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Laser guided mucocele excision in lower lip: A case report

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Abstract

Mucocele is defined as the accumulation of mucus secreted from salivary glands and their ducts in the oral cavity's subepithelial tissue. Mucoceles are painless, asymptomatic, benign swellings that have a relatively rapid onset and fluctuate in size. Mostly mucoceles are asymptomatic but sometimes can cause discomfort by interfering with speech, chewing, or swallowing. Management of mucoceles include surgical excision, marsupialisation, micro-marsupialization, cryosurgery, laser vaporization, and laser excision. The high-intensity diode laser is very helpful for excision of a mucocele in children because it is less invasive and safe. Removal of mucocele with the diode laser was effective in the case presented, resulting in bloodless operating field, minimal discomfort, minimal swelling and scarring and much less or no postsurgical pain.

Keywords: Mucocele, diode laser

Introduction

The term "Mucocele" (from Latin terms mucus, or mucus, and coele or cavity) is used to define the accumulation of mucus secreted from mucus glands and their ducts in the oral cavity's subepithelial tissue. It may also appear in the, appendix, gall bladder, paranasal sinuses, or lacrimal sac [1]. A mucocele is a mucus retention phenomenon of the major and, more commonly, the minor salivary glands. Mucocele is the most common salivary gland disorder and it is 2nd most common benign soft tissue tumor in the oral cavity. There are two types of mucocele usually seen - extravasation and retention. Yamasoba *et al.* highlight two crucial etiological factors in mucoceles: traumatism and obstruction of salivary gland ducts [3]. The incidence of mucoceles is generally high, 2.5 lesions per 1000 patients, frequently in the second decade of life and rarely among children under one of year of age. Most of the literature shows there is no difference between genders. There is no clinical difference between extravasation and retention mucoceles [2]. There is no clinical difference between extravasation and retention mucoceles. Usually mucoceles present a bluish, soft and transparent cystic swelling which frequently resolves spontaneously. The blue colour is caused by vascular congestion, and cyanosis of the tissue above and the accumulation of fluid below the tissue. Coloration can change depending on the size of the lesion, proximity to the surface and upper tissue elasticity [4]. Mucoceles are usually asymptomatic, though in some patients complain discomfort by interfering with speech, chewing, or swallowing.² Treatment options for mucoceles include surgical excision, marsupialisation, micromarsupialization, cryosurgery, laser vaporization, and laser excision [5].

Case report

A 12-year-old male patient presented with his parents at our department complaining of asymptomatic swelling in the labial mucosa of his left side of lower lip. (Fig no – 1) The mother reported that it started one and half months before and changed episodically in size and color. They reported habit of lip biting. There was no history of any systemic disease.



Fig 1: Asymptomatic swelling in lower lip

On clinical examination revealed an 8mm, round, solitary, fluctuant, sessile, palpable, non-tender, non-ulcerated swelling with no increase in temperature, was seen on the inner aspect of the lower lip. Swelling was about 2 mm below the vermilion border of the lower lip and extending inferiorly toward the lingual vestibule, measuring approximately 6–8 mm diameter. No other oral anomalies were detected. Based on the history and clinical features a provisional diagnosis made that it can be a mucocele. But in differential diagnosis it can be an Abscess, Mucocele, Lipoma, Fibroma, Tumours of minor salivary glands, Hemangiomas.

Management of mucocele surgical excision, marsupialisation, micro marsupialization. cryosurgery. vaporization. laser excision. In this case mucocele excision was done by laser.

Routine hematological examinations that including hemogram, bleeding and clotting time were found to be within normal physiological limits. Local infiltrative anesthesia was applied (2% lidocaine with epinephrine 1:100,000). (Fig no – 2) The anesthetic was not infiltrated directly into the lesion to avoid compromising the biopsy. The lip was everted with digital pressure to increase the lesion's prominence.



