

Case report on management of oral mucocele in pediatric patient using electrocautery

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Abstract

Background: Mucocele is defined as a mucus filling cavity that can appear in the oral cavity. Children are most commonly affected with a clinical history of painless swelling and often with a history of recurrence. Electrocautery was chosen as a treatment to minimize postoperative discomfort, provide better vision during procedure, and to minimize scarring. The purpose of this case report is to present the treatment of mucocele present on the lower lip in a Pediatric patient who was treated using electrocautery, the clinical outcomes, and also clinical advantages and disadvantages of electrocautery compared with various treatment options for the mucocele.

Case Report: A 15 years old female patient came to the Department of Pediatric Dentistry, Universitas Airlangga Dental Hospital, with the chief complaint of swelling present in the lower lip. Based on the history and clinical features a provisional diagnosis of mucocele due to retained #83 was given.

Case Management: The management of mucocele was by using electrocautery. The patient was recalled after 1 week with no post-operative discomfort reported and minimal scarring shown.

Discussion: Electrocautery is well received by patients, with a relative lack of discomfort, no bleeding, and minimal to no scarring after healing.

Conclusion: There are various treatment options available for treating mucocele, but electrocautery is a valuable treatment of choice pertaining to reduced pain and minimal scarring.

Keywords: Mucocele; Minor Salivary Gland; Electrocautery; Medicine

1. Introduction

Mucocele is defined as a mucus filling cavity that can appear in the oral cavity, appendix, gallbladder, paranasal sinuses, and lacrimal sac [1]. Oral mucoceles represent an estimated 2% to 8% of all mucoceles [2]. The term mucocele is derived from the Latin word Mouco: meaning mucus and Coele: meaning cavity [3]. The incidence is high, mucoceles are the most common minor salivary gland disorder in the oral cavity, with a prevalence of 2.5 lesions per 1000 individuals [4]. Children are most commonly affected with equal gender predilection and with a clinical history of painless swelling and often with a history of recurrence [5]. The clinical finding is usually characterized by a rounded, well-circumscribed, transparent, and bluish-colored lesion of variable size [6] which are soft in consistency and fluctuate while on palpation [1].

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1.1. Types

Based on the histologic features of the cyst wall, there are two types of mucoceles, extravasation and retention type. Extravasation mucocele does not have an epithelial lining and is surrounded by compressed connective tissue cells, in some cases only granulation tissue is present surrounding the pooled mucous. The true retention mucocele is lined with epithelium [7]. Extravasation mucocele results from a broken salivary glands duct usually by traumatic injuries and the consequent spillage of mucous into the soft tissues around this gland. Retention mucocele appears due to a decrease or absence of glandular secretion produced by obstruction of the salivary gland ducts [8]. The etiology of extravasation mucoceles is mainly physical trauma, habit of lip biting and tongue thrusting are also one of the aggravating factors [4]. The extravasation type will undergo three evolutionary phases. In the first phase, there will be spillage of mucous from the salivary duct into the surrounding tissue in which some leucocytes and histiocytes are seen. In the second phase called the resorption phase, granulomas will appear due to the presence of histiocytes, macrophages, and giant multinucleated cells associated with a foreign body reaction. Later in the third phase, there will be a formation of pseudocapsule without epithelium around the mucosa due to connective cells [8]. The retention mucocele is commonly seen in major salivary glands due to the dilation of the duct caused by a sialolith or dense mucosa [4]. Extravasation mucoceles are common in children and retention mucoceles are very rarely found [9]. The most common site of occurrence of mucocele is the lower lip as it is the most probable site of trauma. A study of 312 patients showed 230 lesions on the lower lip (73.7%) with the tongue as the second most common site (15.4%) [10]. Mucocele can also occur on the cheek, retromolar fossa, floor of the mouth, palate, and the dorsal surface of the tongue. Mucoceles can also be found on the anterior lingual salivary glands, and the glands of Blandin and Nuhn but in relatively uncommon cases [2].

1.2. Treatment

Usually small and superficial mucoceles do not require treatment because they often heal after spontaneous rupture [11]. Treatment options for mucoceles include marsupialization, surgical excision, dissection, laser ablation, cryosurgery, electrocautery, intralesional steroid injections, and irradiation [12] Conventional treatment is commonly surgical extirpation of the surrounding mucosa and glandular tissue down to the muscle layer, but inadequate excision can lead to recurrence [2]. Surgical excision 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. The disadvantages of this technique are delayed postoperative healing, greater bleeding and postoperative discomfort especially when treating young children [9]. On the other hand, the advantages of electrocautery are the absence of postoperative discomfort, bloodless surgical site, and minimal scarring.

