

Case Report

Oral Mucocele Due to Orthodontic Treatment and Short-Term Recidivism: Two Case Reports

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Abstract: Trauma in the oral mucosa due to orthodontic apparatus can be present at any stage of the treatment and must be considered a latent risk of the latter. Therefore, mucosa must be frequently examined to ensure that the apparatus isn't causing damage that, in some cases, may be irreversible. It is essential for a dentist to recognize oral lesions such as mucocele visually and to bring the proper treatment to the patient. The dentist must inform the patient of the risks present during orthodontic treatment and perform the pertinent and periodic examination of the oral mucosa to avoid unnecessary discomfort to the patient and deflect any distrust that may arise on dental treatment as a whole. This paper reports a case of mucocele in a teen in the late stages of orthodontic treatment and a 15-year-old patient with a previous report of mucocele that had been removed but showed signs of recidivism. Both lesions were treated by surgical removal, and no further recidivism was reported.

Keywords: Orthodontic treatment, Oral mucosa, Mucocele, Dental trauma.

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INTRODUCTION

In orthodontic treatment, lacerations in the oral mucosa are frequent and present areas of ulceration or fibrous hyperplasia, often occurring during treatment or between treatment sessions from the archwire [1]. Also, constant friction may produce trauma of the bracket to the lips or the jugal mucosa [2].

Trauma to the oral mucosa isn't an isolated phenomenon; it is relatively common at one point or another in orthodontic treatment. Several studies conclude that mucosal lesions were more frequently present in the wearers of orthodontic appliances than in controls [3].

“Mucocele is a common lesion of the oral mucosa that results from rupture of a salivary gland duct and spillage of mucin into the surrounding soft tissues.” [4].

By definition, a mucocele is a cavity filled with mucus; it's the most common minor salivary gland lesion that affects the general population. The extravasation mucocele is a pseudocyst without defined walls and is caused by mechanical trauma to the excretory duct of the

gland, leading to transection or rupture, with consequent extravasation of mucin into the connective tissue stroma; epithelial lining is not present [5].

The lesion is often caused by local trauma, although in some cases, there's no history of previous trauma. The lesion is painless, but its location can cause a grade of discomfort while eating or speaking; the size can vary from 1 mm to several centimeters.

Superficial mucoceles tend to be bluish due to the mucin content, but deeper lesions have almost the same color as the surrounding mucosa [5].

Some mucoceles may disappear without the dentist's intervention, rupturing and healing by themselves, but this is the exception rather than the norm; most mucoceles require surgical excision. The surgeon must remove adjacent salivary glands that may feed the mucocele, and the excised tissue should be submitted for histopathological examination to rule out other types of salivary gland lesions; the prognosis is favorable, and recurrence is rare [4].

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Recidivism, as reported in this article, may happen when the lesion is not removed correctly, or the adjacent glands aren't excised; one must also check that the traumatic stimuli are correctly addressed; one such study talked about predictive variables that may favor recurrence, and in it, an age-related conclusion was made; the age distribution might be related to the higher prevalence of para-functional oral habits during adolescence and young adulthood [6].

CASE REPORT 1

An 18-year-old woman visits the Autonomous University of Baja California admission clinic to receive valorization of an oval-shaped, mucus-colored lesion on the lower lip. The pertinent examination was made, and the Oral Pathology clinic where she was referred performed further clinical assessment and clinical history; the results of the latter were the differential diagnosis of a mucocele in the lower lip. The lesion is

described as a nodule in the lower lip, 7x7x2 mm in size, with pink coloration equal to the adjacent mucosa, firm consistency, smooth surface, and sessile base, with poorly defined margins; the patient refers to the presence of the lesion since March 2023, coinciding with the 3-month mark of starting orthodontic treatment.

The treatment involved surgical resection of the tissue in the lower lip. The mucocele was removed under infiltrating local anesthesia (2% lidocaine with epinephrine 1:100.000; one cartridge).

The histopathological examination identified a reactive lesion on the conjunctive tissue. It was characterized as an area of spilled mucin surrounded by fibrous tissue, with glandular acini adjacent. The final diagnosis was the extravasation mucus phenomenon. Regular follow-up was performed to check for uneventful healing.

