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SURGICAL MANAGEMENT OF MUCOCELE USING ER, CR: YSGG LASER: A REPORT OF TWO CASES

Dr. Shanin Farista[1]* MDS, Dr. Sana Farista[2], MDS, Dr. Sushmita Deonani[3], MDS, Dr. Ravi U. D.[4], MDS, Dr. Nadeem Qadri[5], MDS and Dr. Vipin Arora[6]

[1]Assistant Professor – Chhattisgarh Dental College and Research Institute, Rajnandgaon, Chhattisgarh.
[2]Private Practioner – Mumbai, Maharashtra.
[3]Private Practioner – Mahasamund, Chhattisgarh.
[4]Assistant Professor – HKES S. Nijalingappa Institute of Dental Sciences and Research, Kalaburagi, Karnataka.
[5]Assistant Professor – Sri Balaji Dental College, Moinabad, Telangana.
[6]Private Practioner – Bhilai, Chhattisgarh.

***Corresponding Author: Dr. Shanin Farista**
Assistant Professor - Chhattisgarh Dental College and Research Institute, Rajnandgaon, Chhattisgarh.

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ABSTRACT
Mucoceles are benign tumors originating from minor salivary glands of the oral cavity. Though they are often considered as mucus-containing cystic lesions but they are not true cysts as most of them lack epithelial lining. They are localized most frequently on the lower lip or buccal mucosa. In this case report, successful treatment of two different cases of Mucocele with Erbium laser is presented. These lesions were diagnosed on the basis of history, clinical finding and histopathological examination. After re-evaluation of both the patients healing was found satisfactory.

KEYWORDS: Mucocele, Hard Tissue Laser, Erbium, Chromium: Yttrium-Scandium-Gallium-Garnet, Excision.

INTRODUCTION
Mucoceles are soft, sessile, mucus-filled cavities that originate from minor salivary glands of the oral cavity. These benign tumors are round or oval, rise above the surrounding mucosa.[1] It is the result of accumulation of mucous due to the alteration in the minor salivary gland which causes limited swelling. It is 17th most common salivary gland lesion seen in the oral cavity.[2] Although they are usually painless, mucoceles might be unpleasant and unaesthetic for the patient.

According to the etiopathogenesis, the lesions can be divided into less frequent retention mucoceles found predominantly in elderly individuals and extravasation mucoceles that affect patients under 30 years of age. Together with traumatic fibromas, they represent the most common soft tissue tumors.[3]

Mucocele are transparent and bluish-colored lesion of variable size. Soft in consistency and fluctuant in response to palpation. These are painless and tend to relapse. However, a small perforation allows the release of the Mucocele contents which seems to get healed but the secretions accumulate again, and the lesion relapses. On the other hand, in the case of repeated trauma, the lesion may become nodular and firm in response to palpation, which becomes more difficult to heal.[4]

Therapy begins with elimination of the traumatic irritation. Sharp teeth edges are rounded and occlusion adjustments are made to diminish the possible traumatization of the oral mucosa. There are numerous methods for removal of the Mucocele which includes various lasers that offer several advantages over the other procedure.[5] To diminish the chance for relapse, it is important to remove the whole Mucocele together with the salivary gland.[6]

Erbium lasers are suitable for both hard and soft tissues procedures. Cases in this report were done using Erbium, Chromium: Yttrium-Scandium-Gallium-Garnet Laser (Er,Cr:YSGG) that emits a wavelength of 2,780 nm.

CASE PRESENTATION
Case 1: A 27 year old male patient reported to Dental wing at Sai Snehdeep Hospital, Navi Mumbai with chief complaint of disfigured lower lip since 1 year. (Fig. 1) History revealed that the lesion began as a small fluctuant growth in the right labial mucosa of lower lip that gradually continued to grow with size often increasing and decreasing. The patient had good systemic health with his non-contributory family and medical history. He reported habit of lip biting during stress. On intraoral examination, a pink colored, solitary swelling measuring about 2 x 2 cm in size was found. On

palpation the swelling was soft, fluctuant and non-tender. On the basis of history and clinical presentation, a provisional diagnosis of Mucocele was made and an excisional biopsy was planned with laser and the same was explained to the patient and his consent was taken.

Local anesthesia (2% lignocaine HCL with 1:80,000 Adrenaline) was administered. Patient and staff used special eye glasses for protection and all the laser safety protocol was followed prior to and during the laser procedure. A 2780nm Er:Cr;YSGG laser (**Waterlase iPlus, Biolase, USA**) was used to excise the lesion. The lesion was marked all around with lasers (Fig. 2), the markings over the lesion was further deepened (Fig. 3) inorder to take the lesion out in whole while making sure the removal of small salivary glands involved with it. The capsule was kept intact along with 1mm of healthy adjacent tissue. (Fig. 4 and 5) The excised lesion was sent for histopathological examination with specific mention of use of laser for the lesion excision (Fig. 6). After the removal of lesion, laser bandage was done and the sharp edges of the front teeth were rounded with soft rubber cup to avoid further trauma to the soft tissues.

The power settings used for excision were 3.50 W, 50 Hz, 40% water, 10% air, S mode with Gold handpiece and MZ6 tip while the settings used for the laser bandage were 0.50 W, 50 Hz, 20% water, 1% air at S mode.

The postoperative instructions were given to the patient and was instructed to stop the habit of lip biting. Acetaminophen was prescribed on as and when required basis. The patient was recalled next day for postoperative checkup (Fig. 7). The histological observation confirmed the diagnosis of extravasation Mucocele. (Fig. 8).