The purpose of this case report is to present the treatment of mucocele present on the lower lip in a Pediatric patient who was treated using electrocautery, the clinical outcomes, and also clinical advantages and disadvantages of electrocautery compared with various treatment options for the mucocele.

2. Case Report

2.1. Clinical Examination



Figure 1 Mucocele on the right side of the lower lip

A 15 years old female patient came to the Department of Pediatric Dentistry, Universitas Airlangga Dental Hospital, Surabaya, with the chief complaint of swelling present in the lower lip for the last 4 weeks. The swelling was small initially but then its size increased gradually. Sometimes the swelling can cause discomfort by interfering with speech or chewing. There was no history of lip-biting habits. Her past medical, dental, and drug history were not significant. There was no contributory family history.

On extraoral examination, the face appeared bilaterally symmetrical, with competent lips and the lymph nodes were not palpable. On oral examination, a solitary round sessile palpable fluctuant non-tender swelling around 1 cm with no increase in temperature was present on the right lower labial mucosa in the #43,44 region (Figure 1). The swelling had a reddish-blue hue compared to the adjacent mucosa. There was a retained and sharpened #83 that was found. No other oral anomalies were detected. Based on the history and clinical features a provisional diagnosis of mucocele due to retained #83 was given.

2.1.1. Treatment

The patient was, thus, advised to excisional biopsy of the lesion along with the removal of the affected adjacent minor salivary gland tissue. A written, informed consent was obtained from the patient's parents. Removal of the lesion was performed under local anesthesia by using electrocautery. Local anesthesia was administered around the lesion. In this case, local anesthesia of 1.8 ml Lidocaine with 1:100,000 epinephrine, was administered through the local infiltration on the lower lip. Before infiltration, a topical anesthetic gel for 2 minutes was applied. The electrocautery that was used in this case was Bonart ART-E1 Electrosurgery Unit, with a Coagulant setting and with tip no T7. The lip was then everted with digital pressure to increase the lesion's prominence. A thick silk thread was placed surrounding the lesion and a surgical knot was made followed by excisional biopsy using electrocautery, hence minimizing the chances of pain and postoperative bleeding (Figure 2). The perfect way to oblige the lesion for minimally invasive treatment was by circular motion surrounding the lesion. Minor salivary glands around the lesion were also excised to prevent a recurrence (Figure 3). The tissues were then sutured using 4-0 silk sutures (Figure 4). An analgesic was prescribed and post-operative instruction was given. The excised tissue was submitted to the pathological investigations which confirmed the diagnosis and ruled out the minor salivary gland tumors. The specimen was sent for histopathologic analysis which identified glandular like formation surrounded by granulation tissue. Granulation tissue fragments contain epithelioid foamy histiocytes (muciphages) and neutrophil cells. Inflammatory cells of lymphocytes and some macrophages were found around the acini of the salivary glands and dilated duct. A ruptured squamous epithelium was also found and confirmed the diagnosis as extravasation mucocele (Figure 5). The patient was recalled after 1 week for suture removal (Figure 6).

