

## **EXCISION OF LOWER LIP MUCOCELE USING DIODE LASER (BIOLASE): A CASE SERIES**

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### **ABSTRACT**

The second most common benign soft tissue tumours of the oral cavity are mucoceles, which are the most frequent minor salivary gland disorders. The incidence is significant, around 2.5 lesions per 1000 people, mostly in the second decade of life, and infrequently in infants less than a year. The majority of mucoceles are caused by trauma or obstructions to the primarily small salivary glands and hence the usual location being the lower lip mucosa. The laser is said to be an precise ablation instrument that has a lot of advantages when compared to the scalpel. It leads to negligible injury to the adjacent tissues, minimal postoperative bleeding because of the coagulating ability of laser, faster postoperative healing, with slight scar formation. Hence, in this case series two cases of mucocele excision using laser is discussed showing the healing process.

**KEYWORDS** – Mucocele, laser, Biolase

### **INTRODUCTION**

Mucoceles (latin words 'mucus' meaning 'fluid' and 'coele' means 'cavity') are defined as mucus-filled cavities that appear in the oral cavity, paranasal sinuses or lacrimal sac

appendix, gallbladder.<sup>i</sup> Mucoceles are the most frequent minor salivary gland disorder, and is the second most occurring benign soft tissue tumours of the oral cavity.<sup>ii,iii</sup> The incidence is 2.5 lesions per 1000 individuals, mostly occurring in the second decade of life and seldom among children under one year of age.

The liquid or mucoid material accumulates, which leads to the formation of a rounded, circumscribed translucent or bluish-colored lesion in different sizes. It is typically soft and fluctuant, they look like a pink or deep blue discrete, painless swelling of the mucosa.<sup>iv</sup>

However, mucoceles do tend to relapse.<sup>v,vi</sup> They usually occur in the glands that secrete mucous saliva. It is therefore common to find these lesions in the minor salivary glands, which are distributed throughout the oral submucosa, except in the attached gingival regions and in the anterior portion of the back of the tongue.<sup>vii</sup>

Mucoceleles are usually asymptomatic, but can cause discomfort by interfering with speech, while chewing or swallowing. The lesion becomes nodular and firm when palpated due to repeated trauma. In these cases, rupture becomes more difficult.<sup>viii,7</sup> They do not cause direct obstruction to the flow of saliva, the volume of secretion that can be extravasated is inadequate because of elasticity of the surrounding tissues.

The aim of this report is to present two cases of lower lip mucocele excision with the help of diode laser and evaluate the healing process.

### ***Case Series***

#### **Case 1**

A male patient who is reported to the Department of Pediatric and Preventive Dentistry with a complaint of swelling on the left side of lower lip. The patient observed the swelling about 2 months ago measuring about 1cm x 1.5cm

