Mucocele – A Series of Case Reports

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Abstract

The mucocele is the accumulation of mucous from salivary glands and its ducts into subepithelial tissue. It is the most common, painless, and harmless oral lesions. Etiology could be trauma, lip habits or unknown. Diagnosis is made mainly on the basis of history and clinical examination. Along with conventional surgical treatment now, we have lasers also for excision of mucocele lesions. We reported a case series of mucocele treated with conventional treatment as well as laser.

Keywords: Conventional, laser diode, mucocele, surgical

Introduction

Mucocele is defined as a mucus-filled cyst that may appear in the oral cavity, appendix, gall bladder, paranasal sinuses, or lacrimal sac.[1]

The term mucocele was derived from a Latin word, mucus and coele or cavity. Mucocele is 2nd most common lesion in the oral cavity. It results from accumulation of mucus due to alteration in the minor salivary glands.[2]

Types

Extravasation

Retention type

Extravasation type is due to the leaking of fluid from the damaged salivary gland ducts and acini into the surrounding soft tissues, mostly seen in minor salivary glands.

Retention type is due to the blockage of salivary gland duct, seen commonly in major salivary gland ducts. Clinically there is no difference between both. Mucoceles present as bluish, soft, transparent cystic swelling that frequently resolve spontaneously. Blue colour is due to vascular congestion, cyanosis of the tissue above, and accumulation of fluid below. However, colour may vary depending on the size of the lesion, proximity to the surface, and elasticity of overlying tissue.

When this mucocele is located in floor of the mouth it appears as the underbelly of a frog, hence called as Ranula

Case Report 1

A 11 years Old Female patient had reported to the Department of Pedodontics, Index Institute of Dental Sciences, Indore, with the chief complaint of swelling present in the lower left lip from the last 3 weeks. The Patient was apparently alright 3 weeks back then noticed a swelling with occasional rupturing of its contents in lower left lip region and gave a history of sharp cusp in upper front tooth region and there was no pain associated with the swelling (Figure 1).

Figure1: Intraoral view showing mucocele on the lower lip.

Her past medical, and drug history were non-contributory. There was also no significant family history.

On intra oral examination showed a 0.5× 0.5 cm sized non-tender, solitary, smooth, soft in consistency and fluctuant, palpable swelling on the left lower labial mucosa with respect to 32,33.

Clinical differential diagnosis include mucocele, fibroma, lipoma, sialolith, oral hemangioma and salivary gland neoplasm.

A provisional diagnosis of mucocele was given based on lesion location, history of trauma, rapid appearance, age, variations in size, bluish colour and the consistency.

Routine hematological examinations were ordered and were found to be within normal physiological limits.

The surgery was performed in the Department of Periodontology, Index Institute of Dental sciences.

A minimal local infiltration of 2% xylocaine (1:200000) was given superiorly, inferiorly and laterally surrounding the lesion. (Care was taken not to infiltrate into the lesion).

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The lip was everted using digital pressure to make the lesion prominent. 940nm Diode laser at a power setting of 1.5w in continuous mode with a 400µm tip was used to excise the mucocele. (Figure 2).

Figure 2: Intraoperative photograph showing Surgical Excision of Mucocele.

Figure 3: Postoperative Picture

A circular lesion was made all around the lesion to make completely excise the lesion as well as to obtain a proper sample for histo-pathological examination. The incision was then carried deeper separating the lesion from the underlying tissue. Excision of minor salivary glands associated with lesion was also done to prevent the recurrence (Figure 3).

The excised mucocele was transferred to 10% formalin solution and sent for histopathological examination (Figure 4)

Figure 4: Tissue excised for biopsy

Intra operatively there was no bleeding, pain or discomfort. There was also no need for sutures.

Post-operative instructions were given.

The day after the procedure the patient presented with no complaints of pain, discomfort or swelling.

The patient was subsequently followed up for next 3 months.

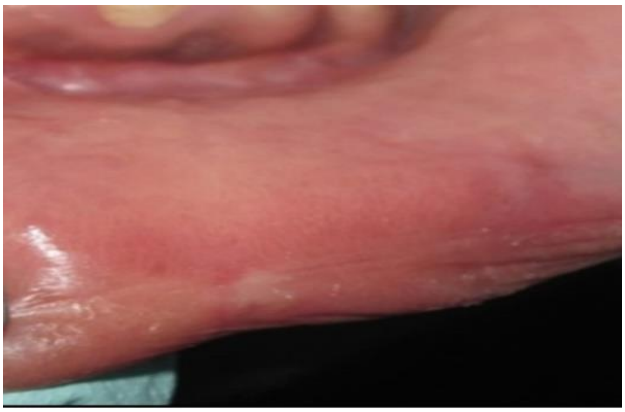

Figure 5: Follow upHistopathological examination showed multiple cystic spaces lined by granulation tissue. The lumen contained inflammatory exudate and mucin. Dense infiltrate of inflammatory cells were seen (Figure 6).

A final diagnosis was confirmed as Mucocele-**extravasation type**

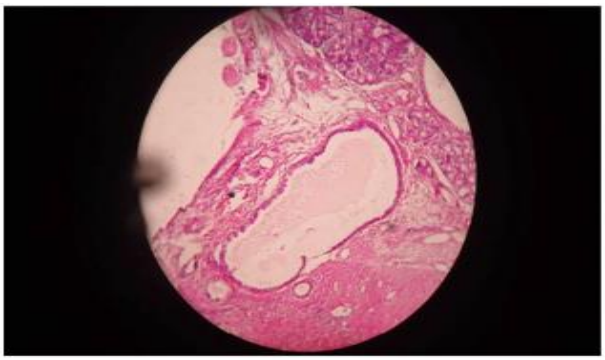

Figure 6: Histopathological picture

Case Report: 2

A 14 years Old Female patient had reported to the Department of Pedodontics, Index Institute of Dental Sciences, Indore, with the chief complaint of swelling present in the lower lip in 33, 34 regions for the past 3months, which was initially small and progressed to the current size(Figure 7).

