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The Uncommon Cluster: Three Mococeles On The Lower Lip In 9 Year Old – A Case Report

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Abstract:
Mucoceles are common benign lesions of the oral cavity, typically presenting as solitary swellings due to minor salivary gland duct disruption. Multiple mucoceles particularly in paediatric patients, are exceedingly rare and pose diagnostic and therapeutic challenges. We report an unusual case of 11-year-old female child presenting with three simultaneous mucoceles of different sizes, on the lower lip with no history of trauma or systemic conditions, clinically seen as soft bluish fluctuant nodules. The lesions were completely excised under local anaesthesia, and the patient showed no recurrence at 6 months follow up. Histopathological analysis confirmed diagnosis of mucocele. The rarity of multiple mucoceles in children warrants this report, emphasizing the need to consider this entity in differential diagnosis of oral swellings. This case underscores the importance of meticulous evaluation and management of atypical presentations of mucoceles in paediatric patients.

Keywords: *Multiple mucoceles, paediatric, minor salivary gland, surgical excision.*

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I. Introduction

The term “mucocele” comes from the Latin words “mucus” meaning *mucus* and “coele” (coele/kele) meaning *cavity or sac*.[1] Thus, a mucocele literally means a mucus-filled cavity. In the oral cavity, a mucocele is a common benign lesion that develops due to trauma like lip biting, accidental injury etc. causing rupture of the salivary duct or by the obstruction of the salivary duct by mucus plugs or scarring. The mucous leak from damaged minor salivary gland duct collects within the surrounding tissue leading to formation of soft cyst like swelling.[1] The accumulation of mucus gets walled off by granulation tissue, forming a pseudocyst having no true epithelial lining.

Clinically, an oral mucocele appears as a soft, smooth, dome-shaped swelling on the mucosal surface. Its color ranges from bluish-translucent to normal pink, depending on how deep the lesion lies beneath the epithelium. Mucocele is found to be the sixteenth most common salivary gland lesion .[2] Only a few cases of multiple mucoceles have been reported. Most of the mucocele are developed as single solitary lesion.[3] Chi et al reported a large-scale case study which involved 1824 patients with mucoceles, and found that the most common site for mucoceles was the lower lip (81.9%), followed by the floor of the mouth (5.8%), and the ventral surface of the tongue (5.0%).[3] The prevalence is found to be considerable, with 2.5 lesions per 1000 people.[4] Surgical excision, marsupialization, cryosurgery and laser excision are the treatment options for mucocele present in literature.[2]

This article describes a case report of multiple mucoceles on the lower lip of a 11 year old female child patient treated by surgical excision.

II. Case Report

A 11 year old female patient reported with multiple growth on the lower lip labial mucosa since 2 years.

History revealed that there was single lesion which was smaller in size and gradually increased to current size and number increased to total of 3 lesions over past 2 years. There is no associated pain, paresthesia or lymphadenopathy. On clinical examination, multiple dome shaped swellings observed on the labial mucosa of lower lip. The largest lesion measured 0.8x0.8mm (fig 1) in size followed by second lesion of 0.5x0.5mm (fig 1) and the smallest one measured 0.3x0.3 mm in size (figure1). The lesions appear as a well circumscribed, translucent to pale pink swelling with intact and smooth surface with subtle bluish undertone suggestive of underlying mucin accumulation. The swelling is soft fluctuant and non-tender on palpation and surrounding mucosa appear normal.

After routine blood investigations, the lesions and surrounding minor salivary glands were excised completely under local anesthesia (figure 2 and Figure 3), operated area was sutured with 3-0 vicryl suture (figure 4) and the specimen (figure 5) was sent for histopathological examination. Histopathological reports was suggestive of mucocele. Microscopically, the sections showed lobules of salivary gland, granulation tissue and abundant foamy histiocytes (muciphages). 01 month follow up (figure 6) and 06 months follow up were without any recurrence.

