue, it is referred to as a ranula.<sup>[7]</sup> Although minor salivary glands can be present in almost every part of an oral cavity, the most common site is the lower lip, likely due to the high prevalence of mechanical trauma. Although these lesions could really appear at any time, teens and young people are the most commonly affected.<sup>[8]</sup>

Small and superficial mucoceles, in general, need not require any treatment as they usually heal spontaneously. Various treatment modalities are available like “conventional surgical excision,” “marsupialization,” “micro marsupialization,”

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“cryosurgery,” “laser vaporization,” and “laser excision.” Even so, in most cases, excision is the preferred treatment. Before primary closure, the lesions could be totally excised for reducing the likelihood of recurrence.<sup>[8]</sup>

## CASE REPORT

A 12-year-old female patient reported to our department with the chief complaint of swelling in inner aspect of the right side of lower lip for 1 year.

The swelling began small (mustard size) and gradually grew to its current size. Clinical evaluation revealed a soft, well-defined, raised, solitary, and pale-colored nodular expansion with a smooth surface just on labial mucosa between the vermilion border of the lower lip and the labial sulcus. That was nearly 1 × 1 cm in size, fluctuant, non-tender to touch, and had no temperature increase [Figure 1a and b].

### Investigations

Routine hematological tests including hemograms, bleeding, and clotting time show normal physiological limits. Diascopy is used to determine whether the lesion is vascular or non-vascular.

### Differential diagnosis

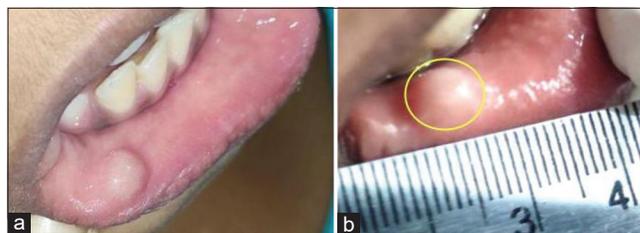
“Fibroma,” “oral hemangioma,” “oral lymphangioma,” “benign and malignant salivary gland neoplasms,” “lipoma,” and “Bullous lichen planus” were among the differential diagnoses.

### Treatment

Initially, the surgical site was prepared with povidone. The procedure was carried out under local anesthesia. An elliptical (semilunar) incision was made around the lesion using scalpel blade no 11 [Figure 2]. Then, the superficial mucosa was separated from the mucocele using forceps and scissors [Figure 3]. The lesion, along with the associated minor salivary glands, [Figure 4a and b], was excised and sent for histological examination. Interrupted sutures were positioned [Figure 5]. Analgesics were prescribed and post-operative instructions were given. At 1 week of follow-up, suture was removed and initial healing was observed [Figure 6]. Then, the patient was followed for 1 month and there was no evidence of recurrence. A histopathological section confirmed parakeratinized stratified squamous epithelium, with an area of mucin spillage surrounded by chronic inflammatory cells in the deeper tissue [Figure 7]. As a result, the final diagnosis of oral mucocele was confirmed.

## DISCUSSION

Mucocele affect 0.4–0.8% of the general population, with no sex predilection. The lower lip is the most often affected, followed by the cheek mucosa and the mouth floor.<sup>[9]</sup> The repeated traumatic event being the most common etiological factor of mucocele. The patient, in this case, had a history of



**Figure 1:** (a and b) Pre-operative photograph.

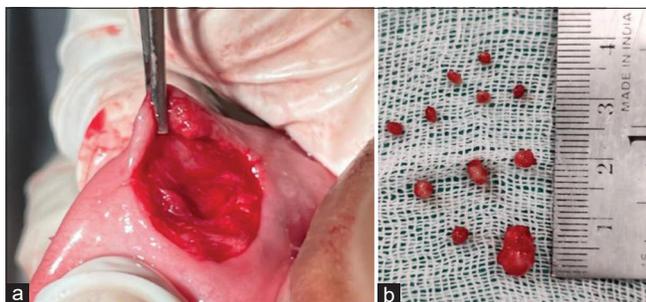


**Figure 2:** Elliptical (semilunar) incision made around the lesion using a scalpel blade.



**Figure 3:** Superficial mucosa separated from mucocele using forceps and scissors.

lip biting, which eventually resulted in mucocele formation. The final diagnosis is based on the history, clinical features, and histopathological investigations. The primary goal of