Swelling was painless, and no past medical history like fever or malaise was present.

On examination of the lesion, 8× 8mm sized it was soft, fluctuant and palpable with no increase in temperature, oval in shape.

Figure7: Clinical picture mucocele on the lower lip.

Based on history and clinical diagnosis provisional diagnosis of mucocele was made.
The treatment was planned and explained to the parents.
Surgical excision of the lesion was planned. A written consent was obtained from the patient prior to the surgical procedure.
Blood investigation were found to be within normal limits.

Surgical Procedure

A minimal local infiltration of 2% xylocaine (1:200000) was given superiorly, inferiorly and laterally surrounding the lesion.(Care was taken not to infiltrate into the lesion).
The lip was everted using digital pressure to make the lesion prominent.
The lesion should be marked with hematoxylin pencil (Figure 8).

Figure 8: Lesion marked with hematoxylin pencil

Figure 9: Lesion excised with associated salivary glands

Figure 10: Silk 3.0 suture placedLesion was surgically excised with 15 no. scalpel blade (Figure 9) and simple interrupted sutures were placed (Figure 10).

Suture removal was done after 1 week (Figure 11).
On 3month follow-up, there was no history of recurrence of the lesion.
Histopathological report confirmed the diagnosis as mucocele - extravasation type.

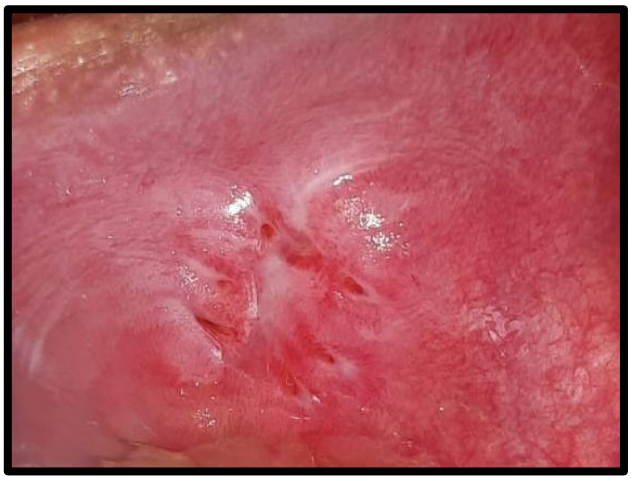

Figure 11: After the suture removal

Figure 12: 60 days postoperative view

Discussion

The incidence of mucoceles in the general population is 0.4% to 0.8% with scant differences between males and females.[3]
As regards mucocele location in the oral cavity, most investigators consider the lower lip to be the most frequently affected location (40% to 80% of all cases), followed by the cheek mucosa and floor of

the mouth. Both cases were extravasation type mucocele. Both cases had a history of trauma.

The primary objective in the treatment of mucocele is the complete resection of the lesion in order to prevent its recurrence. We have to ensure that both the affected and neighbouring glands are removed along with the pathological tissue to avoid relapse.

There are various treatment options available for the management of mucocele

- Scalpel incision
- complete surgical excision(conventional method)
- Marsupialization
- Micro marsupialization
- Intralesional injection of corticosteroids
- Cryosurgery
- Electrocautery
- Lasers [4]
- The conventional method in the treatment is by surgical approach.

The advantages of conventional surgical method

- Recurrence rate is very less (4.3%)
- cost effective,
- Healing occurs by primary intention.

The limitations are:

- There is more chance for rupturing the mucocele and leakage of its contents can cause soft tissue collapse with loss of anatomical references needed for resection.
- Several cases of lower lip paresthesia after scalpel removal of a large mucocele is due to damage to terminal branch of mental nerve as a consequence of this complicated procedure is noted in literature.[5]

Marsupialization had resulted in considerably higher recurrence rates. (approximately 50%) [6]

Cryosurgery yielded satisfactory results with no recurrence. Reported postoperative symptoms, however, included marked edema and irritation, as well as a prolonged healing time.[7]

Vaporization with argon (18%) and Nd: YAG lasers has been described as a new technique for the treatment of mucoceles.

Lasers procedures presented satisfactory results with low recurrence rates and were well tolerated by the patients, whose discomfort was the main complaint reported. (15%)[8]

The diode laser has become an important tool in the dental armamentarium due to its exceptional ease of use and affordability.

The present case was performed by using a 940nm laser which achieves excellent hemostasis because of its good affinity for pigments like haemoglobin and melanin[9]

The advantages in the removal of mucocele by diode laser are

- Bloodless operating field
- Minimal discomfort,
- Minimal scarring
- Less postsurgical pain
- Very less surgical time.

There is coagulation and sealing of the blood vessels by the thermal action of the lasers which acts as a natural wound dressing.

[Laser Bandage][10]

The limitations are

- Healing by secondary intention
- Loss of tactile sensation
- Need special training
- Expensive as compared to conventional method
- The semiconductor diode lasers are available in different wavelengths such as 810-830nm, 940nm and 980nm.
- The absorption of laser energy into the target tissue releases heat by photothermal process which causes intra and extracellular vaporization of the cells. [11]

Conclusion

Although both methods have acceptable results, the removal of mucocele by laser have good level of child acceptance and display less postoperative discomfort and more favourable clinical healing.

From the pediatric point of view behaviour management is far easier through laser than conventional surgical method as it reduces child anxiety and fear by blood less field, elimination of blade and sutures and it is well tolerated by the children.

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