

# Excision of oral mucocèles using a chalazion clamp: a case series

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## Abstract:

Mucocele is the most common minor salivary gland benign disorder in the oral cavity. Different techniques to treat mucoceles have been presented and the conventional surgical approaches, such as excision and marsupialization, may present challenges related to bleeding and surgery duration. This paper reports highlighting its advantages in soft tissue stabilization and hemostasis. Three patients with oral mucoceles in the lower lip underwent excision using the chalazion clamp. This tool facilitated the tissue stabilization, effective hemostasis and reduced the surgical time. None of the patients reported postoperative paresthesia, and no lesion recurrences were observed during the follow-up periods, which ranged from one to five years. The chalazion clamp, commonly used in ophthalmology, provides compression and stabilization, minimizing intraoperative bleeding and improving the surgical precision because it clearly defines the area of the surgery. Its use in mucocele excision allowed selective removal of the minor salivary glands while eliminating the need for an additional assistant. The clamp also enhanced surgical visibility and control, leading to improved outcomes. The application of clamp in mucocele surgery presents a promising, cost-effective alternative which enhances procedural efficiency and patient safety.

**Keywords:** Mucocele, Minor salivary glands, Surgical excision, Surgical hemostasis.

## INTRODUCTION

Mucocele is a lesion of the minor salivary glands most commonly found on the lower lip. However, it can also occur in other locations, such as the lacrimal sac and paranasal sinuses<sup>1</sup>. This lesion typically develops as a result of trauma that causes obstruction of the ducts of the minor salivary glands, leading to the accumulation of mucin beneath the oral epithelium<sup>2</sup>.

Clinically, oral mucoceles are characterized by a rapid onset following trauma and present as rounded, well-circumscribed, translucent, bluish lesions of variable size. They usually have a soft and fluctuant consistency, most commonly on the lower lip, and patients often report spontaneous filling and emptying of the lesion<sup>3</sup>.

Oral mucoceles are classified into two types: extravasation and retention. The retention type results from the accumulation of mucus within an epithelial-lined cavity, usually a dilated duct of a minor salivary gland. This type is more commonly found on the lower lip<sup>4</sup>.

In contrast, the extravasation mucocele is a pseudocyst without epithelial lining. It is surrounded by

### Statement of Clinical Significance

This case series demonstrates that the utilization of chalazion clamp for the excision of oral mucoceles confers significant clinical advantages, including enhanced hemostatic control, reduction in operative time, and absence of lesion recurrence in the treated patients. This innovative technique has the potential to optimize the surgical management of salivary gland lesions, thereby increasing procedural efficiency, safety, and accessibility within dental practice when compared to conventional methods.

a layer of inflammatory cells and reactive granulation tissue composed of fibroblasts, reflecting an immune response. This type may occur in various locations throughout the oral cavity<sup>4,5</sup>. Mucocele is the most common disorder of the minor salivary glands and, although often asymptomatic, treatment is generally indicated due to the potential size the lesion may reach<sup>6</sup>.

Several treatment approaches have been described for this condition, with surgical excision and marsupialization being the most frequently used<sup>4,6</sup>. However, the surgical approach can involve significant intraoperative bleeding, which may prolong the procedure. Thus, a

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reliable method of hemostasis is essential to reduce surgical time and improve procedural control<sup>7</sup>.

The chalazion clamp may serve as a useful tool in Dentistry for managing these lesions, as well as for performing biopsies of minor salivary glands in patients with Sicca syndrome, providing both effective hemostasis and reduced operative time<sup>8-11</sup>.

This article reports a series of three cases of oral mucocèles treated with the aid of the chalazion clamp, a tool that demonstrated favorable intraoperative and postoperative results

## CASE REPORT

Three patients with mucocèles of the lower lip underwent surgical excision using a chalazion clamp. This instrument was employed to evaluate its clinical effectiveness in stabilizing the surgical field, controlling bleeding, minimizing injury to labial nerves, and reducing overall procedure time.