**Figure 4:** (a) Complete excision of lesion. (b) Complete excision of lesion



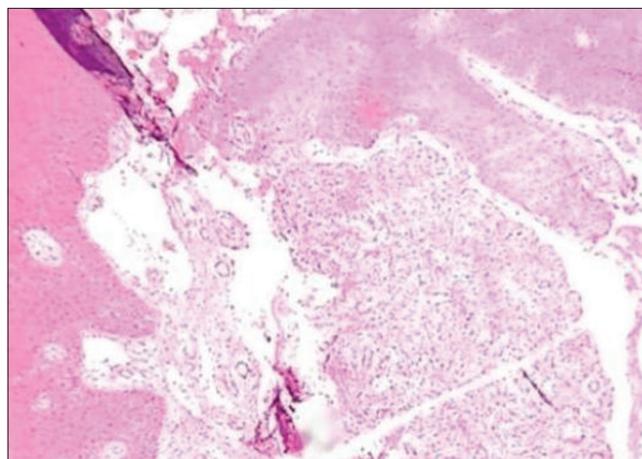
**Figure 5:** Placement of interrupted sutures.

mucocele treatment is to remove the lesion completely and prevent it from recurring. To avoid relapse, we must remove both affected and neighboring glands, as well as the pathological tissue. “Cryosurgery,” “micro marsupialization,” “marsupialization,” “surgical excision,” and “laser ablation” have all been suggested for the rehabilitation of a mucocele.<sup>[9]</sup> The surgical approach is the conventional method of treatment. It does not necessitate specialized equipment and cost-effective. It does, however, necessitate extreme precision and a thorough understanding of the mucocele and its surroundings.<sup>[8]</sup> It also necessitates excellent instrument control and tactile awareness, due to the risk of mucocele rupture. As a result, extra caution must be taken when suturing to avoid damaging other glands or ducts, as this could result in recurrence. We chose this procedure over laser ablation, cryosurgery, and electrocautery because it is simple and cost-effective.

Marsupialization is a less invasive procedure and is well tolerated by patients but it has significantly high recurrence rates. However, micromarsupialization is a treatment that includes passing a suture thread along the largest diameter of the lesion to drain the collected saliva, which also has a high recurrence rate.<sup>[9]</sup>



**Figure 6:** At 1 week of follow-up.



**Figure 7:** Histopathological section confirmed parakeratinized stratified squamous epithelium, with an area of mucin spillage surrounded by chronic inflammatory cells in the deeper tissue.

Cryotherapy is one of the painless treatment modalities for mucocele treatment. It uses cryogen agents such as nitrous oxide gas and liquid nitrogen spray to apply extreme cold. Cryosurgery produced positive results with no relapse. However, swelling and irritation and also lengthy healing duration are some post-operative symptoms.<sup>[10]</sup>

Argon and Nd: YAG lasers have been defined as a novel treatment method for mucoceles. It produces acceptable results along with minimum recurrence rates and well accepted by the patients.

## CONCLUSION

The most commonly diagnosed self-limiting condition is mucocele. Because trauma has been the most common cause, identifying and treating the associated habits are critical. A significant proportion of these lesions appear on

the lower lip, which can cause functional problems as well as being unsightly for the patient. The preferred treatment is conventional surgical removal, which, when done correctly, is the most effective treatment for relieving the patient's anxiety and discomfort.

#### **Declaration of patient consent**

Patient's consent not required as patient's identity is not disclosed or compromised.

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Nil.

#### **Conflicts of interest**

Authors Dr. Purva Chaudhari and Dr. Devendra Nagpal are on the Editorial Board of the journal.

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