Mucocele is defined as a mucus filled cyst that can appear in the oral cavity, appendix, gall bladder, paranasal sinuses or lacrimal sac. They are formed either as a result of trauma or obstruction of a salivary gland duct. This case report presents a 16 year old male patient who reported with the chief complaint of painless swelling since 3 months. A complete successful excision of the lesion was performed using a diode laser. Biopsy reports confirmed the diagnosis as extravasation mucocele. Among all the available treatment options, CO2 laser treatment has shown more benefits with less relapse.

INTRODUCTION

Mucocele is defined as a mucus filled cyst that can appear in the oral cavity, appendix, gall bladder, paranasal sinuses or lacrimal sac. The term mucocele is derived from a latin word, mucus and cocele means cavity. It is seventeenth most common salivary gland lesions seen in the oral cavity. They are formed secondary to rupture of an excretory duct of a salivary gland, which results in an outpouring of saliva into the surrounding and the accumulation of mucus causes limited swelling.

Types

Two types of mucocele can appear - Extravasation and Retention mucocele.

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 ducts.

Mucocele is referred as Ranula as it resembles the ‘cheeks of a frog’ when appeared in the floor of the oral cavity. A ranula manifests as a cup-shaped fluctuant bluish swelling on the floor of the oral cavity and generally tends to be larger than mucocele in other regions of the mouth.

Etiopathogenesis

The two important etiological factors are (Yamasoba et al., 1990)(5)

1. Trauma and
2. Obstruction of salivary gland duct.

Extravasation muceles are commonly found on the minor salivary glands and is caused due to the leaking of fluid from surrounding tissue ducts or acini. Pooling of saliva in the adjacent submucosal tissue can occur due to physical trauma too, that finally leads to inflammation.

A study done by Bagan et al (6) showed a higher incidence of extravasation cyst (95%) compared to retention cyst (5%). The three evolutionary phases of extravasation mucoceles:

*Corresponding author: Dr. Thasneem AA
Postgraduate A.J Institute of Dental Sciences Mangalore
Pathogenesis of retention cyst:

Clinical Characteristics

Mucocele is one of the most common salivary gland disorders and is the second most common benign soft tissue tumor in the oral cavity. It commonly occurs in the lower lip, followed by the tongue and is also seen in other locations. It is generally seen equally in males and females in the first, second, and third decades of life, but rarely among children under one year of age. The lesion is seen unilaterally and rarely bilaterally and is more common in white subjects. Mucoceles in general appear as a bluish, soft, and transparent cystic swelling that frequently resolves spontaneously. The bluish discoloration is due to vascular congestion, cyanosis of the tissue above, and the accumulation of fluid below. Coloration also depends on the size of the lesion, its proximity to the surface, and upper tissue elasticity. Sizes may vary between millimeters to centimeters.

Case Report

A 16-year-old male patient reported with the chief complaint of a painless swelling in the lower lip region since 3 months. On examination, a nodular overgrowth measuring 3mm x 1.5mm was seen in the lower lip at 42 and 43. (Fig 1) Malocclusion was present. Trauma from occlusion was elicited. It was non-fluctuant on palpation. There were no systemic conditions present.

Surgical Procedure

In the Phase I Therapy, complete ultrasonic scaling was done. A local infiltration of 1:200,000 lignocaine was given. The incision was placed on the uppermost site of the lesion and a complete excision was performed using soft diode laser in wavelength of 940nm, 400µm diameter tip at 1.5W in continuous mode. (Fig 2) The tissue was sent for biopsy. Based on the clinical features, a provisional diagnosis of Traumatic Cyst was done. The patient was recalled for re-evaluation after a week. Healing was satisfactory (Fig 4) and no recurrence was observed after 15 days.

Histopathologic Evaluation

A histopathologic study is crucial to confirm the diagnosis. Extravasation mucoceles are pseudocysts without defined walls.

The H & E stained section showed an overlying epithelium and connective tissue. A large space pooled with mucinous material was seen in the connective tissue with focal mucinophages and chronic inflammatory cells. The surrounding connective tissue was fibrosed. (Fig 5)
In the case of retention mucoceles a cyst cavity can be found, this is generally well defined with an epithelial wall covered with a row of cuboidal or flat cells produced from the excretory duct of the salivary glands. Compared to extravasation mucoceles, retention mucoceles show no inflammatory reaction and are true cysts with an epithelial covering. Hence the final diagnosis of extravasation mucocele was made.

