

## MANAGEMENT OF MUCOCELE WITH SURGICAL EXCISION: A CASE REPORT

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### ABSTRACT

**Introduction:** A mucocele is a subepithelial accumulation of mucus originating from salivary glands or their ducts within the oral cavity. It is classified into two primary types: mucus retention and mucus extravasation cysts. Clinically, mucoceles typically present as smooth, asymptomatic swellings with a color spectrum from blue to pink. The extravasation type is the most prevalent among pediatric patients. Surgical excision remains a standard treatment for oral mucoceles.

**Aim:** This case report provides an overview of the diagnostic process, clinical presentation, and straightforward surgical management of a mucocele, with the objective of reinforcing general dental practitioners' knowledge of this common lesion.

**Case and Management:** A 16-year-old female patient presented with a six-month history of a swelling on the lower lip. The lesion was associated with discomfort during mastication and toothbrushing. The patient reported that the swelling had previously decreased in size following the discharge of a clear fluid, only to enlarge again. Intraoral examination revealed a sessile, well-demarcated swelling approximately 3 mm in diameter on the left labial mucosa. The lesion was consistent in color with the surrounding tissue and exhibited translucent borders. The mucocele was excised surgically. Post-operative oral hygiene instructions were provided to address potential causative factors and minimize risk of recurrence.

**Conclusion:** In this case, surgical excision of the mucocele, supported by appropriate behavioral management techniques, was performed successfully. The procedure yielded a favorable outcome and was well-tolerated by the patient without undue apprehension.

**Keywords:** benign lesion, excision, mucocele

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### INTRODUCTION

Oral cavity lesions are a pathological condition affecting the oral mucosa. The forms of oral cavity lesions vary, including ulceration, neoplasms, bullae, and edema.<sup>1</sup> Mucocele ranks

16th among the most common salivary gland lesions, occurring at a rate of 2.5 lesions per 1,000 people.<sup>2</sup> Mucocele is one of the pathological conditions that can affect the oral mucosa. Mucocele is an accumulation of mucus secretions in the sub-epithelial layer originating from the salivary glands and salivary ducts in the oral cavity.<sup>3</sup> Mucocele has two types, namely the retention type and the extravasation type.

Retention-type mucoceles appear as swelling due to local trauma obstructing the minor salivary ducts, while extravasation-type mucoceles occur due to rupture of the minor salivary glands, causing retention of mucin in the surrounding soft tissue.<sup>4</sup> Mucocele is a benign soft tissue tumor that is the most common tumor occurring in the oral cavity, after fibroma.<sup>3</sup>

The clinical form of mucocele is not influenced by its location, appearing as a smooth and asymptomatic swelling in color from blue to pink. This blue color comes from the condition of tissue cyanosis and vascular congestion due to the tissue stretching and filling with fluid. This color variation depends on the size of the lesion, its proximity to the surface, and the elasticity of the tissue in the area.<sup>5</sup> The size of the mucocele lesion can vary and occur unilaterally or bilaterally. Sometimes it appears as single or multiple lesions in the soft palate, posterior buccal mucosa, or lower labial mucosa. The most common type of mucocele is the extravasation type, which can occur due to bad habits such as biting the lower lip, leading to the rupture of minor salivary ducts in that area.<sup>4</sup>

The main principle of mucocele treatment is to eliminate the etiology and remove the lesion. There are 2 methods for managing mucocele lesions, namely surgical and non-surgical.<sup>6</sup> Surgical management is performed through excision, electrosurgery, and cryosurgery. Non-surgical management is performed with laser ablation, intralesional steroid injection, sclerotherapy, micro-marsupialization, or observation if the lesion is small.<sup>7</sup> The prognosis of a mucocele case was good if accompanied by the elimination of bad habits as the main

causative factor. This case report describes the management of a mucocele lesion on the left lower lip mucosa using a surgical method of excision with infiltrative anesthesia.

## **CASE AND MANAGEMENT**

A 16-year-old female patient came to the dental hospital (RSGM) Soelastru UMS Surakarta with complaints of a swelling on her lower lip that felt uncomfortable. The patient explained that the lump had been felt for 6 months, causing pain while eating and rubbing against her teeth when speaking.<sup>8</sup> The lump once shrank and discharged clear fluid, then the lump grew back. The patient had previously checked this condition at the public health center and was given analgesic medication. The patient has never been hospitalized before, has no history of systemic diseases or allergies, and is not currently undergoing treatment for any illness. The family medical history shows no history of systemic diseases, drug and food allergies, or dental and oral diseases from either the father or mother of the patient. The patient has no bad habits such as smoking or alcohol consumption, but has a habit of biting their lips and cheeks while playing on their phone.

The patient's general condition during this first visit is good, with a conscious state, physically healthy, and communicative. The results of the vital signs examination are as follows: blood pressure 113/77 mmHg, pulse 80 x/minute, respiration 16x/minute, temperature 36.5°C, and weight 42 kg with a height of 159 cm. Extraoral clinical examination shows the patient's face is symmetrical, with no swelling or lesions. Intraoral clinical examination shows a bluish

nodular lesion, round with a diameter of 0.5 cm on the left lower lip mucosa, well-defined, fluctuating, unilocular, unilateral, and symptomatic. From the examination above, the clinical diagnosis of the lesion is mucocele. After the patient was informed of the condition, the patient signed the informed consent.



