



ALTERNATE TECHNIQUE IN THE EXCISION OF AN ORAL MUCOCELE: A CASE SERIES

Dental Science

**M. R. Haranadha
Reddy**

**Dadi Chandana
Sowjanya***

*Corresponding Author

Pusa Deepak

G. Ruthvika Reddy

Islavath Priyanka

ABSTRACT

Mucocele is the most common benign soft tissue tumour occurring in the oral cavity. Even though, it is the most common minor salivary gland lesion with good prognosis following its removal, its recurrence rate is just not rare, but bothersome. Its recurrence rate was significantly differed according to the location of the lesion and age of the individual. Various surgical techniques were proposed in literature and each of them found to have limitations. In this report, we presented a case series of three patients with oral mucocele on lower lip and we also reported a technique, that involved use of alginate impression material to clearly define the margins of the lesion into adjacent submucosal tissues for better access of the lesion. This technique is found to be effective, safe and economical way of treating a mucocele, ensuring complete removal and minimal chance of a recurrence.

KEYWORDS

Oral Mucocele; Lower Lip; Alginate Impression material; Mucous extravasation cyst.

INTRODUCTION:

Oral mucoceles (OMs) are benign soft tissue masses or cystic lesions, mucous filled, asymptomatic in nature and are clinically characterized by single or multiple, painless, soft, smooth, spherical, translucent, fluctuant nodule [1, 2]. OMs are dome-shaped enlargements with intact epithelium and are more common in the inner portion of lower lip, tongue and on the floor of the mouth [3]. Cohen et al reported that 82% of the mucoceles were found on the lower lip, 8% on the buccal mucosa, 3% on the retromolar area and 1% on the palate [4]. They represent the 17th most common lesion of oral cavity, with higher incidence of 2.5 lesions per 1000 individuals in America, 0.11% in Sweden and 0.08% in Brazil [5, 6]. Children and young adults are most commonly affected, although these lesions can occur at any age. Both sexes are equally affected.

Mucocele is mainly due to mechanical trauma, that results in the rupture of a salivary duct and resulted in mucous extravasation within the surrounding tissue and secondly, mucous accumulation due to obstruction or narrowing of salivary duct walls, causing ductal expansion [7]. Extravasation mucoceles are caused by leaking of fluid and are commonly found on the minor salivary glands. The majority of retention cysts develop in the ducts of major salivary glands. Bagan et al., proposed three evolutionary phases that extravasation mucoceles undergo [8]. In the first phase, diffuse spillage of mucous from the excretory duct into conjunctive tissues takes place, where some leucocytes and histiocytes are found. In the second phase, granulomas appear during the resorption phase due to histiocytes, macrophages and giant multinucleated cells associated with a foreign body reaction. In the last phase, connective cells form a pseudo capsule without epithelium around the mucosa [8].

Compared to extravasation type, retention type is less common in its occurrence, usually affects older people and is frequently seen on upper lip, hard palate, floor of mouth and maxillary sinus [9]. The ductal narrowing in mucous retention phenomena, can occur due to frequent mouth washing with hydrogen peroxide, deodorant mouthwashes, tartar-control toothpastes or anti-plaque solutions, which are possible causes of irritation [9].

In general, small and superficial mucoceles are self-limiting conditions, do not require separate treatment as they often heal after spontaneous rupture. Medications were often prescribed for pain control following rupture such as intralesional corticosteroid injections and gamma linolenic acid. There are also therapeutic procedures have been described such as surgical excision with scalpel, ablation with carbon dioxide (CO₂) and erbium-doped yttrium

aluminium garnet (Er: YAG) lasers, marsupialization, and cryosurgery [2]. Oral mucoceles can alternatively be treated by the technique of filling the interior of the lesion by dental alginate followed by enucleation and micro marsupialization [10].

This report presents a series of three cases of oral mucocele on lower lip which were treated by the technique of filling the interior of the lesion by alginate impression material followed by surgical excision or enucleation and the respective follow-up routine in the dental clinic.

