

Mucocele : Review and a Case Report

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Abstract

The Mucocele or Mucus retention phenomenon is a salivary gland lesion of traumatic origin, formed when the main duct of a minor salivary gland is traumatized with subsequent extravasation of the mucus into the fibrous connective tissue so that a cyst like cavity is produced. The wall of this cavity is formed by compressed bundles of collagen fibrils and it is filled with mucin. Mucoceles are known to occur most commonly on the lower lip, followed by the floor of mouth and buccal mucosa being the next most frequent sites. This paper reviews the Mucocele and presents a case report.

Keywords: Mucocele, Cyst, Salivary gland, Mucus, Extravasation, Retention phenomenon

Introduction

Mucocele is a common lesion of the oral mucosa that results from an alteration of minor salivary glands due to a mucous accumulation. Mucocele involves mucin accumulation causing limited swelling¹. Two types of mucocele can appear- extravasation and retention. Extravasation mucocele results from a broken salivary glands duct and the consequent spillage into the soft tissues around this gland. Retention mucocele appears due to a decrease or absence of glandular secretion produced by blockage of the salivary gland ducts². When located on the floor of the mouth these lesions are called ranulas because the inflammation resembles the cheeks of a frog³. Mucocele is a common lesion and affects the general population. For this reason we felt it would be interesting review the clinical characteristics of mucoceles, and their treatment and evolution in order to aid decision making in daily clinical practice.

Case Report

A 13 years old female child visited the dental clinic with the chief complain of swelling in the lower lip (Fig 1). The history of present illness consisted of swelling in the lower lip since 2 days in the inner aspect of lower lip in the 34, 35 region. It had been increasing since 2 days. It was painless and no history of fever or malaise was present. It was soft, fluctuant and palpable with no increase in temperature, oval in shape. The other oral findings were erupting 13, Occlusal pit 55, palatal pit 65, over retained 73, buccally placed 33, lingually placed 32, over retained 83, rotated 44, 45 and lip biting habit. The lab investigations like HB, TLC and DLC were conducted and the values were found to be normal. The differential diagnosis were oral ranula, oral lymphangioma, oral haemangioma, cicatricial pemphigoid, bullous lichen planus and minor aphthous ulcers

The final diagnosis was formulated as a Mucocele on the basis of the history of the Lip biting habit and clinical features. The treatment planning consisted of the surgical removal of the lesion by placing an incision horizontally (Fig 2); therefore splitting the overlying mucosa and then aspirating the fluid (Fig 3,4), separating the lesion from the mucosa by placing a suture and resecting the Mucocele from the base (Fig 5) so that chances of reoccurrence are less, sutures were placed. Regular recall and checkup for the reoccurrence of the lesion was done.

Review

Mucoceles can be classified as extravasation or retention cysts^{3,8}.

Mucoceles are mostly caused by the extravasation of mucus followed by trauma to the duct of a salivary gland. Trauma to the excretory duct of a minor salivary gland can rupture the duct, causing the extravasation and accumulation of saliva in the surrounding connective tissue and an inflammatory reaction. Teenagers and children are most commonly affected by mucoceles. The lower lip is the most frequent site for mucoceles, where 6080% occur⁹. Other typical sites are: cheek, ventral surface of the tongue⁵, oral floor, and retromolar pad area.

Retention cysts result from ductal obstruction due to sialolithiasis, periductal scars or invasive tumors. The narrowing of the ductal opening does not allow an adequate salivary flow, with subsequent ductal distention presented as a mucosal swelling³. A ductal obstruction might also cause enlargement of a salivary gland⁷. Retention cysts, less common than extravasation cysts, usually affect older patients⁹ and are rarely found on the lower lip. The most frequent sites are: upper lip, palate, cheek, oral floor and maxillary sinus⁹. Retention cysts appear similar to extravasation cysts^{4,5}. The cyst cavity contains mucus cells or fragments of sialoliths, and the connective tissue of the cyst is slightly inflamed.

Clinical Characteristics

The incidence of mucoceles is generally high, 2.5 lesions per 1000 patients, frequently in the second decade of life¹¹⁻¹³ and rarely among children under one year of age. According to many studies there is no difference between genders^{1,10,11,14,15}. There is no clinical difference between extravasation and retention mucoceles. Mucoceles present a bluish, soft and transparent cystic swelling which frequently resolves spontaneously. Coloration can also vary depending on the size of the lesion, proximity to the surface and upper tissue elasticity^{3,12,10}. Lesion duration is not constant, from a few days to 3

years¹⁰. Bagán et al. provide a study of 25 patients suffering from mucoceles. 48% of the patients became aware of their lesion on seeing it although there were no symptoms. In the case of another 48 %, lesions were found by a specialist by chance. Only 4% patients had some unspecified feeling of discomfort but no real pain¹. Mucoceles of the minor salivary glands are rarely larger than 1.5 cm in diameter and are always superficial. Mucoceles found in deeper areas are usually larger. Mucoceles can cause a convex swelling depending on the size and location, as well as difficulties in speaking or chewing³. Mucoceles can appear at any site of the oral mucosa containing salivary glands¹¹. The lower lip is the most frequent site for a mucocele as it is the most probable place for a trauma, especially at premolar level. A study of 312 patients showed 230 lesions on the lower lip (73.7%), with the tongue as the second most common location (15.4%)¹⁵. These locations are followed by the buccal mucosa and palate; and are rarely found in the retromolar region and posterior dorsal area of the tongue¹². Occasionally mucoceles can involve the glands of Blandin-Nuhn³. These glands are located on the muscle of the ventral side of the tongue; the histological diagnosis is always extravasation type, and normally affecting young patients^{3,5,11}.