### Case 1

A 12-year-old female patient was referred by the pediatric dentistry department for evaluation of a blister-like lesion on the left labial mucosa, clinically consistent with an oral mucocèle (Figures 1A and 1B). According to her mother, the lesion exhibited a recurrent pattern of swelling and deflation. The patient had no systemic comorbidities. Surgical excision was performed with the assistance

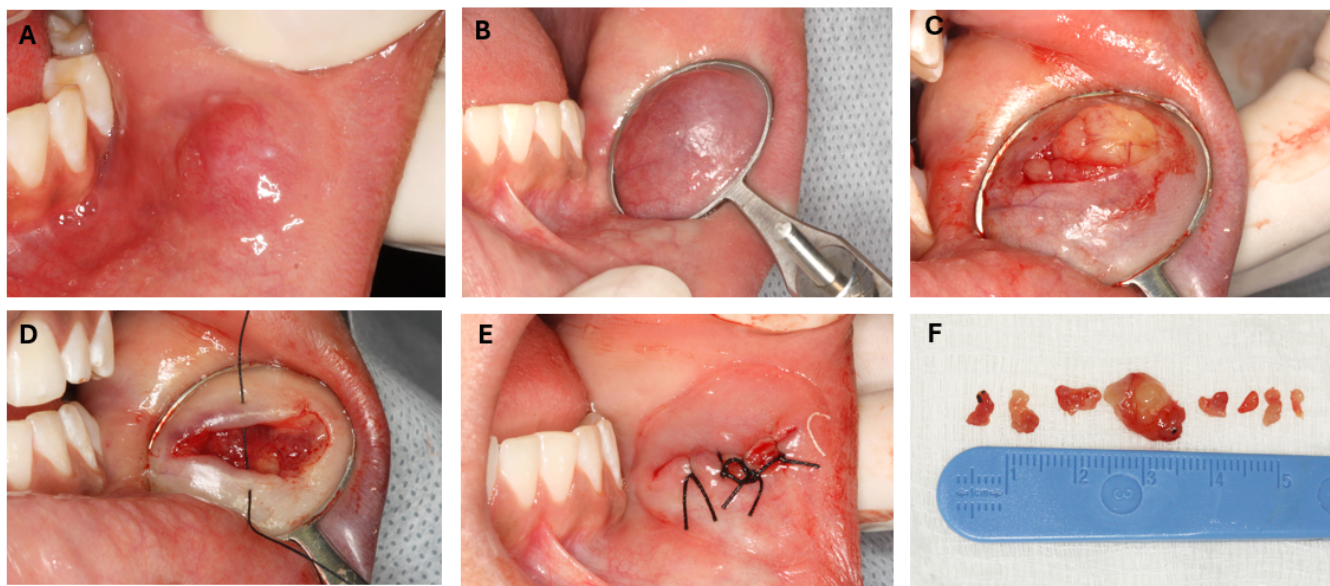
of a chalazion clamp, which provided effective hemostasis and delineation of the surgical field (Figures 1C and 1D). Figure 1E shows the excised specimen. The procedure was uneventful, and the patient has remained under follow-up for two years without signs of recurrence.

### Case 2

A 39-year-old male patient with a history of dentoalveolar trauma several years prior presented with swelling in the lower lip region (Figures 2A and 2B). He reported repeated self-treatment attempts by puncturing the lesion with a needle, although it continued to recur. An excisional biopsy was performed without complications. Figures 2C and 2D illustrate the hemostasis achieved using the clamp and the immediate postoperative appearance, respectively.