Case series:

Cases of three males reported to the department of Oral and Maxillofacial Surgery with a chief complaint of asymptomatic lesions on lower lip (Figure 1). All three of them mentioned that they had habit of lip biting. There was no significant medical history. The swellings were rapidly growing in nature and are not associated any pain, but interference with speech was observed. Extraoral physical examination revealed no alteration. On clinical examination, a well-defined, raised, solitary, roughly oval in shape, bluish in colour, non-ulcerated lesion was noted. On palpation, the lesion was sessile painless, soft in consistency with tense mucosa extending on the labial mucosa from the depth of the labial sulcus in the same region measuring about 2-3 cm in all 3 cases. Based on history and all inspeitory findings, provisional diagnosis of mucocele was established.

Surgical Management:

After medical evaluation and obtaining informed consent, 2% lignocaine (local anaesthesia) with 1:80,000 dilution adrenaline (LIGNOX) infiltration was given around and at the base of the lesions. The mucocele was punctured using 25-gauge etchant needle, and the contents were aspirated (Figure 2). Syringe is then removed from the hub while maintaining the patency of needle tip at the aspiration point, a thin mix of chromatic alginate (ALGITEX) mixed with distilled water was loaded into a 5ml syringe and was injected into the lesions through the needle tip (Figure 3). The alginate was injected slowly till the lesion attained its original state and the needle was made safe. The injected alginate was then allowed to set into a hard ball within the mucosal lining (Figure 4). An elliptical incision was given around the periphery of the lesion and careful blunt dissection was carried out whilst preserving the cystic lining. The lesion was removed in toto while separating it from its minor salivary gland duct. Closure of the wound was done using 3-0 black silk suture (MERSILK) (Figure 5). Instructions were given to the patient that includes maintenance of the surgical site, oral hygiene and soft diet. 0.2% chlorhexidine solution 3 times per day for one week and the patient was advised not to bite his

lower lip to avoid recurrence of the lesion. Postoperative care recommendation and prescription of pain relievers were done and the patients returned to the dental clinic 7 days later for removal of sutures and clinical follow-up of the healing process (Figure 6). Also 6 months post-operative follow up was done in all the three cases with no evidence of recurrence.

Histopathological report confirmed the clinical diagnosis. The lumen contained inflammatory exudate and mucin, covered with stratified squamous epithelium. Dense infiltrate of inflammatory cells was seen (Figure 7).

DISCUSSION:

The incidence of mucocèles in general population varies between 0.4% to 0.8% with scant differences between males and females [5]. Among the histological variants of mucocèles, extravasation variant occurs in greater majority. In the clinical cases reported in our case series, the histopathological diagnosis confirmed a mucous extravasation phenomenon to the adjacent tissues. And also, in histopathological assessment, ductal epithelium was not evident, but a connective tissue infiltrated by mucous surrounded by chronic inflammatory cells covered by a para-keratinized stratified squamous epithelium. Moreover, all three cases presented with history of lip biting (suggestive of traumatic aetiology), soft in consistency on palpation and a clinically detected smooth surface.

OMs are believed to affect individuals of all ages, especially with higher incidence in second decade of life. Few authors reported that 65% of their patients with OMs were younger than 20 years of age [11-13]. In our case series, we observed one patient below 20 years of age while two were of 21 and 26 years. This is probably due to the asymptomatic nature of these lesions, that may delay the patients in seeking treatment. The colour of OMs ranged from deep blue to pink (normal colour of oral mucosa). The deep blue colour results from tissue cyanosis, vascular congestion associated with the stretching of overlying tissue and the translucency of the accumulated fluid beneath [14]. Such variations in colour depends on the size of the lesion, its proximity to the surface and the elasticity of the overlying tissue [7]. In our case series, OMs were presented as bluish in colour.

