



## Case Report

# Traumatic bite induced mucocele: A management approach

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### ABSTRACT

Mucocele is defined as the lesion present on the oral mucosa such as lip, cheeks and the floor of the mouth, but mainly appear in the lower lip, that results from the accumulation of mucous secretion. This could be due to trauma and lip biting habits or alteration of minor salivary glands. The present case report highlights the importance of identifying the exact etiology of the mucocele and appropriate management to prevent its recurrence. This case report also advocates the use of diode laser for the treatment of mucocele as it requires minimal anesthesia which reduces apprehension and fear in pediatric patients, causes minimal blood loss and accelerates the healing of the surgical site.

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## 1. Introduction

Mucocele is termed as cavities that are filled with mucus, which appears mainly in the oral cavity.<sup>1-3</sup> The word mucocele is derived from a Latin word, mucus and cocele which means cavity.<sup>1,4</sup> Trauma to a minor salivary gland duct can be a major causative factor for mucocele which thereby results in pooling in the epithelial tissue.<sup>5</sup> Well circumscribed, soft, rounded, transparent fluctuant swelling is noted due to the accumulation of liquid or mucoid material.<sup>6</sup>

Most of the times, they are asymptomatic with size varying greatly. The most common site of occurrence is lower lip. There is no gender predilection.<sup>7</sup> Mucoceles can persist for a long time with considerable variation in size over time if left without any intervention.<sup>1</sup> Mucocele can be managed through different methods such as surgical removal, marsupialization, micro marsupialization, cryosurgery, laser vaporization, and laser excision.<sup>8</sup> Recently, high-intensity lasers have been proven to be more beneficial than conventional surgery as it has many advantages such as prompt hemostasis, minimal blood loss

and reduced healing time of the site.<sup>8</sup>

This case reports explains about the traumatic bite induced mucocele which was managed through excision using diode laser to avoid intraoperative complications and to enable better healing, followed by which single tooth anterior crossbite was corrected using z spring with posterior bite plane. As recurrence is an important factor to be considered in the management of mucocele, identification and elimination of exact etiology plays an important role. This case report highlights on management of mucocele followed by prevention of its recurrence through correction of traumatic bite which was the attributing factor for mucocele in this case.

## 2. Case Report

A 11-year-old male child reported to the department of pediatric dentistry along with his parents with the chief complaint of swelling in left lower lip region. The presenting illness showed that swelling present in the inner aspect of the lower lip in 41, 42 regions [Figures 1 and 2] for past 2 years, which showed variations in size over time. It initially started as a small swelling which showed gradual variation in size and auto resolution of the lesion

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was not seen. Patient showed a history of lip biting habit. There was a constant irritation to the inner aspect of the lower lip caused by habitual biting using 21. Swelling was painless, and no past medical history like fever or malaise was present. On examination of the lesion, it was soft, fluctuant and palpable with no increase in temperature, oval in shape measuring about 0.5x 0.5 cm [Figures 1 and 2]. On intra-oral examination, erupting 11 was in cross bite relation [Figure 1]. Gingival recession was seen in relation to 21 and 41 [Figure 1]. It could be attributed to the trauma from occlusion due to cross bite. Finally, the case was diagnosed as a mucocele on the basis of the history of trauma and clinical features. The treatment was planned and explained to the parents. Once the parent's consent was obtained, treatment was performed. Laser excision was planned. Following minimal infiltration using lidocaine, the lesion was excised using soft tissue diode laser (ZOLAR) [Figure 7], wavelength of 980 nm, 400  $\mu$ m diameter tip, 1W in pulsed mode. The incision was placed on the uppermost site of the lesion and complete excision was performed [Figure 5]. The specimen was subjected to histopathological examination and showed parakeratinised stratified squamous epithelium. The underlying minimal connective tissue stroma was edematous with chronic inflammatory cells predominantly lymphocytes and plasma cells. Fibroblasts, blood capillaries were also evident in the sections. Mucin pooling with adjacent mucous salivary gland was seen. With all these histopathological features, diagnosis of mucous extravasation cyst was given. Patient was prescribed analgesics. There was uneventful healing noted within 1 week of follow up [Figure 8]. Posterior bite plane with Zspring was given for correction of crossbite in relation to 11 [Figures 9 and 10] and periodically monitored and the appliance was removed once the cross bite was corrected [Figure 11]. Parents were instructed to come for regular recall visit and patient was regularly reviewed for 5 months and no recurrence of the lesion was noted.