### Case 3

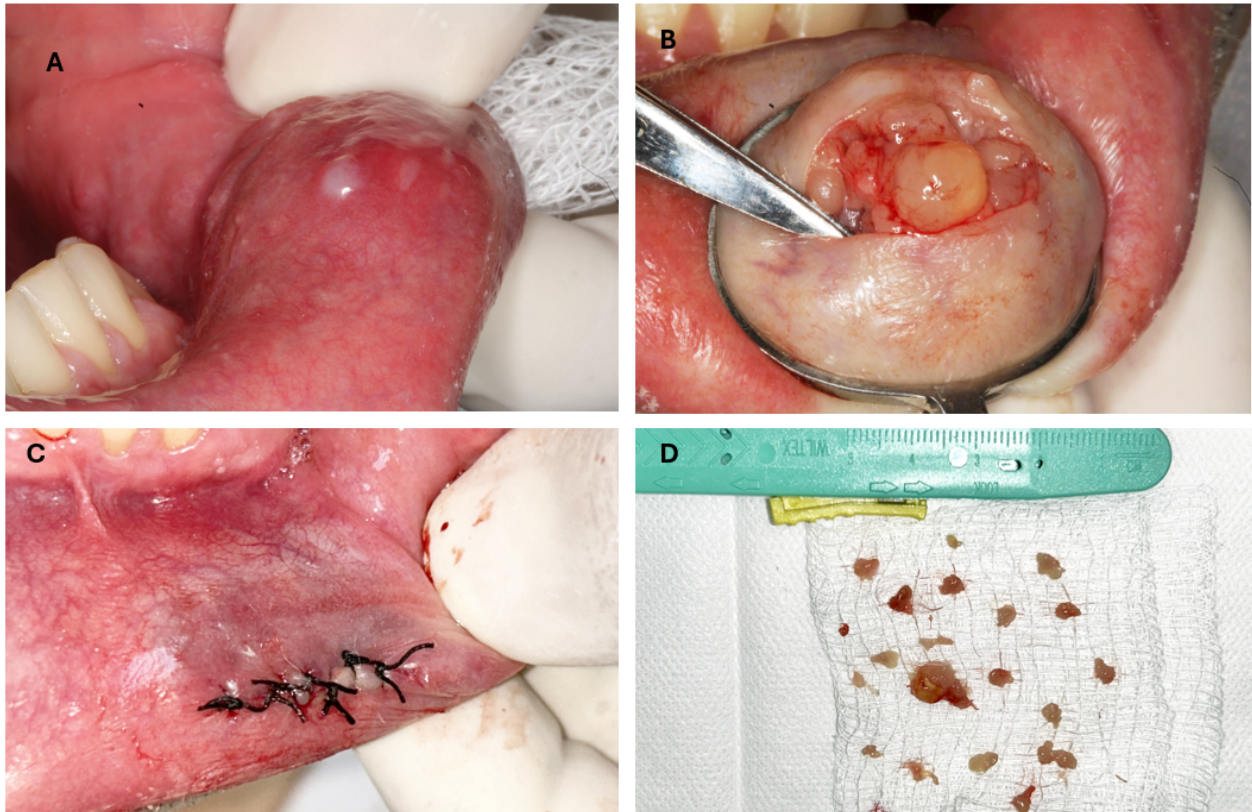
A 47-year-old male patient with well-controlled hypertension presented with a two-month history of swelling on the lower lip (Figure 3A). The patient sought spontaneous care at our service, where an excisional biopsy of the mucocèle was performed under local anesthesia with the aid of a chalazion clamp. Figure 3B depicts the procedure in progress, while Figures 3C and 3D demonstrate the effective hemostasis achieved during surgery. The procedure proceeded without complications, and the patient has been followed for one year with no evidence of recurrence.



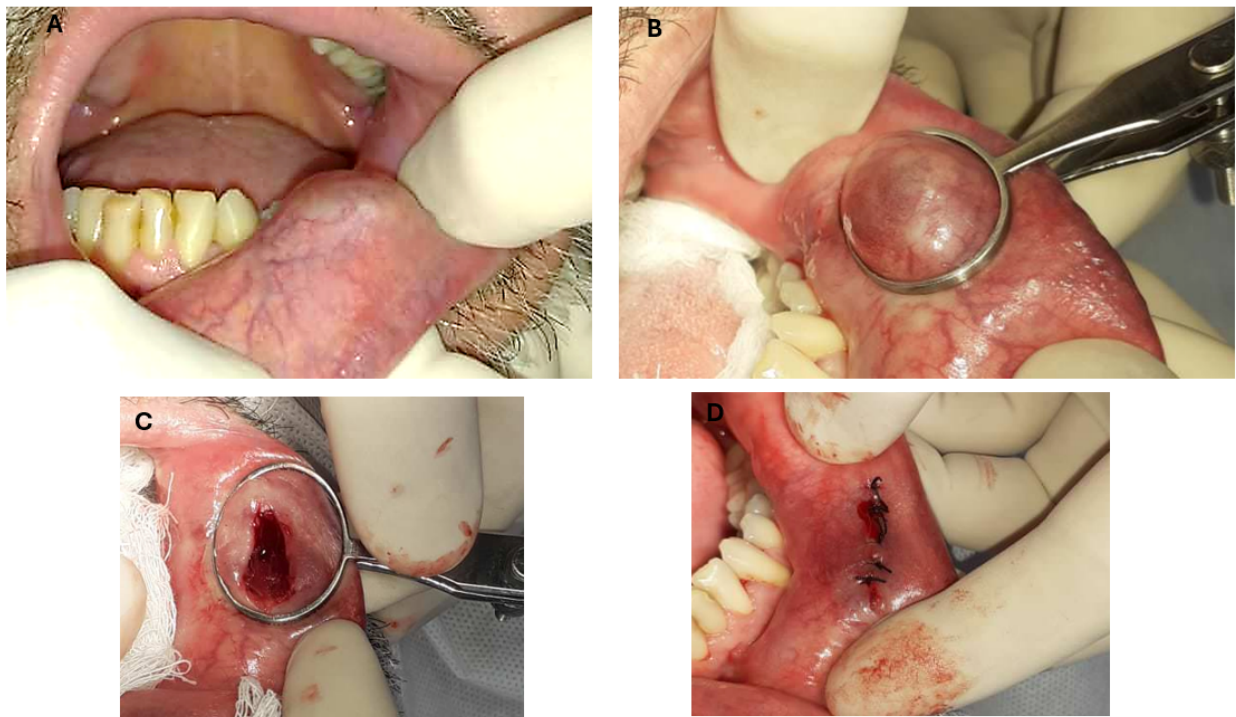
**Figure 1.** Demarcation of the surgical area using the chalazion clamp, immediate trans- and postoperative aspect, and excised specimens (Case 1).