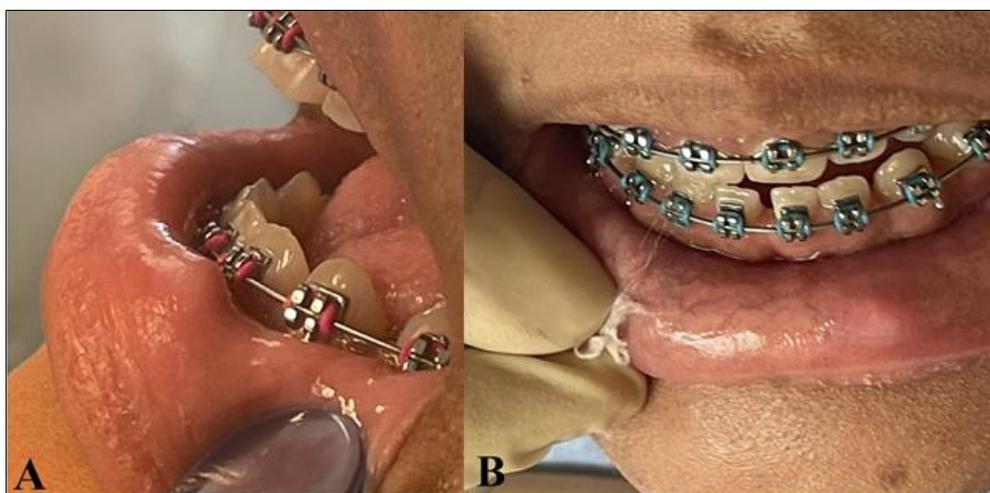


Figure 1: Clinical features of the patient before surgery. A) Lateral view of the lower lip, where a nodular lesion is present. B) Frontal view of the lower lip, where a slight nodular lesion is present

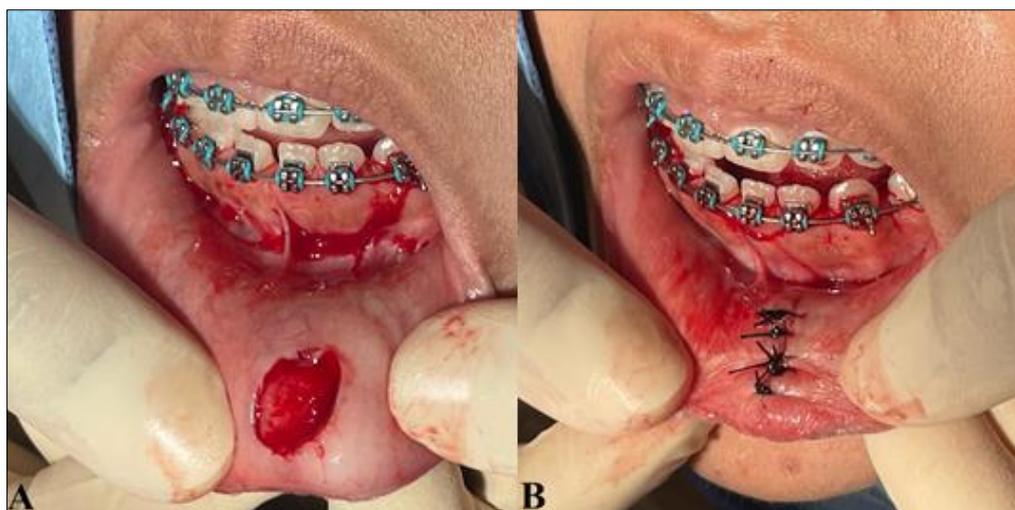


Figure 2: The conditions while being treated and after treatment. A) Removal of the broken salivary duct and adjacent salivary glands. B) Sutured site of surgery

