CASE REPORT

Excision of mucocele using 980 nm diode laser: A case report

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Abstract

Mucoceles are mucus-filled cavities that may appear in the oral cavity, paranasal sinuses or lacrimal sac giving rise to a round, well-circumscribed transparent, and bluish-colored lesion of different sizes that are typically soft, fluctuant, and painless on palpation and tend to relapse; generally caused due to trauma or obstruction of ducts of the minor salivary gland and found on the lower lip. They may be asymptomatic, but some patients may complain of discomfort, while chewing, swallowing, chewing, or speaking. Different treatment options, including cryosurgery, intraleisional corticosteroid injection, micro-marsupialization, marsupialization of the mucocele, conventional surgical removal of the lesion, and most recent laser ablation are available. Laser has secured a special place in soft tissue surgery with less complications and good patient compliance, short treatment time thereby less pain and anxiety, less chances of relapse and good esthetic outcomes. Therefore, this case report highlights the advantages of using diode laser in the treatment of mucocele which has significant recurrent rates.

Keywords

Diode laser, mucocele, recurrence

Introduction

Mucoceles are defined as mucus-filled cavities that can appear in the oral cavity, paranasal sinuses, or lacrimal sac. They are characterized by the accumulation of mucoid material, giving rise to a round, well-circumscribed transparent, and bluish-colored lesion of different sizes. They are typically soft, fluctuant, and painless on palpation and tend to relapse. They are generally caused due to trauma or obstruction of ducts of the minor salivary gland, generally found on the lower lip. They may be asymptomatic, but some patients may complain of discomfort while chewing, swallowing, chewing, or speaking. The mucocele may vary on different sizes. The patient may accidently while chewing, speaking or intentionally rupture the mucocele using a sharp object which releases characteristically mucoid fluid. This may give an impression of healing of the lesion, but once the small perforation is healed the fluid may accumulate again leading to relapse of the lesion. Treatment may be performed by conventional surgery, cryotherapy, and more recently laser surgery. The diode laser has taken a special place in soft tissue surgeries as it comes with advantages as minimal bleeding, pain, absence of requirement of suturing, and excellent healing results. The current case report describes the use of diode laser in the treatment of mucocele.

Case Report

A 30-year-old male patient reported to the Department of Periodontology, Sri Aurobindo College of Dentistry, Indore, with a chief complaint of painless swelling on the lower lip since 2 months. The patient had reportedly ruptured the swelling using a sharp object which led to temporary relief after the secretion oozed out from the lesion. However, the swelling had reoccurred after a day adding to agony of the patient.

On clinical examination, a round sessile nodule on the lower lip near to right commissure of the lip around 4 mm in diameter, fluctuant and of elastic consistency was observed. This clinical examination led to a probable diagnosis of a mucocele. Surgical removal of the lesion with the diode laser was planned and explained to the patient and a written informed consent was taken.

Procedure

The area around the mucocele was anesthetized by infiltrating 2% lidocaine with epinephrine (1:100000) avoiding the direct infiltration into the lesion. The lip was stretched so as to make the lesion more visible. Laser diode (980 nm) was used for the surgical removal of the lesion. The lesion was incised around its circumference and the base was vaporized with the laser. The lesion was excised completely and the area was coagulated with the laser. The area was then sutured with 4/0 silk sutures. The post-operative course was uneventful and the patient was satisfied with the treatment.

Figure 1: (a and b) Pre-operative view
Excision of mucocele using a diode laser

Vijayendra and Gagan

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the boundaries of lesion distinct. The lesion was then resected from the base using a 980 nm diode laser (Doctor smile, Wiser) [Figure 2] in continuous mode at 2 watts power setting. During the resection of the lesion, the laser tip was constantly wiped to remove the charred tissue attached to it. Brushing strokes were used around the margins of the lesion which were later deepened to completely remove the lesion along with associated minor salivary gland [Figure 3]. The total treatment time with laser was 5 min.

After removal of the tissue, the operative field was wiped with sterile gauze soaked in 1% normal saline solution. Post-operative instructions were given to the patient to refrain from biting or chewing his lip to avoid recurrence of the lesion.

Patient was followed until complete healing was achieved, which occurred in 30 days [Figure 4]. The patient was followed up for a period of 1-year and no recurrence was observed.

The biopsy sample was sent for histopathological examination. Figure 5 shows a histopathological slide in high power showing clear cells and mucinophages.

Discussion

The mucocele is a salivary gland lesion of traumatic origin which is formed when the main duct of a minor salivary gland is torn with subsequent extravasation of the mucus into the fibrous connective tissue, so that a cyst like cavity is produced, and it is filled with mucin. Salivary mucoceles are more common in the lower lip though they may develop in other areas such as the floor of the mouth, the cheek, the palate, retromolar fossa, and the dorsal surface of the tongue. Using the scalpel, some authors\(^1\) propose the removal of both the affected and neighboring glands in order to prevent relapse. Care should be taken to avoid damage to other nearby glands or ducts with the suture needle, as this may become a cause of recurrence. The total treatment time with laser was 5 min. This was lower than the treatment time by scalpel which requires sutures after the full enucleation of the lesion after incision. Wounds created by the laser application heal by secondary intention regardless of their depth. Laser surgery is an option of...
choice for pediatric and geriatric patients who have difficulties tolerating long surgical procedures. Removal of mucocele with the diode laser was effective in the case presented, resulting in the bloodless operating field, minimal discomfort, minimal swelling and scarring, and much less postsurgical pain. The patient recovered without complications. Other advantages of the laser include a highly decontaminated surgical bed; therefore, no postoperative antibiotics and analgesics were required. Excision of mucoceles with a diode laser permits complete removal of the lesion along with any minor salivary gland involved which is highly recommended for sites with high frequency of salivary gland neoplasias, such as the palate and the buccal mucosa.

**Conclusion**

Laser has secured a special place in soft tissue surgery with less complications and good patient compliance, short treatment time thereby less pain and anxiety, less chances of relapse, and good esthetic outcomes.

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