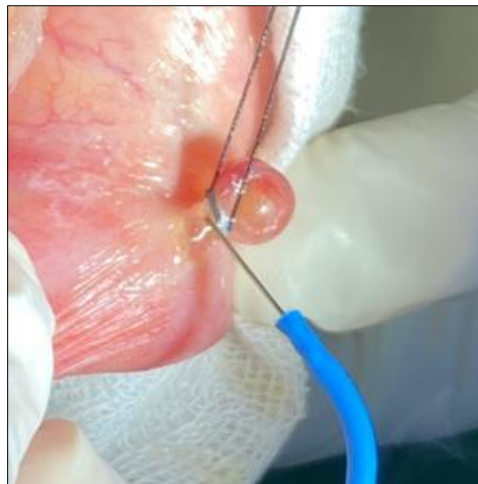


Figure 2 Excision of the lesion using electrocautery



Figure 3 Immediate postoperative view



Figure 4 Sutures were placed after excision

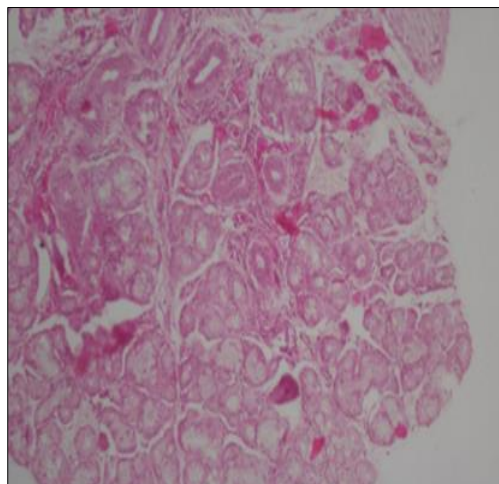


Figure 5 Histopathological examination with H & E stained section revealing lesional tissue to be composed of minor salivary gland tissue with pooled mucinous areas and chronic inflammatory cell infiltration



Figure 6 1-week post-operative follow-up

3. Discussion

Mucoceles are the most common minor salivary gland disorder in the oral cavity, with a prevalence of 2.5 lesions per 1000 individuals [4]. Children are most commonly affected with equal gender predilection and with a clinical history of painless swelling and often with a history of recurrence. [5]. The lower lip is considered to be the most frequently affected location (40% to 80% of all cases), followed by the cheek mucosa and floor of the mouth [13].

Diagnosis is principally clinical, the appearance of mucoceles is pathognomonic and the following data are crucial: lesion location, history of trauma, rapid appearance, variations in size, bluish color, and the consistency [8]. Most of the mucocele usually appears as solitary fluctuant non-tender swelling in the canine-bicuspid area with a normal pink or bluish color [4]. In this case, mucocele appears on the lower lip as a solitary round sessile palpable fluctuant non-tender swelling around 1 cm with the etiology of chronic irritation in the labial mucosae caused by sharpened and retained #83.

A histopathologic study is also crucial to confirm the diagnosis and to ensure that glandular tissue is completely removed [8]. Histopathologic examination of extravasation mucocele do not have an epithelial lining and are often seen as poorly defined mucinous pools containing eosinophilic mucinous material and vacuolated macrophages, granulation tissue, and condensed fibrous tissue. The adjacent salivary gland tissue should also be present because mucocele should always be removed along with feeder glands/ducts which minimize recurrence of the lesion [13]. The present case was diagnosed as a mucus extravasation cyst histopathologically.

Due to the absence of a well-defined, epithelial lining, a simple, stab incision of the mucocele, would only drain out the content of the lesion but with high chances of recurrence. The primary objective in the treatment of mucocele is to make sure that both the affected and neighboring glands are removed along with the pathological tissue to avoid relapse [7]. Treatment options for mucoceles include marsupialization, surgical excision, dissection, laser ablation, cryosurgery, electrocautery, intralesional steroid injections, and irradiation [12].

With the advances in pediatric dentistry, it is important to wisely plan the treatment of mucocele. Surgical excision of the mucocele is associated with extensive bleeding during the procedure and postoperative discomfort. In treating young children, it's necessary to come out with a treatment plan with minimum discomfort. In our case report, we excised the lesion using electrocautery.

Advantages of electrocautery observed in these cases are the absence of postoperative discomfort, bloodless surgical site, and minimal scarring. The other benefits of electrocautery include cuts on its side as well as on its tip, cuts are made with ease when the device is set correctly, hemostasis is immediate and consistent, the wound is nearly painless and the tip is self-disinfecting [9]. On the other hand, electrocautery has certain disadvantages such as the need for an anesthetic agent for cutting, and an unavoidable burning flesh odor.

Treatment of mucocele especially in children should be carefully planned based on the age of the patient, level of cooperation, and size of the lesion with knowledge of recurrence rates with each treatment option.

4. Conclusion

Mucocele is the most common minor salivary gland disorder in the oral cavity, primarily diagnosed based on clinical findings followed by a definitive diagnosis based on the histopathological investigation. Management of mucocele becomes challenging because of the high possibility of recurrence. However, complete resection of the lesion with dissection of surrounding and contributing minor salivary glands often leads to clinical success without recurrence and a better prognosis. There are various treatment options available, but electrocautery is a valuable treatment of choice pertaining to reduced pain and minimal scarring.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding the publications of this document.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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