Case 2: A 10 year old female patient visited to the department with a chief complain of swelling in the lower lip since 2 months.(Fig. 9) History revealed that the lesion began as a small growth at the lower right labial mucosa of lower lip which was gradually growing over the past 15 days. The patient reported that swelling was interfering with the speech. On clinical examination, the swelling was pink measuring 1.5 x 1.5 cm in size. On palpation the swelling was soft, fluctuant and non-tender. On the basis of history and clinical presentation, a provisional diagnosis of Mucocele was made and an excisional biopsy was planned with lasers and the same was explained to the patient and consent was taken from her parents. The procedure was performed in the same manner as in the case 1 but with lower power settings under topical anesthesia. (Fig. 10) The clinical photograph was taken immediately after the procedure. (Fig. 11) The patient was recalled the next day for the follow up. (Fig. 12). Considering the history, clinical feature and histopathological report, a final diagnosis of 'Extravasated Mucocele' was made.

Fig. 1: – Case 1 – Pre-Operative View.

Fig. 2: – Case 1 - Lesion Marked with Laser.

Fig. 3: – Case 1 – Intra-Operative View.

Fig. 4: – Case 1 - Immediate Post-Operative Intraoral View.

Fig 5: Case 1 - Immediate Post-Operative Extraoral View.

Fig 6: Case 1 – Excised Lesion.

Fig 7: – Case 1 – One Day Post-Operative View.

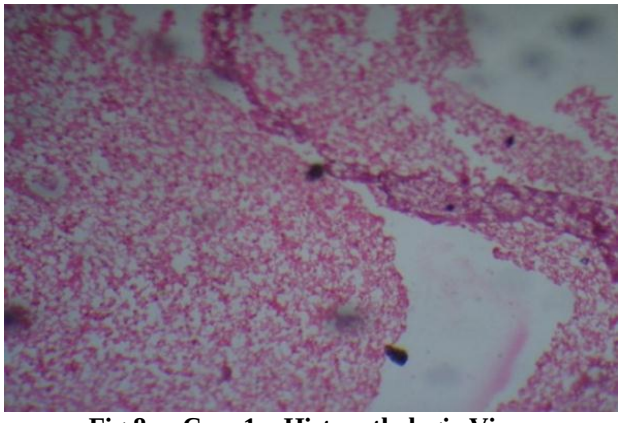

Fig 8: – Case 1 – Histopathologic View.

Fig. 9: – Case 2 – Pre-Operative View.

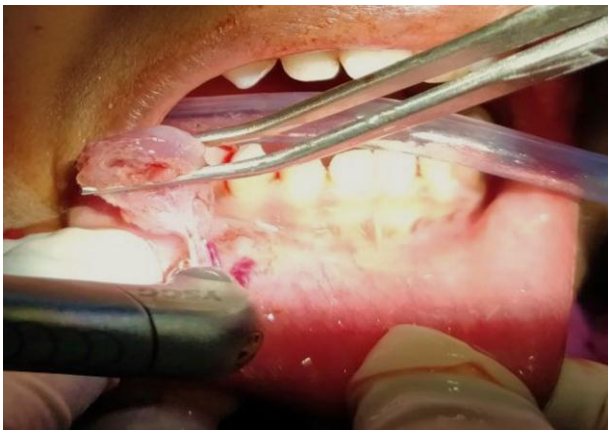

Fig. 10: – Case 2 – Intra-Operative View.

Fig. 11: – Case 2 – Immediate Post-Operative View.

Fig 12: – Case 2 – One Day Post-Operative View.

DISCUSSION

Mucoceles are common soft tissue tumors that evolve from minor salivary glands. They represent one of the most frequent benign tumors of the oral cavity with highest prevalence reported in the second and third decade of life.[7,8,9]

Salivary mucoceles are more common in the lower lip though they may develop in other areas such as the floor of the mouth, the buccal mucosa, the palate, retromolar fossa and the dorsal surface of the tongue.[10] In our case reports the mucoceles developed on lower lip.

There are different treatment options, including medication, gamma-linolenic acid, cryosurgery, intralesional corticosteroid injection, micro-marsupialization, marsupialization, and the conventional surgical removal with blade.[11]

Conventional surgery requires complete removal of the tumor together with the involved salivary gland. The challenge in the conventional technique using blades is the flap closure without creating unaesthetic scars and wound shrinkage. Also, conventional surgical removal of the lesion sometimes leads to temporary paresthesia, fibrous scar formation & recurrence of the lesion.[12] Removal of the Mucocele with laser does not require suturing, leaves no or minimal scaring on the mucosa, allows precise ablation due to its hemostatic properties, and reduces postoperative discomfort and pain. The erbium lasers like Er, Cr:YSGG have minimal thermal damage to the surrounding tissues.[13] Minimal damage of the biopsy specimen is an advantage of erbium lasers. Some studies from the literature mentions that lasers have minimal postoperative complications and relapses.[14]

In this case report, the successful treatment of Mucocele is presented in two patients with different age group using Er,Cr:YSGG laser. Both laser procedures presented satisfactory immediate healing rates and were well-tolerated by the patients without the use of medication.

CONCLUSION

Dental lasers provide a user-friendly, minimally invasive and a good patient compliance alternate to the conventional technique. In our cases, there was no bleeding during and after the procedure, No post-operative swelling or any discomfort with uneventful healing. And for any definitive diagnosis, the importance to histological specimen examination must always be stressed. Only limitation with the use of erbium lasers is the cost factor.

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