Case Report

Comprehensive Management of Lower Lip Mucocele in Paediatric Patients: A Case Series

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ABSTRACT

Mucocele is a common benign cystic lesion of the oral cavity caused by disruption of the minor salivary gland ducts, resulting in extravasation of mucus into the surrounding connective tissue. Lip biting, lip sucking, or mechanical irritation being the principal etiological factors. Removal of etiologic factor with complete excision of lesion is the treatment of choice. This case report of 2 cases describes the management of two pediatric patients presenting with mucocele on lower lip with history of lip biting. In case 1 extraction of tooth was done to remove causative factor while in case 2 a fixed habit breaker appliance was delivered followed by surgical excision of lesion. Histopathological examination confirmed the diagnosis of a mucocele. An uneventful healing was observed in both the cases with no recurrence at the six-month follow-up period

Key words: Mucocele, Minor salivary gland, Lip biting, Habit-breaking appliance, , Surgical excision.

INTRODUCTION

The term mucocele combines mouco (mucus) and coele (cavity), signifying a mucus-filled cavity.[1] In the spectrum of oral salivary gland disorders, mucocele is classified as the seventeenth most common lesion with a prevalence of approximately 2.4 cases per 1,000 people.[2] A study by Jones and Franklin, considering 4,406 pediatric patients, showed that the most common lesion was mucocele (16%).[3] Although mucoceles can occur at any age, they are encountered most frequently during the second decade of life peak incidence 10–20 years, with no gender predilection.[4]

Oral mucoceles are classified into extravasation and retention types. Extravasation mucoceles are the most common in children (approximately 92%) and result from rupture of a salivary gland duct, causing mucus to leak into surrounding connective tissue. They progress through three stages: mucus extravasation, granulation tissue formation, and development of a fibrous pseudocapsule without an epithelial lining. The remaining 8% are retention mucoceles, which are true cysts lined by epithelial tissue arise secondary to ductal obstruction.[2,5]

By the location, extravasation mucoceles most frequently occurs on the lower lip, followed by the ventral tongue, buccal mucosa, and palate. Retention mucoceles can occur at any oral site. Lesions on the floor of the mouth are called ranulas.[6]

This lesion usually appears as soft, fluctuant, dome-shaped swellings with a translucent or bluish hue and often resolve spontaneously without intervention. The characteristic blue coloration is attributed to vascular engorgement, tissue cyanosis, and the accumulation of mucus beneath the overlying mucosa.[7]

Before management of lesion, removal of etiologic factor is important. A variety of therapeutic approaches are available for their management.[8]

This Case report aimed to explain the history, clinical features, and surgical removal of mucocele using a simple surgical technique.

CASE REPORT

Case 1: A 7-year-old girl reported with the chief complaint of painless swelling on the inner aspect of the lower lip for 2 months. Swelling was small initially and then was increasing gradually to attain the present size. There was no significant medical history. Patient had a positive history of lip biting.

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On intraoral examination, a dome shaped, solitary, well circumscribed, fluctuant swelling was seen on the inner aspect of the lower lip on the left side measuring approximately 6 x 5 mm. The surface appeared smooth with a bluish translucent hue. [Figure 1]. No other oral anomalies were detected.

Case 2: A 10-year-old boy presented with chief complain of swelling on the lower lip. On eliciting the history, the patient was found to have a habitual lip-biting habit. Swelling was soft, oval, sessile, and painless which was fluctuating in size. Patient had difficulty in chewing and speaking. There was no significant medical history.

On intraoral examination, a round shaped, solitary, well circumscribed, fluctuant swelling (4 x5) mm was seen on the labial aspect of the lower lip which indicate frequent lip biting in respect to at left permanent central incisor region. [Figure 2]

Thus, in both patients repeatedly traumatized the corresponding area of the lower lip during function, leading to persistent mechanical irritation and contributing to the development of the mucocele Differential diagnosis of traumatic fibroma was made.

The treatment plan included elimination of the etiological factor and surgical excision of the lesion. In second patient habit interception fixed lip bumper appliance was advised to prevent recurrence.

Figure (1 and 2): (1) Mucocele present on inner aspect of lower lip (case 1) (2) Mucocele present on inner aspect of lower lip (case 2)

Procedure:

After taking informed consent from parents of both the patients, blood investigations were done. On first day of treatment, the area was cleaned with 5% povidone followed by application of topical anesthesia, the lesion was managed by ligation at its base using a silk suture knot (micro marsupialization). [case1-figure 3a]

In the same visit, tooth no. 61 was removed because it exhibited Grade II mobility and was identified as the primary etiological factor. [case1-figure 3b]

Figure 3 (a to c): (a) Procedure of micromarsupialization. (b) Extraction done wrt 61 tooth (case 1) (c) Placement of lip bumper in patient (case 2)

Whereas in case 2 on 1 st day of appointment banding was done wrt 36,46, followed by alginate impression making, of both the arches. In next visit (case 2) fixed lip bumper habit-breaking appliance was fabricated and delivered to the patient. [case 2-figure 3c].

Afterwards, in both the cases 2% lignocaine with 1: 200,000 adrenaline was locally infiltered around lesion and resection was done using 15 no. surgical blade from the base and tissue was sent for histological analysis. [figure 4a, 4b].

