

# Surgical Intervention of Recurrent Mucocele: Two Case Reports

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## Abstract

The Mucocele or Mucus retention phenomenon is a salivary gland lesion of traumatic origin. Formation occurs when the duct of a minor salivary gland is injured resulting in extravasations of mucus into the connective tissue producing a cyst. The wall of this cyst is formed by compressed bundles of collagen fibrils; it contains mucin. Mucoceles occur most commonly on the lower lip; floor of mouth and buccal mucosa, being the other most frequent sites. They may occur at any age, but are seen most frequently in the second and a third decade of life; with no sex predilection. The treatment of choice is surgical excision; as drainage alone results in high recurrence rate. This paper reviews the recurrent occurrence of mucocele lesion in paediatric patients and purport of surgical intervention in 2 case reports.

**Keywords:** Mucocele, Cyst, Salivary Gland, Mucus, Extravasation, Retention phenomenon.

## 1. Introduction

The mucocele, a common local traumatic lesion of the oral mucosa, results from rupture of a salivary gland resulting in spillage of mucin into the proximal tissues; although many cases have no history of trauma. Mucoceles are rarely seen on the upper lip, retromolar pad or palate. They occur at any age; most frequently in the second and third decade of life; with no sex predilection. Mucoceles appear as discrete, small, soft, translucent, painless swelling of the mucosa, with colours ranging from normal pink to deep blue [1]. The deep blue colour is due to tissue cyanosis and vascular congestion. Mucoceles can be single or multiple; on rupturing, leave slightly painful erosions that heal within few days [2–16].

## 2. Case Report 1

A 7 years old male child visited the OPD of Department of Pedodontics and Preventive Dentistry, JSS Dental College and hospital, Mysore with the complaint of 8 months recurrent localised swelling on the lower labial mucosa. History of [H/O] three surgical attempts, unsuccessfully by general practitioner. The swelling had been increasing since past 4 days. The child reported trauma to the lower lip a week back. No other relevant past medical and dental history was available.

On clinical examination-: Observed a painless, oval shaped 5-6mm soft, fluctuant, palpable, raised, circumscribed vesicle on lower labial mucosa, besides lower left incisor (Fig.1). Based on history and clinical examination diagnosis of Mucocele was made and treatment of

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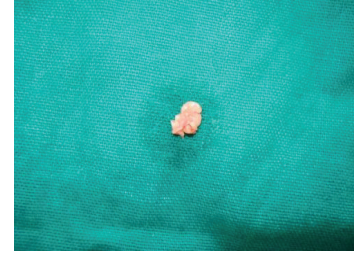
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**Figure 1.** Pre operative Mucocele lesion.



**Figure 2.** Enucleated mass.



**Figure 3.** Sutures placement.



**Figure 4.** Post operative image after 1 week.

surgical enucleation followed by histological examination was done.

Under local anaesthesia a circular incision was made around the lesion and the cyst enucleated, by dissection in the plane adjacent to the capsule, down to the muscle layer of the lip, (Figure 2). All remaining minor salivary glands in the field, down to the muscle layer, were excised to prevent the chance of recurrence. Haemostasis was ensured. The lip was allowed to relax so that the circular incision became elliptical and it was oriented perpendicular to the pull of the orbicularis oris muscle fibers. The wound edges were undermined gently and the wound was closed using 3-0 BBS sutures (Figure 3). Post surgical instructions were given and medications prescribed. Patient recalled for suture removal after 7 days (Figure 4). The excised mass was sent for histological examination.

The histological evaluation showed connective tissue stroma with salivary acini, areas of mucus pooling and inflammatory cells. Neutrophils and foamy histiocytes (macrophages) were seen with granulation tissue, around the mucin pool. The adjacent salivary gland whose duct was transacted shows ductal dilation, chronic inflammation, acinar degeneration, and interstitial fibrosis giving impression of “Extravasation Mucocele” (Figure 5).

### 3. Case Report 2

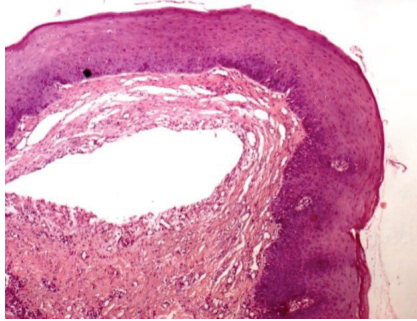
Female child, 9.5 year [reported at the OPD of Department of Pedodontics and Preventive Dentistry, Mysore] with

a complaint of recurrent localised swelling in the lower labial mucosa, since 4 months. H/O two surgical attempts, unsuccessful, by a general practitioner. The swelling had been increasing since past 2 days. The child gave a history of trauma on the lower lip 6 months back. On clinical examination the swelling was painless, soft, translucent and oval in shape measuring 5mm (Fig 6). A diagnosis of a Mucocele on the basis of the history of the trauma and Clinical features was made and surgical excision was performed as follows-: (Figures 7, 8, 9).

