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A Minimal Invasive Multidisciplinary Management of Mucous Extravasation Cyst and Follow Up- A Case Report

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ABSTRACT
Mucous extravasation cyst associated with a history of a prior lesion-related tooth bite or biting injury at the site, is a commonly acquired benign reactive lesion of the oral cavity. It is usually an asymptomatic, small, bluish -coloured, smooth, pedunculated or sessile papule. Excision is the treatment of choice for a mucous extravasation cyst; however, the resolution of the lesion is also necessary to prevent a recurrence. The use of high power diode Light Amplification and stimulated emission of radiation(LASER) technology follows the principle of minimally invasive dentistry. In paediatric dentistry it favours haemostasis, eliminates use of suturing, improves healing, minimizes treatment time, reduces patient anxiety and creates comfortable post-operative conditions. This article presents a case of a 9-year-old paediatric patient who developed a mucous extravasation cyst on her lower lip and was managed interdisciplinary with follow up.

Keywords: salivary duct, mucous extravasation cyst, laser excision, minimal invasive, mucocele

I. INTRODUCTION

The most frequent lesion of the oral mucosa is called a mucocele, which is caused by an accumulation of mucus secreted by lip-biting, trauma, or minor alterations in the salivary glands. Based on histological characteristics, they are primarily divided into two categories: retention mucoceles (RMs) and extravasation mucoceles (EMs). While retention-type mucoceles are relatively uncommon, extravasation mucoceles are frequently observed. Extravasation mucocele, which affects small salivary glands, is caused by fluid leaking into the surrounding soft tissues from the injured salivary gland ducts and acini.[1,2]

Three evolutionary stages have been experienced by these extravasation mucoceles. Mucus diffusely percolates into the connective tissues from the excretory duct during the first stage. A foreign body reaction causes granuloma to form during the second resorption. The development of a pseudo-capsule surrounding the mucosa is the final stage.[2,3] Blockages of the primary salivary gland ducts are often the source of retention-type mucoceles. Mucoceles usually affect the lip, however they can occur elsewhere in the oral mucosa, including the cheeks and floor of the mouth. A diagnosis is based primarily on the clinical examination of the patient. The most common location for extravasation mucocele is the lower lip. They could be translucent cystic swellings with a delicate texture and bluish appearance.Mucocele typically manifests as a symptomless pink or bluish vesicle or bullae. Its measurements could range from a millimeter to several centimeters. Its size can range from 1 mm to several centimeters, and it can affect people of all ages and genders. The standard therapy involves surgically removing the mucosal and epithelial tissue beneath the muscle layer of the mucocele. Although the mucocele may be easily removed to allow the contents to flow out, the lesion would return as soon as the wound healed. Treatment options include surgical excision and removal of the affected accessory salivary gland. The only outcome of marsupialization is recurrence. Patients may feel discomfort because they are sensitive to the affected mucocele area, even if the majority are not harmful. Speaking and chewing might be challenging when mucoceles are present. Straw-colored fluid may be released when superficial mucoceles rupture. They have a longer lifespan and are more prone to make patients uncomfortable.[1,2,3] Therefore, we are presenting the surgical removal of mucous extravasation cysts using diode laser. Here is a case study of a mucous extravasation cyst with multidisciplinary care and follow-up.

II. CASE REPORT

A 9 year old female child visited to the Department of Paediatric and Preventive Dentistry at our hospital with a chief complaint of asymptomatic irregular growth of mass on right lower lip since 3 months associated with difficulty in mastication and speech. History revealed that initially it started as a small lesion and had grown to its current size with no history of bleeding or pain. In addition, the child did not show any associated habits. Neither does the child nor the mother remember any event that must have triggered the growth of this lesion.

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CLINICAL FINDINGS-

On intraoral clinical examination, a well-defined, pedunculated, single, and ovoid growth of bluish pinkcolour was present on lower lip(**Figure 1**) On palpation, it was soft in consistency, nontender lesion measuring 9 × 10mm in size, and not associated with any ulceration or bleeding. Hard tissue examination revealed the presence of sharp lingual cusps of maxillary canine, which could be one of the contributing factors to the growth of the lesion. No extra oral swelling and no lymphadenopathy were present. A tentative diagnosis of mucous extravasation cyst was made based on the patient's history and clinical findings.Lipoma, traumatic fibroma, and fibrous hyperplasia were among the differential diagnosis. The patient's parents gave informed consent after being informedof the treatment procedure.

On Investigation routine blood investigations such as haemoglobin, bleeding time, clotting time, random blood sugar was done which was within normal range.

Figure -1

Interdisciplinary management: The case was discussed with oral and maxillofacial surgery department and excision of mucous extravasation cyst using LASER was planned. Selective grinding of the maxillary canine cusp was performed. Local anaesthetic infiltration was injected around the lesion followed with an inferior nerve block. The lesion was completely excised from its base using a soft tissue diode laser (Biolase laser, California, United States of America) in pulsed mode with a continuous wavelength of 940 nm, a power of 2 W, and with a surgical tip off 300 µ diameter causing ablation. The tip was in contact with the edges of the lesion during surgery, total excision of the lesion was done and no sutures were made (**Figure 2)**There was no bleeding at the surgical site.Immediately, the removed specimen was sent for histopathological evaluation in 10% formalin solution. The patient and dental team donned protective glasses throughout the treatment to avoid eye injury from this type of wavelength. After histopathological examination the final diagnosis of mucous extravasation cyst was made. Histopathological diagram of the mucoceleshows the mucous acini, mucous pooled area, and granulation tissue are present (**Figure 3**)