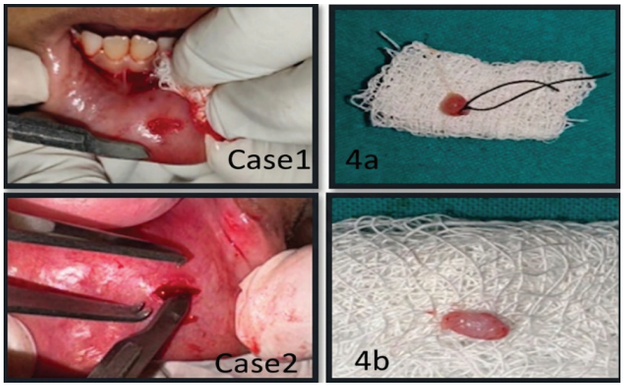

Figure 4a and 4b: Resection of the lesion from its base using surgical blade (case 1 and 2)

Histopathological examination showed a mucin-filled pseudocyst surrounded by granulation tissue with chronic inflammatory infiltrate beneath hyperplastic stratified squamous epithelium, confirming the diagnosis of an extravasation mucocele in above mentioned cases. On 6-month follow-up, there was no history of recurrence of the lesion. [figure 5a, 5b]

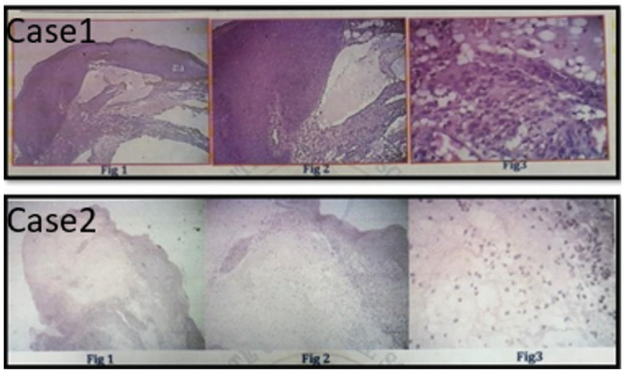

Figure 5a: Histopathological report confirmed the diagnosis of extravasation type mucocele (case1 and 2)

Figure 5b: Follow up photographs of both the cases with no recurrence of lesion.

DISCUSSION

Mucocele is the most common benign lesion of the minor salivary glands in children and is usually caused by trauma to the excretory duct, resulting in mucus extravasation into the surrounding connective tissue. Chronic lip biting is one of the most common etiological factors, and therefore the lower labial mucosa is the most frequently affected site because of repeated mechanical trauma. Clinically, mucoceles present as painless, soft, fluctuant swellings with a bluish translucent appearance and often show a characteristic history of recurrent enlargement followed by spontaneous rupture and reduction in size due to repeated mucus extravasation. Diagnosis is mainly based on clinical findings; The appearance of mucoceles is pathognomonic and location of the lesion, history of trauma, rapid appearance, variations in size, bluish-color, and the consistency are some of the important factors to be considered before the final diagnosis are made.[9,10]

In both cases, recurrent lower lip mucocele associated with habitual lip biting. The lesion was initially managed by ligation of its pedunculated base using a surgical knot, followed by complete surgical excision on the following day. The ligature technique, proposed by the Children's Specialties Clinic of the State University of Londrina (UEL), consists of tying a ligature around the pedunculated base of the lesion to occlude its blood supply, thereby inducing ischemia and promoting lesion regression.[11] Delbem et al., micro-marsupialization can be considered an effective first-line treatment in cooperative pediatric patients because of its simplicity and minimal invasiveness, although persistent or recurrent lesions may require complete surgical excision.[12]

In case 2 as the patient's chronic lip-biting habit was considered the primary etiological factor, a lip bumper was delivered following surgery as a habit-breaking appliance. Acrylic plate function as a protective barrier between the mandibular incisors and the lower labial mucosa, thereby preventing repetitive mechanical trauma to the healing tissues while simultaneously assisting in cessation of the lip-biting habit. In addition to protecting the surgical site, the appliance promotes healing by reducing continuous irritation and improving patient compliance.[13]

Werner Oviedo et al. demonstrated that a lip bumper can serve as a conservative, non-invasive adjunct in the management of pediatric lower lip mucoceles by eliminating chronic trauma and reducing the risk of recurrence.[14]

Similarly, Kawale et al. reported that lip bumpers are effective habit-breaking appliances that facilitate elimination of lower lip-sucking and lip-biting habits when combined with regular motivation and follow-up. The author reported that the appliance should be maintained for approximately 5–6 months, with periodic follow-up at 1 month, 3 months, and 6 months to evaluate habit cessation, appliance integrity, and treatment stability.[13]

In this case report, both the patients were reviewed periodically to evaluate healing, reinforce compliance, and monitor for recurrence. At the one-month follow-up visit, satisfactory healing was observed with no evidence of recurrence. In the case 2, the patient has been under regular follow up, and the lip bumper is still in place to ensure complete elimination of the lip-biting habit and to minimize the risk of recurrence.

Various treatment modalities have been proposed for the management of mucoceles, and the choice of treatment depends on the location, accessibility, and size of the lesion. These modalities include removal of etiologic factor, cryosurgery, intralesional corticosteroid injection, micro-marsupialization, carbon dioxide laser ablation, and conventional surgical excision.[4,12]

The present cases highlight the importance of a multidisciplinary approach in the management of mucocele. Thus, a combination of surgical management, habit interception, and regular follow-up ensures favourable healing and long-term treatment success.

CONCLUSION

Successful management of pediatric mucoceles requires not only complete removal of the lesion but also identification and elimination of the underlying etiological factors to prevent recurrence. This case series highlights the importance of an individualized treatment approach based on the underlying cause, combining appropriate surgical intervention with habit interception to achieve favorable healing and long-term clinical success.

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