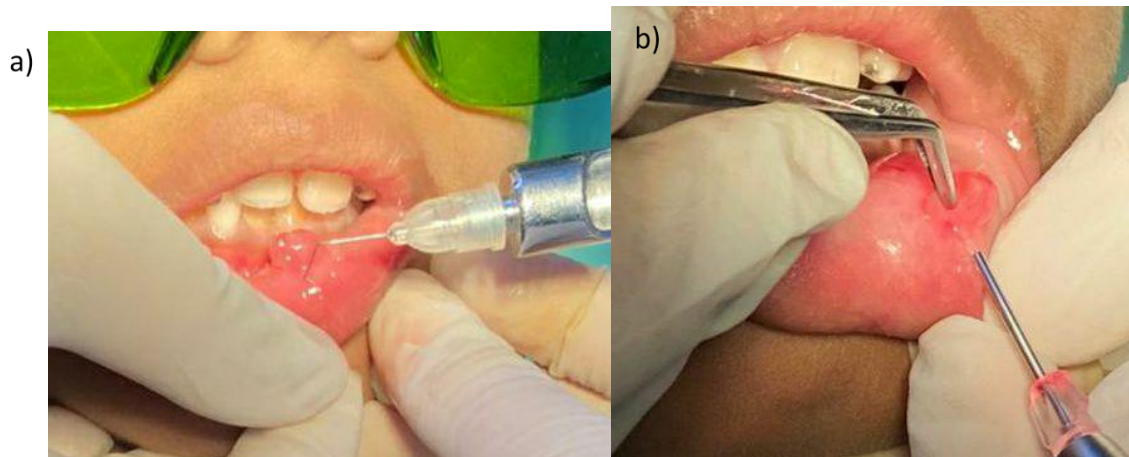


Pre-operative view of the swelling

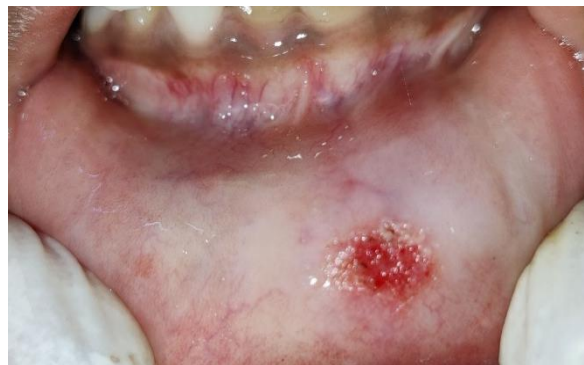
The medical history was non-contributory. Patient did not have a history of lip biting habit. On examination, a well circumscribed reddish pink, transparent swelling was observed. It was fluid filled, non-tender with a smooth surface.

Based on the above findings, a provisional diagnosis of mucocele was made and an excision was planned after seeking the parent's consent.

Local infiltration of 2% lignocaine with 1:80000 adrenalines was given around the periphery of the mucocele. Soft diode laser (Biolase) with a wavelength of 940 nm and 400  $\mu\text{m}$  diameter tip at 1W in continuous mode was used. The incision was done at the base of mucocele and excision was completely done.



Intra operative view – a) Infiltration given around the swelling b) Laser excision while holding the swelling using a tweezer.



Immediate post-operative view

The tissue excised was sent for histopathological examination. It showed para-keratinized stratified squamous epithelium. The patient was prescribed analgesics, application of vitamin E capsules and multivitamin syrup. The patient was recalled after 10 days for follow-up which showed complete healing.



10 days follow up – complete healing seen

### Case 2

A male patient who is 8 years old came to the department of Pediatric and Preventive Dentistry with a chief complaint of swelling on the left region of lower lip since 1 and half years.



Pre-operative view of the swelling

The swelling had increased in size since the last 2 months. Medical history was insignificant. Patient has the habit of lip biting for 5 years. It was diagnosed as mucocele based on the clinical features and history of habit.

Intraoral examination revealed the presence of a soft, round, fluctuant and painless measuring 6mmx8mm. The colour of the swelling was pale reddish similar to the adjacent mucosa. Various treatment modalities were explained to the parents and laser excision of the mucocele was planned. A similar treatment procedure was followed as the previous case. Patient was prescribed analgesics, antibiotics and vitamin E application. The excised tissue was sent for histopathological examination that showed the presence of mucous extravasation cyst.



Intra-operative view of excision of      Immediate post operative view



5 days follow up- view of lesion

## DISCUSSION

The clinical decision for surgical excision of the mucocele rests on postoperative healing and discomfort. Various methods can be used to treat the lower lip mucocele. The use of a scalpel, laser ablation (CO<sub>2</sub>), electrosurgery, gamma-linolenic acid (GLA) medicine, and micro-marsupialization are among these.<sup>ix</sup>

One of the most common methods of excising a mucocele is a scalpel. It does not require extensive equipment, and is less expensive.<sup>x,xii</sup> The potential for postoperative bleeding in this method is greater than the laser, as well as the likelihood of an ulcerative appearance and probably a long healing period.<sup>xiii,xiv,xv</sup>

When compared to a scalpel, the laser is a very precise ablation tool that has several benefits. The surrounding tissues are not severely harmed by the laser, particularly the deep muscle layers.<sup>xvi,xvii</sup> Postoperative bleeding in the both the cases reported was negligible due to the ability of laser to coagulate.<sup>xviii</sup> Because of minimal trauma of the adjacent tissues, postoperative healing was faster, with almost no scar formation.<sup>xix</sup>

Histological analysis has revealed that laser wounds has much less myofibroblasts than non-laser wounds, which reduces scarring and wound contraction for better healing<sup>xx</sup> as seen in

the above cases. On the other hand, some of the drawbacks of laser include eye damage by laser light, so protective eyeglasses become a necessity.

Reversible or irreversible damage of regions around the target tissue by the thermal effects of laser results in coagulation necrosis. Increased time of application of laser leads to delayed wound healing and larger wound site. Conversely, sealing small-diameter vessels instead of areas of coagulative necrosis provides benefits such as hemostasis during laser surgery. Adjacent areas of coagulation result in less bleeding at the surgical site. The presence of a border between necrotic and coagulated tissue in incisional or excisional biopsies can lead to complex histopathological identification.<sup>1</sup>

## CONCLUSION

Our cases reports that diode laser use for mucocele excision has a variety of beneficial effects such as minimum anesthesia given, shorter appointments, better visualization of surgical site, hemostasis, and nominal carbonization.

Laser application allows treatment in bloodless field that helps in reduction of apprehension and fear in children.

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