Fig 2: Local infiltration of LA at surgical site

Removal of the lesion was performed using a diode laser at continuous mode in a contact technique with a power setting of 0.9W, wavelength 810nm, 300µm fiber, 97 s timer was set (Fig no – 3)



Fig 3: Diode laser machine power and wave length set for surgery

First a circular incision was made around the lesion to obtain a proper biopsy sample. (Fig no – 4) Dissection was performed to separate the lesion and associated minor salivary gland. (Fig no – 5)



Fig 4: Circular incision done by diode laser



Fig 5: Separate the lesion



Fig 6: Tissue send for biopsy

The excised tissue was sent for biopsy at oral pathology department of Gurunank Institute of Dental Science and Research, Kolkata. (Fig no – 6) Post operative advice given to avoid spicy food, using Vit E Capsule at surgical site and anti-inflammatory & soothing ointment for quick healing.

Post operative picture shows expected healing caused at surgical site. (Fig no – 7). After one month of post operative check up showed complete healing of surgical site. (Fig no – 8)



Fig 7: Follow-up after 7 days



Fig 8: Follow-up after 1 month

In histopathology H & E stained section revealed overlying stratified squamous surface epithelium with underlying fibrovascular connective tissue. (Fig no – 9) The mucin pooled area surrounded by chronic inflammatory cells along with presence of foamy histiocytes is noted in the submucosal region. No malignant cells noted in the sections. Confirmed diagnosis made the mucous extravasation cyst.

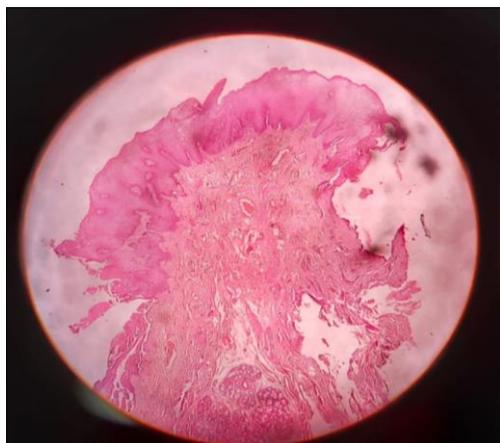


Fig 9: Tissue under microscope

Discussion

In dentistry, Laser is introduced by Miaman, in 1960, which led to a continuous research in the various applications of lasers in dental practice. On account of the ease, efficiency,

specificity, comfort, and cost over the conventional modalities, lasers are indicated for a wide variety of procedures in dental practice. There are two type of laser found hard and soft. Hard laser are Carbon dioxide (CO₂), Neodymium Yttrium Aluminum Garnet (Nd: YAG), and Er: YAG, where as soft laser are semiconductor diode devices wave length of 810 nm to 980 nm In dentistry the soft laser is most commonly used [10]. Using of laser have several advantages like reduces surgical time, minimal bleeding, prompt heamostasis, no need of suture, reduces wound infection. For the high chances of recurrence, management of mucocele is a challenging task. Complete surgical removal with dissection of surrounding and contributing minor salivary gland acini proved to be successful with least recurrence. Diode lasers can be a choice on pediatric patients to remove mucocles. Diode laser provides an effective, rapid, simple, bloodless and well-accepted procedure for treating mucocele in pediatric patients [6]. MC Vitale *et al.*, reported a case report of excision of mucocele using diode laser recommended that diode laser is an option for treating mucocele in lower lip in a 4 month baby [8]. Besbes A *et al.* 2020 reported dioded laser is very helpful to treatment of mucocele as there is no need for suture, minimal trauma, scarring, post operative pain [9]. Ramkumar S *et al.* 2016, reported successful excision of mucocele with minimal trauma, and pain by diode laser [5].

Conclusion

Diode laser for the treatment of mucocele with a variety of beneficial effects such as minimal anaesthesia, less procedural timings, good surgical site visualization, hemostasis. Laser application makes it possible to reduce apprehension and fear in paediatric patients.

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