III. Discussion

Mucocele is a common benign lesion of the oral cavity arising from minor salivary glands and represents one of the most frequently encountered non-neoplastic soft-tissue swellings of the lips [5] It may occur at any age however children's and young adults are most commonly affacted[1] also it equally affects both the sexes.[6] The lower lip is the most commonly affected site due to its greater exposure to mechanical trauma and high concentration of minor salivary glands.[4] The occurrence of multiple mucocele is uncommon and is thought to result from repeated wide spread trauma to several minor salivary glands rather than a single ductal injury, as seen in solitary lesion.[7] Chronic habits such as lip biting, lip sucking, or chewing, especially under stress or parafunctional activity, can lead to simultaneous extravasation of mucus from multiple glands, resulting in clustered lesions.[8] Recurrent trauma may also prevent complete healing of previously ruptured ducts, promoting the development of new adjacent mucoceles over time.[9] Anatomically, the lower lip contains a high density of minor salivary glands, making it particularly susceptible to multiple lesions when subjected to diffuse injury. Based on pathogenesis, mucoceles are classified into extravasation type and retention type lesions.[7] The extravasation type, which is more prevalent, results from trauma-induced rupture of the salivary gland duct with subsequent spillage of mucus into the surrounding connective tissue, whereas retention mucoceles arise due to ductal obstruction and are considered true cysts with an epithelial lining.[7] This type of ductal obstruction is most commonly seen in major salivary gland duct.[10] The pathogenesis of this lesion progresses through distinct phases, beginning with the extravasation of mucus, wherein free mucin accumulates within the connective tissue stroma without an epithelial lining, accounting for its classification as a pseudocyst. This extravasated mucin elicits an inflammatory response, characterized histologically by the presence of macrophages that phagocytose the mucus and transform into foamy muciphages, accompanied by lymphocytes and plasma cells. With continued persistence, the lesion enters an organizational phase, during which granulation tissue develops around the mucin pool, leading to the formation of a well-circumscribed fibrous pseudocapsule devoid of epithelial lining.[11] The treatment of mucocele aims to completely excise the lesion to prevent the recurrence. Oral mucoceles are managed using several modalities such as surgical excision, marsupialization, laser ablation and cryosurgery depending on lesion size, depth, location, patient age, and recurrence history. The tendency for recurrence is attributed to persistent mechanical trauma or incomplete removal of the feeder minor salivary gland tissue, emphasizing the importance of complete surgical excision including adjacent glandular acini.[12] Conventional surgical excision with removal of adjacent minor salivary glands is considered the definitive treatment, as it allows complete lesion eradication and thereby minimizing recurrence.[13] Marsupialization is primarily indicated for large mucoceles and ranulas, as it facilitates continuous drainage while preserving surrounding tissues. Nevertheless, recurrence is common because the involved salivary glands are not eliminated, and histopathological evaluation is not possible.[14] Botazzo et al. stated that in pediatric patients marsupialization of mucocele is best alternative treatment as the technique being rapid, least traumatic of all and simple.[15] Laser excision using CO_2, diode, or Er:YAG lasers offers advantages such as excellent hemostasis, reduced postoperative pain, minimal scarring, and faster wound healing. Despite these benefits, laser therapy is limited by high equipment cost, limited availability, and potential difficulty in obtaining an intact specimen for histopathological analysis.[16] Cryosurgery is a conservative alternative that produces minimal bleeding and scarring and is useful in patients unsuitable for conventional surgery. However, it requires multiple sessions, has unpredictable tissue penetration, delayed healing, and does not provide tissue for histological examination.[17]

IV. Conclusion

This case highlights the rare ocurrance of multiple mucoceles in a paediatric patient, emphasizing the importance of considering this entity in the differential diagnosis of oral swellings in children. Complete surgical excision resulted in successful treatment with no recurrence at 6 months. The presence of three simultaneous lesions in the absence of trauma or systemic conditions makes this presentation noteworthy. Clinicians should be vigilant of such atypical cases, ensuring timely diagnosis and management to alleviate patient and parental concerns.

Figure 1: clinical representation of lesion

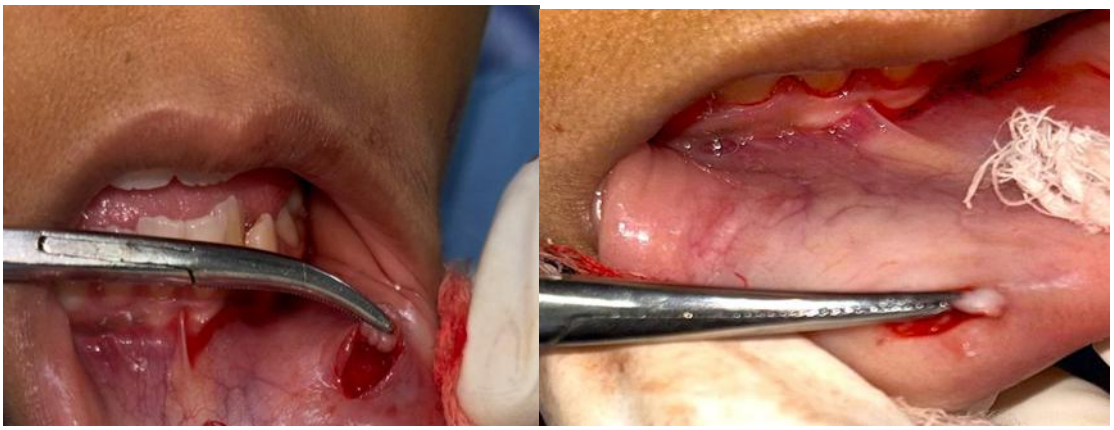

Figure 2: intra operative picture (largest and smallest mucoceles)

Figure 3: post excision

Figure 4: post closure

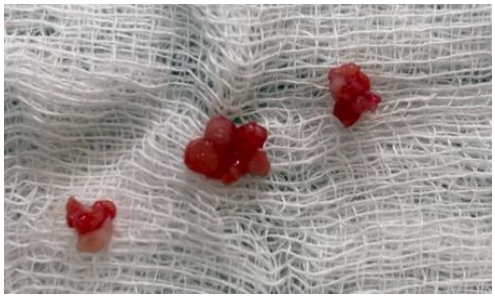

Figure 5: Excised specimen

Figure 6: 01 month post op

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