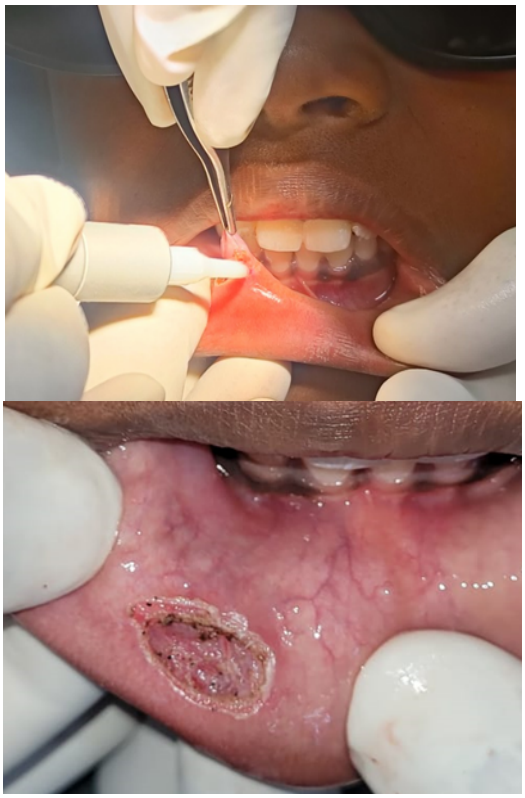

Fig 2- laser tip in contact with the tissue causing ablation and surgical site after excision of the lesion

An oral analgesic was prescribed for 2 days along with mucopain gel application as and when required for pain relief. The patient was instructed to rinse twice daily with betadine mouthwash and to avoid hard, hot and spicy food postoperatively for next 3 days.

A follow-up after 3 dayswe found slough formation with granulation and after 1 month complete healing was seen without scarring (**Figure 4**) and is still on follow up as these types of lesion has high growth potential. After the surgery, the patient reported no pain or discomfort. There was uneventful healing with no recurrence.

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Figure - 3Histopathological examination

Fig 4- follow up after 3 days ,follow up after 1 month

III. DISCUSSION

The prevalence of mucocele in the general population ranges from 0.4% to 0.9%. In the 15–24 age range, oral mucoceles were quite common, occurring in 51.72% of males and 48.28% of females, with a ratio of 1.07:1. Compared to the retention type (15.52%), the extravasation type was more prevalent (84.48%). The lower lip was most frequently impacted (36.20%), followed by the tongue's ventral surface (25.86%). The palate, top lip, and floor of the mouth showed the lowest frequency. The majority of mucoceles (58.62%) were asymptomatic.[5,6] The appearance of mucocele is its pathognomonic symptom. The location of the lesion, history of trauma, rapid emergence, size variability, bluish hue, consistency, history, and other factors are used to diagnose superficial mucocele.Lip swelling can be caused by diseases of any of the tissues that make up the lips, including fatty tissue, connective tissue, blood vessels, nerves, and salivary glands. Mucocele, fibroma, lipoma, mucus retention cyst, sialolith, phlebolith, and salivary gland tumors can all cause swelling in the lips. On the basis of their clinical features, color, consistency, genesis, and location of occurrence, these can be distinguished from mucoceles. Mucoceles are harmless growths.However, if left untreated, they may group together to form a chronic hump on the oral surface. There are two forms of mucoceles that can form: extravasation mucoceles (EMs) and retention mucoceles (RMs). EM is commonly observed in youngsters, although RM is quite rare. When the salivary duct is blocked by a sialolith or ductal scar, the mucin is eventually surrounded by ductal epithelium, resulting in the development of a retention mucocele. Saliva extravasating into the surrounding connective tissue regions causes EM, whereas RM is linked to the ductus traumatic damage. The most popular techniques for removing a chronic or recurrent mucocele include electrocautery, diode laser therapy, cryosurgery, and surgical excision[1,2,5]Traditional knife surgery has drawbacks, including the requirement for suturing, the potential for postoperative edema, and the inability to control intraoperative bleeding. Because electrosurgery produces a lot of heat and may leave scars, it is an invasive procedure. Using liquid nitrogen to quickly freeze and kill tissue is known as cryosurgery. For those who are sensitive to cold, this time-consuming method is not advised.[1,2,3]

These techniques do, however, have drawbacks, including intraoperative bleeding, procedure-related pain, delayed wound healing, and patient discomfort following surgery. The landscape of surgical treatment has evolved with the introduction of lasers. Nowadays, intraoral lesions can be successfully removed using diode lasers, resulting in few intraoperative and postoperative complications.[4,6]

Frenectomy, gingivectomy for bracket application, gingivoplasty following bracket removal, operculectomy, unerupted tooth exposure, impacted tooth exposure, biostimulation, and pain treatment of orthodontic movement are among the

additional soft tissue surgeries performed on children that employ lasers.[4] As a result, we used laser excision in our case study to improve patient compliance and treatment outcomes. Despite some drawbacks, such as their expensive initial cost, lasers require further education and training for their diverse clinical applications.[3,4] The case is followed up on until it has fully healed and there has been no recurrence.

According to AAPD, the use of lasers as an alternative and complementary method of providing soft and hard tissue dental procedures for infants, children, adolescents, and persons with special health care needs.[5,6]One of the benefits of laser use in pediatric dentistry is the selective and precise interaction with diseased tissues. During soft tissue procedures, hemostasis can be obtained without the need for sutures in most cases. This may allow wound healing to occur more rapidly with less postoperative discomfort and a reduced need for analgesics.

IV. CONCLUSION

Mucous extravasation cyst is commonly encountered in pediatric dentistry. Proper case history, clinical examination should be done andtreated as early as noticed with minimal invasive procedure like lasers. Histopathological report also plays important role in diagnosis. Follow up should be done accordingly to prevent recurrence.

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