Source: The authors.





**Figure 2.** Surgical site demarcation with the chalazion clamp, immediate trans- and postoperative view, and collected specimens (Case 2).  
Source: The authors.



**Figure 3.** Demarcation of the surgical site using the chalazion clamp and immediate trans- and postoperative view (Case 3).  
Source: The authors.

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## DISCUSSION

The chalazion clamp is an ophthalmic surgical instrument commonly employed in the excision of chalazia, a chronic granulomatous inflammation affecting the eyelids. Its primary role in ophthalmic procedures is to provide hemostasis and stabilize the eyelid tissue during surgery, thereby enabling greater control and precision in lesion removal<sup>10</sup>.

Structurally, the chalazion clamp consists of two rods with ring-shaped ends that facilitate secure and controlled fixation of soft tissues. This design effectively minimizes bleeding and enhances visibility within the surgical field. Consequently, these features render the instrument valuable not only for the treatment of chalazia but also for the excision of other soft tissue lesions, such as oral mucocoeles, although its use in this context remains underreported in the literature<sup>11</sup>.

Moreover, several other techniques are frequently utilized in the treatment of oral mucocoeles. These include cryosurgery<sup>12,13</sup>, cryotherapy<sup>14</sup>, diode laser application<sup>15,16</sup>, conventional scalpel excision<sup>17,18</sup>, micromarsupialization<sup>19-21</sup>, and the use of pharmacological agents or solutions such as 0.1% dexamethasone, OK-432, and absolute alcohol<sup>22-24</sup>, as well as microwave ablation<sup>25</sup>.

Each of these treatment modalities presents distinct advantages and limitations with respect to recurrence rates, procedural complexity, cost, and therapeutic outcomes. Therefore, given the high prevalence of oral mucocoeles and the ongoing search for more effective, practical, and accessible surgical methods, the exploration of alternative strategies, such as the use of the chalazion clamp, becomes particularly relevant.

In this regard, the application of the chalazion clamp in mucocoele excision appears to offer several potential benefits. One notable advantage observed during the procedures was its effectiveness in controlling intraoperative bleeding. The compression exerted by the clamp reduces vascularization in the targeted area, often eliminating the need for cauterization and contributing to a cleaner surgical field.

Furthermore, this case series revealed improvements in tissue stabilization and a reduction in operative time. None of the patients reported postoperative paresthesia, and no cases of lesion recurrence were observed during follow-up. Additionally, the clamp enhances visualization by immobilizing the affected region, which facilitates more precise incisions and the complete removal of associated minor salivary glands. An important aspect is the potential for selective avulsion of these glands, allowing for efficient and controlled

excision of compromised tissues. This may reduce the risk of recurrence and improve postoperative outcomes.

Finally, the use of the chalazion clamp enables the procedure to be performed by a single clinician. This characteristic is particularly advantageous in resource-limited settings, where a complete surgical team may not be available. The possibility of executing the procedure with greater autonomy and efficiency renders the approach more practical and potentially more accessible.

## CONCLUSION

Based on the outcomes observed in this case series, the chalazion clamp appears to represent a promising instrument for soft tissue surgery in the oral cavity, particularly for the excision of mucocoeles. Its application was associated with favorable clinical results, including improved hemostasis, enhanced visualization of the surgical field, increased procedural efficiency, and the absence of postoperative complications or recurrences.

Further investigations involving larger sample sizes and comparative study designs are warranted to more definitively establish its clinical efficacy.

## AUTHORS' CONTRIBUTIONS

**EASF:** Conceptualization, Data curation, Methodology, Project administration, Supervision, Writing – review & editing. **CAL:** Investigation, Methodology, Resources, Supervision, Writing – review & editing. **FSFM:** Investigation, Writing – original draft, Writing – review & editing. **VTS:** Investigation, Writing – original draft.

## CONFLICT OF INTEREST STATEMENT

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**Competing interests:** The authors have no relevant financial or non-financial interests to disclose.

**Ethics approval:** All procedures performed in the reported cases were conducted in accordance with the guidelines of the Research Ethics Committee of the University of São Paulo.

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