Histological evaluation showed epithelium and connective tissue stroma. Epithelium was stratified and keratinised in nature. The connective tissue stroma with salivary acini, areas of mucus pooling and inflammatory cells. Neutrophils and foamy histiocytes (macrophages) were seen with granulation tissue around the mucin pool. The adjacent salivary gland whose duct was transacted shows ductal dilation, chronic inflammation, acinar degeneration, and interstitial fibrosis giving the diagnosis of “Extravasation Mucocele” (Fig. 10).

### 4. Discussion

Mucoceleles may be located either as a fluid filled vesicle or bullae in the superficial mucosa or as a fluctuant nodule deep within the connective tissue. Spontaneous drainage of the inspissated mucin especially in superficial lesions followed by subsequent recurrence may occur. The surface of long standing lesions may show fibrosis.<sup>1</sup> The development



**Figure 5.** Histological slide.



**Figure 6.** Pre operative Mucocoele lesion.



**Figure 7.** Enucleated mass.



**Figure 8.** Sutures placement.

of Mucocoeles are subsequent to disruption of the flow of saliva from the secretory apparatus of the salivary glands. The lesions are most often associated with mucus extravasation into the adjacent soft tissues caused by a trauma to the duct, including crush-type injury and severance of the excretory duct of the minor salivary gland. The disruption in the excretory duct results in extravasation of mucus from the gland into the surrounding soft tissue. It has been suggested that the rupture of an acinar structure caused by hypertension from the ductal obstruction is another aetiology for the development of such lesions. Mucocoeles are painless, asymptomatic swellings, with relatively rapid onset and size fluctuation. The patient's history may be one of recent or past trauma to the mouth or face, or the patient may have a habit of biting the lip. When lesions occur on the anterior ventral surface of the tongue, tongue thrusting may be an aggravating habit, resulting in additional trauma. Patients with superficial mucocoeles present small fluid filled vesicles on the soft palate, retromolar pad, posterior buccal mucosa, and, occasionally, lower labial mucosa. These vesicles rupture spontaneously resulting in an ulcerated mucosal surface that heals within a few days.

Differential diagnosis:- Include Blandin and Nuhn mucocoele, Ranula, Benign or malignant salivary gland neoplasms, Oral Hemangioma, Oral Lymphangioma, Venous

varix or venous lake, Lipoma, Soft irritation fibroma, Oral lymphoepithelial cyst, Soft tissue abscess, Cysticercosis (parasitic infection).

Superficial mucocoeles may be confused with Cicatricial pemphigoid, Bullous lichen planus and Minor aphthous ulcers.

Diagnosis:- The history and clinical findings lead to the diagnosis of a Superficial Mucocoele. High Amylase and protein content can be revealed by the chemical analysis. The localization and determination of the origin of the lesion can be done by Computed tomography, scanning and magnetic resonance imaging.<sup>2-16</sup>

Treatment:- Surgical excision with removal of the involved accessory salivary gland has been suggested as the treatment. Marsupialization will only result in recurrence<sup>1</sup>. Large lesions are best treated with an unroofing procedure (marsupialisation).

If the fibrous wall is thick, moderate-sized lesions may be treated by dissection. If this surgical approach is used, the adjacent minor salivary glands must also be removed. Care has to be taken to avoid the injury to any marginal glands and ducts; it may lead to reoccurrence of the lesion. Laser ablation, cryosurgery, and electrocautery are approaches that have also been used for the treatment of the conventional mucocoele with variable success.<sup>2-16</sup>

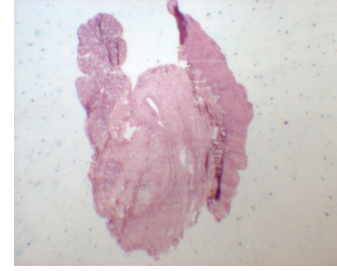


**Figure 9.** Post operative appearance after 1 week.

The excised tissue should always be submitted to the pathological investigations to confirm the diagnosis and rule out the salivary gland tumors. Majority of mucoceles, being of the extravasation type, consist of a circumscribed cavity in the connective tissue and submucosa, producing an obvious elevation of the mucosa with thinning of the epithelium as though it were stretched. The cavity itself is not lined by epithelium and is, therefore, not a true cyst. Instead, its wall is made up of a lining of compressed fibrous connective tissue and fibroblasts. Sometimes these cells may be mistaken for flattened epithelial cells. Not uncommonly the connective tissue wall is essentially granulation tissue, but usually shows infiltration by abundant polymorphonuclear leukocytes, lymphocytes, and plasma cells. The lumen of the cyst is filled with an eosinophilic coagulum containing variable numbers of cells, chiefly leukocytes and mononuclear phagocytes. Occasional mucoceles demonstrate an intact, flattened epithelial lining. It is probable that this simply represents the portion of the excretory duct bordering the line of severance, if severance is actually the manner in which these lesions develop. The flattened epithelial lining has been referred to as epithelium of the “feeder duct”. In other instances, the epithelium lined mucocele represents a lesion of the retentive type. The salivary gland acini which lie adjacent to the area of the mucocele and are associated with the involved duct often show alterations. These may consist of interstitial inflammation or sialadenitis, dilatation of interlobular and intralobular ducts with collection of mucus, and breakdown of individual acinar mucous cells resulting in the formation of tiny areas of pooled mucus.

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**Figure 10.** Histological slide.

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