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Treatment of Lower Lip Mucocele with Scalpel Excision and Laser Technique: A Case Report

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Abstract: Mucocele is a term used to describe the swelling caused by pooling of saliva at the site of injured minor salivary gland. Various treatment modalities have been present for the management of mucocele, These include excision by a scalpel, laser ablation (CO2, Er, Cr:YSGG), electrosurgery, cryosurgery, medication (gamma-linolenic acid [GLA]), micromarsupialization. This case report present definitive management of lip mucocele.
Keywords: Lip mucocele, scalpel, diode laser, surgical exicision.

INTRODUCTION

A mucous cyst is a benign, mucous-containing cystic lesion of the minor salivary glands. This type of lesion is more commonly referred to as a mucocele, since most lack an epithelial lining and are by definition not true cysts. The location of these lesions can vary. Superficial mucoceles are located directly under the mucosa most commonly in the soft palate, the retromolar region, and the posterior buccal mucosa and represent approximately 6% of all mucoceles[1,2]. Classic mucoceles are located in the upper submucosa; deep mucoceles are located in the lower corium. Furthermore, 2 types of mucous cysts occur based on the histologic features of the cyst wall. The more common is a mucous extravasation cyst formed by a mucous pool surrounded by granulation tissue; this type accounts for 92% of these lesions. The other is a mucous retention cyst with an epithelial lining, which accounts for the remaining 8%[3,4]. Mucoceles of the anterior lingual salivary glands, and the glands of Blandin and Nuhn (which are mixed mucous and serous glands), are relatively uncommon, with few case reports in the literature[5]. Mucoceles are rarely seen on the upper lip, retromolar pad or palate. They may occur at any age, they are seen most frequently in the second and a third decade of life. These mucous-secreting glands are located in the palate and the labial/buccal mucosa. They are also located on the dorsum of the tongue behind the circumvallate papillae[6]. These mucoceles have been linked to trauma and represent an estimated 2% to 8% of all mucoceles. Mucoceles are the 15th most common oral mucosal lesion, with a prevalence of approximately 2.4 cases per 1,000 people. Although the exact prevalence in children is unknown, they are thought to occur more frequently in younger individuals than in adults. Studies have suggested that there is an association of these lesions in children with head and neck trauma. Frequently, the mucous cyst is found in the lateral aspect of the lower lip, supporting the role of trauma as a possible cause of a reactive lesion. Obstruction of the ducts of minor salivary glands may also be a cause of the mucous cyst. However, one study demonstrated that the ligation and cutting of the salivary gland ducts in mice and rats did not result in a mucous cyst[7]. The clinical appearance of a mucous cyst is a distinct, fluctuant, painless swelling of the mucosa. About 75% of the lesions are smaller than 1 cm in diameter; however, the size can vary from a few millimeters to several centimeters. Although most cases can be diagnosed from the clinical history, histopathology is necessary to confirm the diagnosis[8,9]. The most effective treatment of mucous cysts is complete surgical removal. Mucoceles can be single or multiple often rupturing and leaving slightly painful erosions that usually heal within few days[10-22].

CASE REPORT

A 25 years old male visited the dept of periodontology at DMIMS university dental college and hospital with the chief complain of swelling in the lower lip. The history of present illness consisted of Swelling on the right lower lip since 1 week. On examination it was Soft, fluctuant and palpable and it was round in shape. On the basis of available information the provisional diagnosis was made as a Mucocele. After deciding the provisional diagnosis Treatment procedure was planned and it was decided to

treat the diagnosed case under local anesthesia using scalpel and laser therapy. Byplacing an incision along the borders of the lesion; and then the lesion was resected from the base, the surgical site was then disinfected with the help of diode laser and site was closed with suture. Postoperative follow up for 1 week was done to check for wound healing and patient comfort regarding treatment provided. After one week suture were removed and patient presented with uneventful healing.

Fig-1: Pre-operative view

Fig-2: Excision of Mucocele with scalpel

Fig-3: Excised lesion

Fig-4: Application of laser at surgical site

Fig-5: Sutures

Fig-6: Post operative view after 1 week

DISCUSSION

Although the recurrence rate is reported to be about 14%, definitive treatment often involves excision of the minor salivary glands. The lower lip mucocele can be treated by a number of approaches. These include excision by a scalpel, laser ablation (CO2, Er,Cr:YSGG), electrosurgery, cryosurgery, medication (gamma-linolenic acid [GLA]), micromarsupialization, and "watchful waiting" if the lesion is not problematic for the patient. This last approach can be used for superficial mucoceles.