DISCUSSION

The appearance of mucoceles is pathognomonic and the following data are crucial: lesion location, history of trauma, rapid appearance, variations in size, bluish colour and the consistency. They are mobile lesions with soft and elastic consistency depending on how much tissue is present over the lesion. Despite this fluctuation, a drained mucocele would not fluctuate and a chronic mucocele with a developed fibrosis would have less fluctuation.

Diagnosis

The location of the lesion, history of trauma, rapid appearance, variations in size, bluish colour and the consistency helps in the diagnosis of such pathognomonic lesions(7,10,11). Mucoceles are soft, mobile and elastic in consistency depending on the tissue present over the lesion (7). The diagnosis of superficial mucocele can be done with the help of history and clinical findings. Techniques such as fine needle aspiration biopsy demonstrates the mucus retention, histiocyes and inflammatory cells(12). A well-defined epithelial wall is present in a retention type of mucocele and thus it shows less inflammatory reaction whereas extravasation type is a pseudocyst without epithelial wall. Thus extravasated mucus is surrounded by a layer of inflammatory cells and then is well encapsulated by a reactive granulation tissue made up of fibroblasts caused by an immune reaction(2,3,4,11). Chemical analysis shows high amylase and protein content. Radiographic techniques such as computed tomography and magnetic resonance imaging help in localization of these lesions.

Differential Diagnosis of Mucocele

The lip comprises of adipose tissue, blood vessels, nerves, connective tissue and salivary gland. Thus considerations should be given to pathosis or swelling of any of these tissues as seen in 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 or Cysticercosis (parasitic infection)(7).

Differential diagnosis for superficial mucoceles are most commonly Cicatrical pemphigoid, Bullous lichen planus and Minor aphthous ulcers. These can be differentiated from mucocele on lower lip, based on various clinical, radiographic examination.

Treatment

Conventional treatment is the most commonly used to treat this lesion. It involves surgical extirpation of the surrounding mucosa and glandular tissue down to the muscle layer. A simple incision of the mucocele drains out the lesion but reappears as soon as the wound heals(13). Superficial extravasation mucoceles doesn’t require any treatment as it resolves spontaneously.

Small mucoceles can be removed completely with the marginal glandular tissue before suture. Marsupialization is done for large mucoceles to avoid damage to vital structures. Both the types of mucoceles are treated in the same manner as there is no clinical difference in each(12,13). When an obstruction of retention mucoceles is detected treatment involves the introduction of a lacrimal catheter into the duct to dilate it(14). It is important to remove the surrounding glandular acini while removing the mucocele surgically. Its important to avoid the adjacent gland and any damage to duct while placing the suture. This reduces the chances of recurrence of mucocele. If the fibrous wall of the mucocele is thick, its necessary to rule out any salivary gland neoplasms using histopathological examination of the excised tissue. Cryosurgery, CO2 laser ablation, intralesional corticosteroid injection, marsupialization and electrocautery are the other treatment options. The advantage of CO2 laser is, it allows rapid, simple mucocele ablation. It also minimizes the recurrences and further complications. CO2 laser is indicated for patients unable to tolerate long procedures(15).

Mucoceles in pediatric patients are treated by micromarsupialization since the technique is simple, rapid and has shown less chances of recurrence(16).

Conventional treatment is commonly surgical extirpation of the surrounding mucosa and glandular tissue down to the muscle layer. Treatment options include-Cryosurgery, Laser ablation, intralesional corticosteroid injection, marsupialization and electrocautery.

The advantage in laser is that it minimizes the recurrences and complications and allows rapid, simple mucocele ablation. (Garcia et al 2009).

CONCLUSION

Mucocele is the most common benign self-limiting condition mainly affecting the lower lips. It generally affects the young males and seen in first to third decade of life. Trauma is the main and common etiological factor. Most of the lesions are
diagnosed clinically but sometimes neoplasm and other lesions has to be ruled out with the help of biopsies. Among all the available treatment options, CO2 laser treatment has shown more benefits with less relapse.

References

8. Flaitz CM, Hicks JM. Mucocele and ranula. eMedicine. 2006