Case Report

University J Dent Scie 2025; Vol. 11, Issue 4

Laser Controlled Mucocele Excision In Upper Lip: A Case Report

Abstract:
This report describes a lesion of the upper lip that was definitively diagnosed by histologic examination as a mucocele. Mucoceles are the most common minor salivary gland disorder and represent the second most frequent benign soft tissue tumors of the oral cavity, following irritative fibroma. This case illustrates an uncommon presentation of mucocele with respect to location and duration . In the present case reports, diode laser was used for the excision of mucocele on the upper lip.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 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.

Key-words: Mucocele, Irritative fibroma, , marsupialisation, cryosurgery, laser Excision.

Introduction:

A mucocele (from Latin mucus = mucus and coele = cavity) refers to a mucus accumulation in the subepithelial tissue, commonly in the oral cavity but also occasionally found in areas like the appendix, gallbladder, paranasal sinuses, and lacrimal sac.[1]

It is the most common salivary gland disorder and the second most common benign soft tissue tumor in the oral cavity. Mucoceles are typically classified into two types.

- Extravasation mucoceles: Caused by trauma leading to duct rupture and saliva leaking into tissue.
- Retention mucoceles: Caused by duct obstruction, resulting in mucus retention within an epithelial-lined cyst.

The retention type of mucous lesion, though less common than the extravasation type, typically occurs in areas such as the hard palate, floor of the mouth, upper lip, and maxillary sinus region. Retention results from ductal obstruction, often due to sialoliths (salivary stones) or ductal strictures. [2,3]

The primary etiological factor in both types is ductal obstruction, typically following trauma to the salivary gland duct. In the extravasation type, mucous spillage into surrounding tissues is due to this trauma.

Access this article online

Website: www.ujds.in

DOI: https://doi.org/10.21276/ujds.2025.11.4.7

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The extravasation lesion progresses through three phases:

- Phase I (Inflammatory Phase): Characterized by the presence of leukocytes and histiocytes at the site of mucous spillage.[4,5]
- Phase II (Granulomatous or Resorptive Phase): Marked by granuloma formation, with macrophages, histiocytes, and multinucleated giant cells, indicating a foreign body reaction.
- Phase III (Capsule Formation): A pseudo capsule forms around the lesion, composed of connective tissue but lacking epithelial lining.

In contrast, the retention type is more commonly associated with the major salivary glands and results from blockage of the duct at or near the secretory apparatus, often due to sialoliths or thick mucosal secretions.[6,7]

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Received : 30 Sep., 2025, **Published :** 31 Dec, 2025

How to cite this article: Priya Katiyar. (2025). Diode laser - assisted management of Mucocele. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 11(4)

Case Report:

A 25 year, old, male patient reported at outpatient department of Rama dental college complaining of asymptomatic sweeling in the labial mucosa of his upper lip on right side.patient presented that it started one and half months before and increased in size and vary in color. There was no history of dental treatment and any systemic disease. On clinical examination revealed an intra oral round, solitary, fluctuant, palpable, non-tender, non-ulcerated swelling with no increase in temperature,on the inner aspect of the upper lip. Swelling was about 3 mm below the vermilion border of the upper lip and extending inferiorly toward the buccal vestibule, measuring approximately 8–10 mm in diameter.Patient gave no history of discharge from the swelling. On applying pressure the swelling depressed and on relieving the pressure the swelling reverted back. Teeth in the vicinity were not sharp or proclinated.

Based on extra oral examination there was asymmetry present and lip was competent. No other developmental and inflammatory anomalies were detected.On the history and clinical features a provisional diagnosis made that it can be a mucocele.

Post-operative view

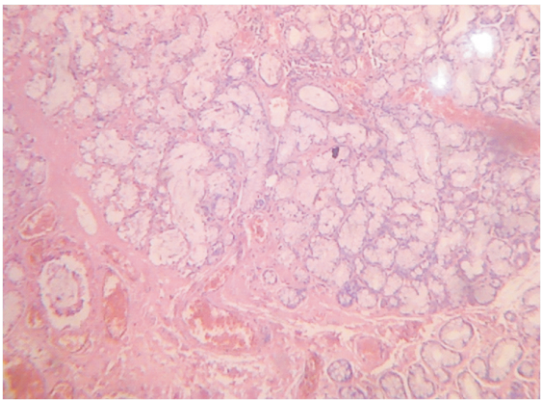
Healing after 1 month

Patient was then advised for surgical treatment that involved excision by diode laser. The patient was referred for haematological examinations which were within the normal limits. The borders of the lesion were marked following all the protocols of the asepsis and sterilization and laser-assisted surgery was performed. Local infiltrative anaesthesia was applied (2% lidocaine with epinephrine 1:100,000).

The lesion was removed using a diode laser at continuous mode in a contact technique with a power setting of 1.6 W, wavelength 810nm, 300µm Fiber, 96 s timer was set .The biopsy sample was immediately fixed in 10% formalin and sent for histologic evaluation at oral pathology department of Rama dental college.

Post-operative instructions were given followed by medications and periodic recall. The patient was prescribed antiseptic gargles for a week and a nonsteroidal anti-inflammatory drug for three to four days. A softer diet was advised for the first two to three days and advice given to avoid spicy food. The patient was reviewed after the seventh day when the lesion was in a healing state .

In histopathology H & E stained section shows presence of stroma which is highly cellular containing fibroblast, mucous salivary acini and ducts with focal infiltration of chronic inflammatory cells are also evident. Mucin pooled areas are surrounded by dense infiltration of chronic inflammatory cells along with foamy macrophages. Blood capillaries and extravasated RBCs are also evident.Confirmed diagnosis made the mucous extravasation cyst.



Histopathology shows underlying connective tissue shows spillage of mucin from the salivary acini.

Discussion:

Lasers were first introduced in dentistry by Miaman in 1960, initiating ongoing research into their various applications. Due to their precision, efficiency, comfort, and cost-effectiveness, lasers are widely used in dental procedures.

Lasers offer multiple advantages, including reduced surgical time, minimal bleeding, faster healing, and lower infection risk, often eliminating the need for sutures. In particular, diode lasers are effective in managing mucoceles a condition prone to recurrence

especially inpaediatric patients. Several case reports support diode lasers for mucoceles due to their minimal trauma, reduced postoperative pain, and good cosmetic outcomes.

Swelling of the lips can result from various lesions involving the lip's diverse tissuesfat, connective tissue, blood vessels, nerves, and salivary glands. In children and young adults, mucocele is the most common cause of lower lip nodular swelling, typically related to trauma and more common in males. Other potential diagnoses includeFibroma ,Lipoma, Squamous cell carcinoma, Mucus retention cyst , Sialoliths (salivary stones)Salivary gland neoplasms Includes benign tumors like canalicular adenoma (upper lip, midline, older adults) and pleomorphic adenoma (women under 40), as well as malignancies like mucoepidermoid carcinoma (lower lip) and acinic cell adenocarcinoma (upper lip, mainly women).
Conclusion:

The reported case describes a mucocele on the left upper lip, which is an uncommon location. The patient had no known trauma or change in lesion size over a year, which is unusual for mucoceles. Despite the benign appearance, excision is necessary to confirm the diagnosis and rule out tumors. Removing associated glands helps prevent recurrence. Clinicians should maintain a high level of suspicion for any upper lip lesion, as some may be benign or malignant tumors requiring further treatment.

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