GLA is a precursor of prostaglandin E, and its use has been associated with limited success in the treatment of mucoceles. GLA works by reducing inflammation through competitive inhibition of prostaglandins and leukotrienes. This is a possible mechanism for the anti-inflammatory, antiatherogenic,

antithrombotic, and antiproliferative effects of GLA[23,24]. Mucoceles are lined by inflammatory tissue (granulation tissue), which is secondary to the inflammation caused by the saliva in the tissues. GLA therapy is a new modality, and there is only limited information in the literature regarding success rate. However, it can be useful for multiple mucoceles if a nonsurgical approach is considered, but there are possible side effects and interactions with other medications and allergies to consider.

Micro-marsupialization is a treatment technique that involves placing a 4.0 silk suture through the widest diameter of the lesion without including the underlying tissue. It is indicated for lesions less than 1 cm in size. The suture is then tied off and is left in place for 7 days. As a result, reepithelization of the duct occurs, creating a new epithelial-lined duct. This allows the saliva to be released from the duct. The recurrence rate with this approach has been reported to be about 14% in pediatric patients. This technique may be very challenging to perform on a pediatric patient in the outpatient setting[25].

Cryosurgery is a method of lesion destruction by rapid freezing. The lesion is frozen, and the resulting necrotic tissue is allowed to slough spontaneously. The 2 ways of performing this type of procedure are via open and closed cryosurgical systems. Open systems involve the direct placement of a freezing agent (i. e, liquid nitrogen) onto the lesion via a cotton swab[26]. The advantages of this technique are that there is no intraoperative or postoperative bleed-ing, there are minimal surgical defects, and there is minimal scarring. Therefore it is considered in areas of aesthetic concern, such as the vermillion border. In addition, no local anesthesia is required in most cases, so it is considered for use with the pediatric population[27]. The closed cryosurgical system technique requires sophisticated equipment. It can be a challenge to obtain/store liquid nitrogen and/or closed system equipment if one is not in a hospital environment. Finally, for the inexperienced clinician it can be difficult to gauge depth of freezing, and therefore damage to deeper structures may result.

The scalpel is one of the most-often used methods of excising a mucocele. It does not require extensive equipment, has negligible cost, and can be performed by most trained dentists. It does require great precision, however, and de-tailed knowledge of the mucocele and the surrounding anatomy. It also requires great control of the instrument, with accurate tactile awareness. Local anesthesia is also required, and this may be more challenging in children, especially those with behavior management issues. The potential for postoperative bleeding is also greater than with certain other treatment mo-dalities such as the laser, as is the possibility of a more ulcerative ap-pearance and possibly a longer healing period[28,29].

The laser is a very precise ablation instrument that offers certain advantages when compared to the electrocautery device. The laser causes minimal damage to the adjacent tissues, especially the underlying muscle layers. Postoperative bleeding in the case reported was minimal due to the ability of the laser to coagulate. Due to minimal trauma to the adjacent tissues, postoperative healing was favorable, with very little scar formation. No sutures were placed after the excision, as the denatured proteins serve as a natural wound dressing. In this case there was little contraction and scarring.

Use of the high-heat cautery system resulted in a more ulcerative appearance after the initial procedure, and at the follow-up appointments. The surgical site was tender to palpation at the postoperative visits, and the parent reported some postoperative discomfort following surgery that was not reported with use of the laser. During that excision, a zone of blanched mucosa was evident around the borders of the lesion. This was not seen during the excision with the laser. This thermal damage, along with burning of the adjacent tissues, was likely a contributing factor to the discomfort experienced by the patient. There-fore, although both methods had acceptable results, the laser resection displayed less postoperative discomfort and more favorable clinical healing.

CONCLUSION

The present case report presented a small sized mucocele lesion on lower lip which was successfully treated with excision by scalpel method followed by laser application and it has exhibited uneventful healing with no post-operative complications. Hence we suggest that this method is most effective way for the management of mucocele on lower lip.

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