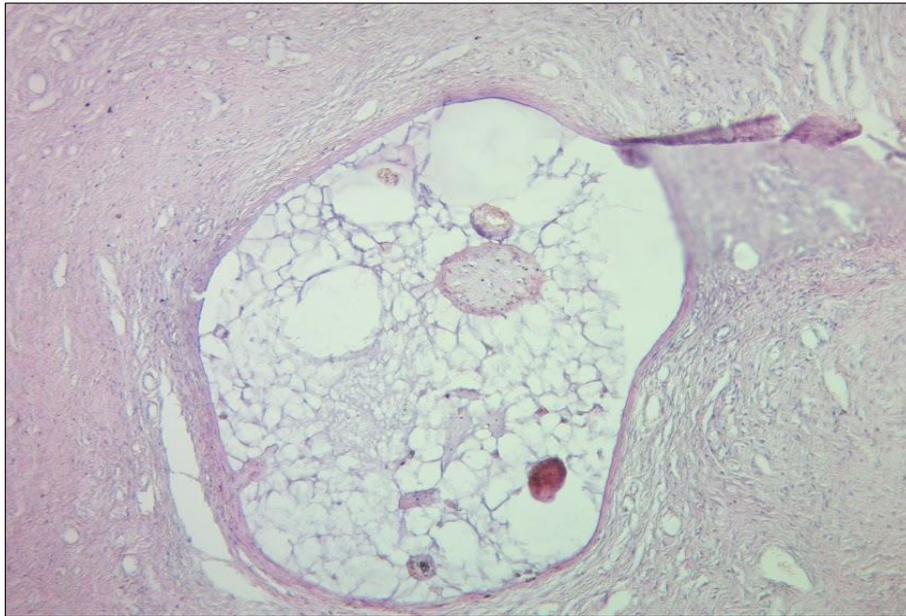


Figure 3: Histopathological features. Area of spilled mucin, surrounded by fibrous tissue

CASE REPORT 2

A 15-year-old male visits the Autonomous University of Baja California admission clinic to receive valorization of a sphere-shaped, mucus-colored lesion with a red portion on the cuspid of the lesion, located on the lower lip. The pertinent examination was made, and the Oral Pathology clinic where she was referred performed further clinical assessment and clinical history; the result of the above was a differential diagnosis of mucocele in the lower lip. The lesion is clinically described as a nodule in the lower lip mucosa, 15x10x10 mm in size, with pink, lightly erythematous coloration, fluctuating consistency, smooth surface, pediculated base, and well-defined margins. The patient refers to a surgical procedure made a year ago to remove

the lesion on the lower lip, but it “appeared again after 8 months.”

The treatment involved surgical resection of the tissue in the lower lip. The mucocele was removed under infiltrating local anesthesia (2% lidocaine with epinephrine 1:100.000; one cartridge). Histopathological examination & regular follow-up were performed to check for uneventful healing.

In the histopathological report, a conjunctive lesion with a reactive origin was observed, characterized by mucin extravasation. Numerous foamy histiocytes (macrophages) were surrounded by mixed low-level inflammatory tissue. Glandular acini were also observed, for which the final diagnosis was the extravasation mucus phenomenon.

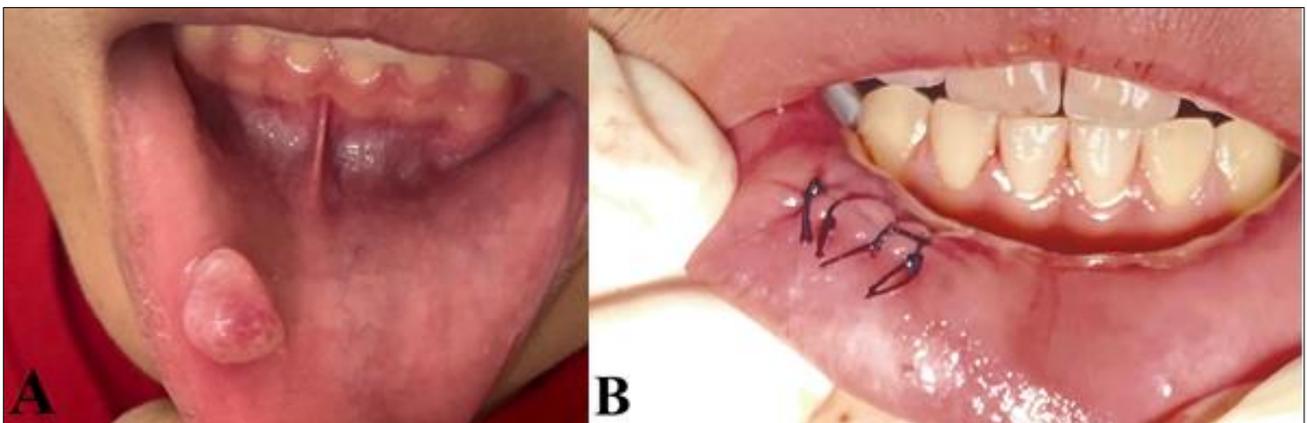


Figure 1: Clinical features of the patient before surgery and after treatment. A) Frontal view of the lower lip where a large nodular lesion is observed. B) Sutured site of surgery