**Figure 1.** Mucocele on the patient's lower lip mucosa

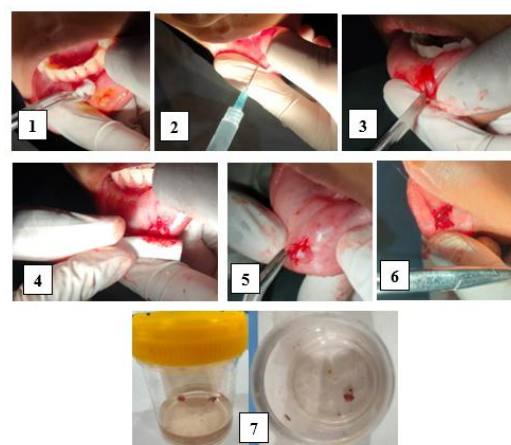
The management of mucocele lesions is performed through surgical excision. The tools and materials needed include a diagnostic set, injection syringe, irrigation syringe, scalpel, blade no. 15, tissue scissors, needle holder, suturing set, cotton set, tampon, povidone iodine, benzocaine, 2% pehacaine, saline solution, sterile tube, and 10% formaldehyde solution.



**Figure 2.** Tools and materials for the excision of a mucocele lesion

The first step for the management is preparing the tools and materials to be used and sterilizing the work area. Sterilization of the lesion area is performed by applying povidone

iodine, followed by the application of the topical anesthetic benzocaine. Anesthesia is performed with the infiltration technique in the lesion area with 0.5-1 cc of 2% pehacaine. After ensuring the anesthesia has taken effect, a partial thickness incision of approximately 1 cm is made on the surface of the lesion in a posteroanterior direction using a scalpel. Control bleeding by applying pressure to the surgical area using a sterile tampon or cotton roll. The dissection of the granulation tissue is followed by the removal of visible granulation tissue by separating the granulation tissue from the mucosal tissue using tissue scissors and blade No. 15 until the entire lesion is completely excised. Next, debride the surgical area and perform suturing using the simple interrupted suture technique. The specimen from the incision is placed in a 10% formaldehyde solution for anatomical pathology examination. After the lesion removal, the patient was given instructions, including not consuming hot food and drinks after the procedure, maintaining oral hygiene, and returning for a follow-up to evaluate the healing results of the surgery.<sup>9</sup>



**Figure 3.** Procedure: excision of mucocele

The result of anatomical pathology examination from the lesion is a mucocele, which shows hyperplasia of the salivary gland without any sign of neoplasia. After 7 and 14 days, the patient came to the dental hospital for follow-up. During the intraoral clinical examination, the mucocele lesion bump was observed to have disappeared, the condition of the sutured area showed signs of healing, and there were no signs of inflammation or other pathological conditions. The patient was reminded to always maintain oral hygiene, stop the habit of biting their lips and sucking their cheeks, manage their psychological emotions, and continue regular check-ups for monitoring and healing of the lesion.



**Figure 4.** Post Operation (Left); Follow up visit after 14 days (Right)

## DISCUSSION

In this case report, a 16-year-old female patient presents with a chief complaint of a swelling on the left side of the lower lip that is not painful. The swelling is felt to be uncomfortable because it interferes with speaking, as it rubs against the teeth. There is a history of swelling and the release of a clear fluid, then another lump appears. The patient admits to having a habit of biting their lip. The information obtained from this subjective examination serves as an initial suspicion pointing towards a mucocele lesion. It is explained that a mucocele

appears as a lump that generally occurs on the lower lip and is often caused by the habit of biting the lower lip while chewing.<sup>10</sup> This habit can lead to damage to the minor salivary glands, causing saliva to spread into the oral cavity. Other causes of mucocele include irritation/inflammation, such as smoking, trauma due to intubation, sialolithiasis, or excretory duct fibrosis.<sup>11</sup> Mucocele is asymptomatic because it does not cause pain, but it can cause discomfort when speaking, chewing, or swallowing.<sup>4</sup>

Upon clinical examination, a non-pedunculated mass was observed, with the same color as the surrounding mucosa, asymptomatic, fluctuating, with clear and translucent borders measuring approximately  $\pm 3$  mm on the left lower lip of the patient. This clinical condition shows signs of a mucocele that is primarily diagnosed based on history and clinical examination.<sup>12</sup>

It includes a specific location, trauma history, bluish color, smooth consistency, and fluctuation. Other sources also confirm the clinical signs of mucocele. Accurate assessment and anamnesis of mucocele histopathological examination are required to obtain the final diagnosis.<sup>12</sup> Therefore, to establish the final diagnosis, a lesion specimen examination is conducted in the anatomical pathology laboratory.