### 3. Discussion

Mucocele is considered to be the second most common lesion in the oral cavity.<sup>5</sup> Mean age of occurrence is between 10 and 29 years.<sup>9</sup> Most common site of occurrence is lower lip followed by the buccal mucosa and floor of mouth.<sup>10</sup> According to Cohen., et al. 82% of the lesions are prevalent on the lower lip followed by 8% in the buccal mucosa and 3% in the retromolar area.<sup>8</sup> Depending upon the size and location of mucoceles, the various clinical features include external swelling and interference with mastication, swallowing, and speech and discomfort might occur.<sup>5</sup> Mucoceles are seen in 0.4% to 0.8% of the general population with minimal difference between males and females.<sup>8,11</sup> Mucocele is painless and have a tendency to relapse.<sup>1,12</sup> The differential diagnosis should include pathologies associated with the adipose tissue,



**Fig. 1:** Intraoral frontal view showing mucocele and crossbite IRT 11



**Fig. 2:** Intraoral left view showing mucocele

blood vessels, nerves, connective tissue and salivary glands, namely, mucocele, fibroma, lipoma, mucus retention cyst, sialolith, phlebolith, salivary gland neoplasm, haemangioma and varices, especially when present in the lower lip region.<sup>8</sup> Mucoceles have a bluish tinge to their surface, and they blanch under digital pressure, this helps to distinguish them from other pigmented lesions such as haemangiomas, nevi, hematomas and melanomas.<sup>8</sup>

In this present study, the diagnosis was primarily based on clinical and adequate histological information. Irrespective of whether the cause is an obstruction or extravasation, the source of trauma should be identified and removed.<sup>7</sup>



**Fig. 3:** Maxillary occlusal view



**Fig. 5:** Excision of mucocele using diodelaser



**Fig. 4:** Mandibular occlusal view



**Fig. 6:** Immediate postoperative after mucocele excision using laser

Lip biting/sucking is one of the main cause for mucocele.<sup>1</sup> It is important to differentiate it from other lesions which can be done through careful palpation. Lipomas and tumors of minor salivary glands does not fluctuate while cysts, mucoceles, abscess, and hemangiomas shows fluctuation.<sup>1,12,13</sup> In order to prevent the recurrence of mucocele, it is important to carry out complete excision.<sup>8</sup>

Recently, soft tissue lasers have been advocated for the treatment of mucoceles. Advantages of soft tissue lasers are minimal intraoperative bleeding, reduced surgical time and accelerated healing time and minimal scarring. This procedures does not require suturing due to protein denaturation caused during the contact of laser with the soft tissues.<sup>8</sup> Other approaches include laser ablation,

electrocautery and cryosurgery.<sup>1</sup>

Diode lasers have an added advantage over Er:YAG and CO<sub>2</sub> lasers due to their heir small size is and also gives a well-defined cutting edge, as well as coagulation and hemostasis during excisions.<sup>5,14</sup> However, use of laser in dental practice requires intensive training and minute precision. The high cost of laser armamentarium is also a disadvantage, moreover lasers of different wavelengths are required for different oral and dental procedures. It should be used with caution in immune-compromised patients as there is a potential chance of disease transmission through aerosol during laser procedure. Use of protective eyewear, specific for specific laser wavelength is mandatory for



**Fig. 7:** Diode laser used for mucocele excision (Zolar)



**Fig. 8:** After 1 week follow up

dentist, dental team and also for the patient to prevent ocular hazards.

In the present case report, the possible cause of mucocele is the traumatic bite due to irregularly placed central incisors which resulted in constant irritation of the inner aspect of the lower lip with the incisal edge of 21. Hence to correct the crossbite, Z spring with posterior bite plane was given [Figures 9 and 10]. Patient was followed up in weekly intervals for crossbite correction. Traumatic bite was corrected by 2 months [Figure 11]. Following the correction of the bite, the patient was followed up for 5 months which showed no recurrence of the lesion. Gingival recession was also reduced when trauma from occlusion was relieved.



**Fig. 9:** Intraoral frontal view after insertion of z spring with posterior bite palne for the correction of crossbite IRT 11



**Fig. 10:** Maxillary occlusal view after insertion of z spring with posterior bite palne for the correction of crossbite IRT 11



**Fig. 11:** Intraoral frontal view after correction of crossbite IRT 11

#### 4. Conclusion

In the present casereport, complete excision of mucocele was done using diode lasers which showed uneventful healing in one week follow up, following which crossbite with respect to 11 was corrected using Z spring with posterior bite plane appliance. After the correction of the traumatic bite, which was the possible etiology of the persistence of the lesion, the patient was reviewed for 5 months to see for the recurrence of the lesion. The present case report highlights the importance of identifying the exact etiology of the mucocele and appropriate management to prevent its recurrence. This case report also advocates the use of diode laser for the treatment of mucocele as it requires minimal anesthesia which reduces apprehension and fear in pediatric patients, causes minimal blood loss and accelerates the healing of the surgical site.

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#### 6. Conflict of Interest

None.

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