Figure 2: Clinical features of the patient a month after surgery. Successful recovery without signs of recidivism was achieved

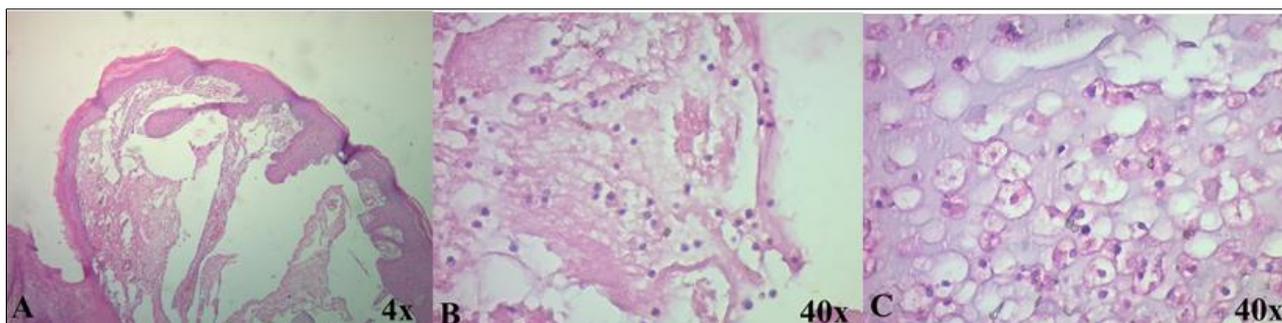


Figure 3: Histopathological features of the oral mucocoele. A) A cyst-like lesion is identified. B) Spilled mucin with low-level mixed inflammation. C) Foamy histiocytes (macrophages)

DISCUSSION

The incidence of mucosal lesions is as high as 63 percent in a small study conducted based on finding the prevalence of oral trauma during orthodontic treatment; in that same study, only one patient presented an oral mucocoele, less than 1 percent of the total demographic [3], based on the latter we may infer that while frictional lesions such as morsicatio is common, oral mucocoele is not a common find on clinical examination, instead, other lesions similar in clinical appearance are more prevalent.

The reigning theory of the etiology of oral mucocoele is a traumatic origin; in this particular case, it's logical to assume this theory due to the location of the lesion, the evolution time, and the timestamp that coincides with the duration of the orthodontic treatment. The most common site for oral mucocoele is the lower lip, confirmed by Nevilles Oral and Maxillofacial pathology, with a staggering 81.9 % of mucocoeles located in the lower lip [4].

Treatment, with the removal of the lesion, is completed; there are different ways of achieving that, such as complete excision, marsupialization, dissection, cryosurgery, carbon dioxide lasers, electrocautery, intra-lesional injection of sclerosing agent OK-432 or steroid injection [7].

Recurrence is somewhat rare, but there have been reports of it happening more in younger patients

(<30 years) with a rate of 16 percent, compared to the 4.4 rate in older patients (>30 years); if the surgical intervention is done correctly and the traumatic stimuli are removed, the prognosis is favorable and recurrence, as said before, becomes pretty rare [6].

One study that analyzed short of 500 hundred oral mucocoele cases informed of a 4.9% rate of recidivism, and based on the age factor, they concluded that *“Mucocoele recurrence occurs infrequently in patients younger than 7 years and is most prevalent in the teenage to young adult patient population. For every year increase in age, the odds of mucocoele recurrence increase by 5.3%.”*[8].

CONCLUSION

This clinical case serves as a demonstration of the importance of frequent oral examination during orthodontic treatment. It should be remembered that the treatment can cause gingivitis, mucosal lesions, labial lesions, and white spot lesions. Therefore, an accurate patient assessment before applying fixed orthodontic treatment is necessary [9]. Hygiene must be enforced, and self-exploration of the oral tissue must be encouraged so that certain aspects of the mucosa that otherwise may be overlooked receive appropriate attention.

The practitioners must be aware of these risks. Some patients are more at risk than others; they must be

identified early and managed appropriately to avoid adverse sequelae [6].

Orthodontists should focus on using diverse aids for patient education to enhance patient understanding and prompt behavioral change.

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