OMs rarely cause significant problems. Most commonly associated problems are discomfort, interference with speech, mastication, swallowing etc. Their severity varies based on the size and location of the lesion. In present case series, all three patients were presented with interference in their speech due to swelling on lip. Regarding site of occurrence, our case report also showed that the most common site of OM occurrence was the lower lip mucosa. In turn, it shows that lower lip is one of the oral sites most vulnerable to trauma, considering its dynamic movement during mastication and speech [15]. Moreover, the density of glandular areas was significantly greater in lower lip than the upper lip [16].

The primary objective in the treatment of mucocèle is the complete resection of the lesion in order to prevent its recurrence. Choi et al., studied the possible predictive variables that might affect the recurrence rate of OM [17]. They observed significant differences in recurrence rate according to location and age. OMs recurred with higher frequency on the ventral mucosa of the tongue (50%) than labial or buccal mucosa (8.8%). And, it is more frequent in younger patients below 30 years (16%) than in older patients (4.4%). Despite surgical removal of superficial mucocèles, the recurrence rate is higher i.e., approximately 50%. To avoid relapse, one has to ensure that both the affected and neighbouring glands are removed along with the pathological tissue [5]. Several techniques have been proposed for the treatment of mucocèle. The conventional method is the treatment by surgical excision. But with this method there are more chances for mucocèle to rupture, procedure is complicated and special care is required. Other technique is marsupialization, which had resulted in considerably high recurrence rates. Cryosurgery found to have satisfactory results with no recurrence, but has postoperative symptoms such as unpredictable degree of swelling, slight degree of necrosis, and sloughing [18].

As incomplete excision resulting in recurrence of lesion, it is of utmost importance to clearly demarcate the limit of the lesion. Another technique which is helpful to define the boundaries of lesion is the use of alginate impression material. In present case series, a thin mix of alginate impression material is injected into the lesion through a

ruptured wall and then careful blunt dissection was carried out whilst preserving the cystic lining. It is reported that there is possibility for foreign body reactions to occur due to residual alginate within the tissue and therefore this technique cannot be recommended in areas where extension into surrounding tissue planes is possible [19]. In present case series, there are no such complications occurred in patients and proved to be an effective, safe and economical way of treating OM. And, when performed correctly, this technique should prove to improve the surgical compliance thereby decreases the chance of recurrence of oral mucocèle [20].

CONCLUSION:

The key point in avoiding the recurrence of OM is to clearly define the margins of the lesion into adjacent submucosal tissues for better access of the lesion. The use of alginate impression material was found to be an effective, safe and economical way of treating OM, whilst ensuring its complete removal with minimal chances of recurrence.

FIGURES



Figure 1: Clinical presentation of mucocèle on lower lip

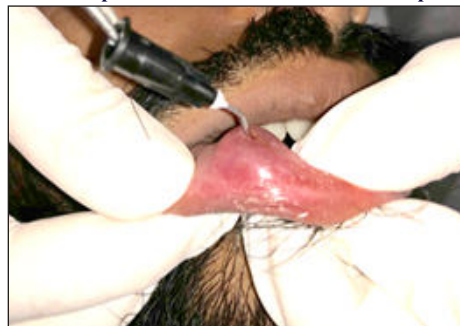


Figure 2: Puncturing the mucocèle, using a thick, Etchant-needle (Gauge-18mm)



Figure 3: Alginate injected through the punctured area, using a 5ml syringe.



Figure 4: Exposure of the set alginate mass



Figure 5: Sutures placed following removal of the lesion



Figure 6: Clinical examination of the healed lesion during follow-up

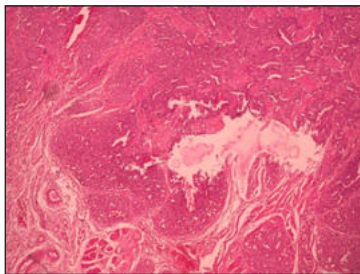


Figure 7: Histopathological picture

REFERENCES:

- Hayashida AM, Zerbinatti DC, Balducci I, Cabral LA, Almeida JD. Mucus extravasation and retention phenomena: a 24-year study. *BMC oral health*. 2010; 10:15.
- Valerio RA, de Queiroz AM, Romualdo PC, Brentegani LG, de Paula-Silva FW. Mucocele and fibroma: treatment and clinical features for differential diagnosis. *Brazilian dental journal*. 2013;24(5):537-41.
- Adachi P, Pires-Soubhia AM, Horikawa FK, Shinohara EH. Mucocele of the glands of Blandin-Nuhn. Clinical, pathological, and therapeutical aspects. *Oral Maxillofac Surg* 2011;15: 11-13.
- Ellis GL, Auclair PL, Gnepp DR. "Obstructive disorders". In: *Surgical pathology of the salivary glands*. Philadelphia (PA): W. B. Saunders Co; 1991:26-38.
- Navya LV, Sabari C, Seema G. Excision of Mucocele by Using Diode Laser: A Case Report. *Journal of Scientific Dentistry*. 2016;6(2):30-35.
- Rashid A, Anwar N, Azizah A, Narayan K. Cases of mucocele treated in the Dental Department of Penang Hospital. *Arch Orofac Sci*. 2008;3:7-10.
- Ata-Ali J, Carrillo C, Bonet C, Balaguer J, Peñarrocha M, Peñarrocha M. Oral mucocele: review of the literature. *J Clin Exp Dent*. 2010;2(1):18-21.
- Bagán Sebastián JV, Silvestre Donat FJ, Peñarrocha Diago M, Milián Masanet MA. Clinicopathological study of oral mucoceles. *Av Odontostomatol*. 1990; 6:389-91, 394-5.
- Re Cecconi D, Achilli A, Tarozzi M, Lodi G, Demarosi F, Sardella A, et al. Mucoceles of the oral cavity: a large case series (1994-2008) and a literature review. *Medicina oral, patologia oral y cirugía bucal*. 2010;15(4): e551-6.
- Sagari SK, Vamsi KC, Shah D, Singh V, Patil GB, Saawarn S. Micromarsupialization: a minimally invasive technique for mucocele in children and adolescents. *J Indian Soc Pedod Prev Dent* 2012; 30:188- 191.
- Marcello MM, Park JH, Lourenc SV. Mucocele in pediatric patients: Analysis of 36 children. *Pediatr Dermatol* 2008; 25:308-11.
- Yamasoba T, Tayama N, Syoji M, Fukuta M. Clinicostatistical study of lower lip mucoceles. *Head Neck* 1990; 12:316-20.
- Oliveira DT, Consolaro A, Freitas FJ. Histopathological spectrum of 112 cases of mucocele. *Braz Dent J* 1993; 4:29-36.
- More CB, Bhavsar K, Varma S, Tailor M. Oral mucocele: A clinical and histopathological study. *Journal of oral and maxillofacial pathology: JOMFP*. 2014;18(1):S72-7.
- Barlow SM, Rath EM. Maximum voluntary closing forces in the upper and lower lips of humans. *J Speech Hear Res*. 1985; 28:373-6.
- Sumi M, Yamada T, Takagi Y, Nakamura T. MR imaging of labial glands. *AJNR Am J Neuroradiol*. 2007; 28:1552-6.
- Choi YI, Byun JS, Choi JK, Jung JK. Identification of predictive variables for the recurrence of oral mucocele. *Medicina oral, patologia oral y cirugía bucal*. 2019;24(2): e231-e5.
- Moraes Pde C, Teixeira RG, Thomaz LA, Arsati F, Junqueira JL, Oliveira LB. Liquid nitrogen cryosurgery for treatment of mucoceles in children. *Pediatric dentistry*. 2012;34(2):159-61.
- Ellis E, 3rd, Scott R, Upton LG. An unusual complication after excision of a recurrent mucocele of the anterior lingual gland. *Oral surgery, oral medicine, and oral pathology*. 1983;56(5):467-71.
- Kumaresan R, Karthikeyan P, Mohammed F, Thapsum Fairozekhan A. A novel technique for the management of Blandin- Nuhn mucocele: a case report. *International journal of clinical pediatric dentistry*. 2013;6(3):2014.