Diagnosis

The case history and an objective examination of the lesion are crucial for diagnosing mucoceles correctly. In particular cases, the diagnosis may require traditional radiography, ultrasonography, or advanced diagnostic methods [computed tomography (CT) and magnetic resonance imaging (MRI)] to better visualize form, diameter, position of the lesion relative to adjacent organs¹⁶. Ultrasonography shows mucoceles as cystic masses that sometimes contain fibrillar processes produced by fibroblasts seen in minimal numbers within the mucinous area (septa). Fine-needle aspiration is a useful diagnostic technique for evaluating patients with salivary gland nodules and enlargement¹⁷. Differentiating between mucoceles and vascular lesions preoperatively is very important because large angiomas mistaken for mucoceles can result in major bleeding if removed¹⁷.

Discussion

Mucoceles may be located either as a fluid filled vesicle or blister in the superficial mucosa or as a fluctuant nodule deep within the connective tissue. The development of Mucoceles usually depends on the 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 traumatic ductal insult, which may include a crush-type injury and severance of the excretory duct of the minor salivary gland which was present in our case report as well. The various differential diagnosis are blandin and nuhn mucocele, ranula, benign or malignant salivary gland neoplasms, Oral Hemangioma, Oral Lymphangioma, Venous varix or venous lake, lipoma, soft irritation fibroma, oral lymphoepithelial cyst, gingival cyst in adults, Soft tissue abscess, cysticercosis (parasitic infection) Superficial mucoceles may be confused with cicatricial pemphigoid, bullous lichen planus and minor aphthous ulcers.

Conventional treatment is commonly surgical extirpation of the surrounding mucosa and glandular tissue down to the muscle layer. With a simple incision of the mucocele the content would drain out but the lesion would reappear as soon as the wound heals¹⁴. There is no need for treatment if superficial extravasation mucoceles resolve spontaneously. Small mucoceles can be removed completely with the marginal glandular tissue before suture. In the case of larger mucoceles, marsupialization would avoid damage to vital structures. Nevertheless when an obstruction of retention mucocele is detected treatment involves the removing the top of the cyst and introducing a lacrimal catheter into the duct to dilate it³. A study of 14 pediatric patients¹⁸ describes micro marsupialization techniques with 85% success. The aim of this technique is to drain the mucus and reduce the size of the lesion. This technique (after disinfection and anaesthesia) consists of passing thick silk thread through the lesion at its largest diameter and then making a surgical knot. The suture is removed after 7-10 days, enough time for the mucocele to disappear. Some studies have reported using cryosurgery in treating mucoceles with encouraging results^{19, 20}. In one study, 36 mucoceles were removed using cryosurgery and only 2 lesions reappeared (5.6%)²¹.

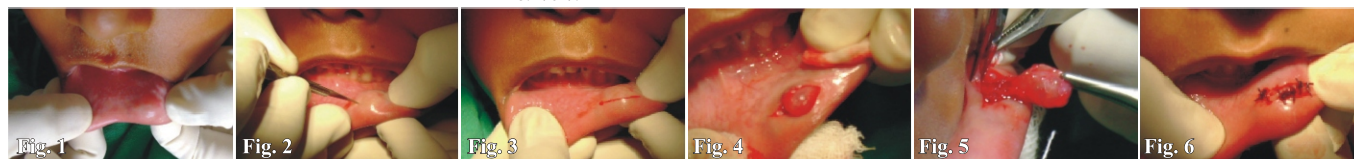
Some authors have also suggested using

intralesional steroid injections²². CO₂ laser has a high water absorption rate and is well absorbed by all soft tissues with high water content. In addition its effects on adjacent tissues are minimal. These properties make CO₂ laser the perfect surgical treatment for oral soft tissues²³. The cut is precise and does not affect the muscle layer, causes minimal haemorrhage and almost no acute inflammatory reaction. The operation time is short (3-5 minutes) making it a convenient treatment for children and patients who cannot withstand long treatment^{14,24}. Huang et al.¹⁴ in a study of 82 patients suffering from mucoceles on the lower lip treated with CO₂ laser observed that 2 lesions reappeared afterwards and one patient suffered temporary paraesthesia.

The history and clinical findings lead to the diagnosis of a superficial mucocele in our case report. Surgical excision with removal of the involved accessory salivary gland has been suggested as the treatment. If the fibrous wall would have been thick, moderate-sized lesions would have been treated by dissection. Surgical approach was used, the adjacent minor salivary glands were removed. Care was taken to avoid the injury to any marginal tissue. The excised tissue should be submitted to the pathological investigations to confirm the diagnosis and rule out the salivary gland tumors.

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