Microscopic examination of anatomical pathology shows a microscopic picture consisting of connective tissue, skeletal muscle tissue with seromucinous glands undergoing hyperplasia, tubular in shape, and lined with still monomorphic cells. The stromal part is infiltrated by lymphocytes and neutrophils in normal

amounts, and there are no signs of malignancy. From the results of this examination, the laboratory concluded the lesion as salivary gland hyperplasia in the left lower lip, or what is called a mucocele lesion. Extravasation-type mucocele appears as mucus accumulated in the connective tissue due to the rupture of minor salivary ducts. This type of mucocele is not lined by epithelial cells. Unlike retention-type mucocele, which appears as accumulated mucus lined with epithelial cells due to obstruction or narrowing of the salivary duct.<sup>13</sup>

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| <b>No. Med. Rec.</b><br><b>Nama Pasien</b><br><b>Tgl. Lahir</b><br><b>Jenis Kelamin</b><br><b>Alamat</b><br><b>Ruang</b><br><b>Dokter Pengirim</b><br><b>Diagnosis Klinis</b><br><b>Jenis Pemeriksaan</b>                                     | <b>Konsultasi Patologi Anatomi</b><br><b>Prof. DR. dr. Ambar Modigdo, SpPA(K)</b><br><b>No. Sampel : 1.34-1928</b><br><b>No. Transaksi : 202408221341213464JHISM</b><br><b>Tanggal : 22 Agustus 2024</b><br><b>Pemeriksaan</b><br><b>Tanggal Cetak : 24 Agustus 2024</b><br><b>Hasil</b> |                                                                                   |
| : Tissue block identifier [Identifier] in Specimen (standart) FT Out Patient/Class 1/2/3/Intensive Care/Isolation ward Out Patient/Class 1/2/3/Intensive Care/Isolation ward                                                                  |                                                                                                                                                                                                                                                                                          |                                                                                   |
| <b>HASIL PEMERIKSAAN PATOLOGI ANATOMI</b>                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                          |                                                                                   |
| <b>Asal Jaringan</b>                                                                                                                                                                                                                          | : Mukosa labial inferior sinistra                                                                                                                                                                                                                                                        |                                                                                   |
| <b>Makroskopis</b>                                                                                                                                                                                                                            | : Diterima jaringan dalam pot identitas sesuai.<br>Jaringan compang-camping sebanyak 0,2 cc, putih, kenyal, semua cetak.                                                                                                                                                                 |                                                                                   |
| <b>Mikroskopis</b>                                                                                                                                                                                                                            | : Jaringan ikat, jaringan otot skelet, dengan kelenjar seromusinosus yang mengalami hiperplasia, berbentuk tubular, dilapisi sel-sel yang masih monomorf. Stroma disebok cukup limfosit dan neutrofil.<br>Tidak didapatkan tanda ganas                                                   |                                                                                   |
| <b>Kesimpulan</b>                                                                                                                                                                                                                             | : Labium oris inferior sinistra: Salivary gland hyperplasia                                                                                                                                                                                                                              |                                                                                   |

**Figure 5.** Results of anatomical pathology examination

The mucocele in this case report was experienced by a 16-year-old female patient, who is considered a child. Mucocele lesions can occur in both males and females, and at various ages. But the highest incidence of mucocele occurs in the second decade of life, with children being the age group most frequently affected by mucocele.<sup>13</sup> Scribante et al. (2023) in their study also state that mucocele lesions can occur in various age groups, including neonates, infants, and adults.<sup>14</sup>

Mucocele treatment can be classified into surgical and non-surgical procedures. Scribante et al. (2023) state that there are many approaches to addressing mucocele lesions, including surgical excision using a scalpel, laser excision, carbon dioxide ablation, marsupialization, and cryosurgery. For now, surgical removal of the lesion has become the most commonly used technique.<sup>14</sup> In this case report, the dentist performed a surgical excision of the mucocele lesion using local anesthesia. After the lesion was completely removed, the wound was sutured using the simple-interrupted suture technique. This surgical excision treatment has become one of the best options for mucocele cases, as the mucocele surgical excision technique has advantages, including requiring simple, affordable equipment, and can be performed by most dentists.<sup>2</sup> However, its management requires an understanding of mucocele and the anatomical structures. The recurrence of mucocele becomes a challenge that must be prevented by dentists. To prevent recurrence, the dentist ensures that the entire lesion has been removed and the patient is instructed to have follow-up appointments every week while continuous observation is conducted.<sup>15</sup> The recurrence of mucocele can be prevented by removing the entire lesion along with the existing salivary gland.<sup>14</sup>

## CONCLUSION

Mucocele is a common oral mucosal lesion resulting from the accumulation of mucus in the subepithelial tissue following salivary duct disruption. Clinically presenting as a smooth, asymptomatic swelling ranging in color from

pink to blue, the most frequent etiology is local trauma, such as lip biting, leading to the extravasation type. Management strategies encompass both surgical and non-surgical approaches. This case report successfully demonstrated the complete resolution of a mucocele via surgical excision under local infiltrative anesthesia. Histopathological examination of the excised specimen confirmed the diagnosis, and postoperative follow-up assessments indicated uneventful healing with no signs of inflammation or recurrence. This underscores the efficacy of surgical excision as a definitive treatment when combined with appropriate diagnostic confirmation and postoperative care.

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