

Yellow Epulis: A Case Report

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Abstract: Lipomas are defined as benign tumours of adipose tissue with unexplained pathogenesis and etiology. Lipomas and lipoma variants are common soft tissue tumors, but occur infrequently in the oral and maxillofacial region. Oral lipomas are slow enlarging, soft smooth surfaced mass of the submucosal tissues which may be sessile or pedunculated. The theories to explain the pathogenesis are heredity, fatty degeneration, hormonal, trauma, infection, metaplasia of muscle cells, lipoblastic embryonic cell nest in origin, chronic irritation and chromosomal aberrations. Histologically, classic lipomas are composed of mature adipose tissue with true lipoblasts showing no cellular atypia. Adipose tissues can be admixed with other mature benign mesenchymal tissues, thus necessitating subclassification. This article highlights a report of an intra-oral swelling in the right buccal mucosa, its diagnosis, including use of fluorescent visualization; management and histologic examination of the same along with post operation follow up.

Keywords: Epulis, lipoma, Tissuefluoresence visualization

1. Yellow Epulis: A Case Report

A benign mesenchymal soft-tissue neoplasm of mature adipose tissue is called as lipoma [1]. It is the most common benign neoplasm in our body but is relatively rare in the oral cavity, accounting for 1% to 4.4% of all benign tumors [2]. Its etiology and pathogenesis remain unclear, although mechanical, endocrine, and inflammatory influences have been reported [3].

Lipomas present as well-circumscribed, slow-growing, long-standing, painless soft-tissue tumors that may be superficially or more deeply located and covered by normal mucosa. [1-3] Intraorally, most commonly involved sites are buccal mucosa, tongue, floor of the mouth, buccal vestibule, and lips [4]. This report highlights the diagnosis and the treatment outcome of a case of lipoma.

2. Clinical Presentation

A 49-year-old female reported to the Department of Periodontics, Nair Hospital Dental College, Mumbai, India; with a chief complaint of an overgrowth in the mandibular right molar tooth area. The patient noticed the swelling since 7 years. The patient had reported to a dentist for extraction of mandibular right second molar, 7 years back, as it was grossly decayed. The swelling was first noticed as a bead like soft overgrowth in the right cheek region, 4 months after extraction of tooth. The swelling increased in size gradually to current size over a period of 6 to 7 years. The patient was asymptomatic except for discomfort while eating and constant feeling of soft swelling in the mouth.



Figure 1: Intra- oral swelling in relation to missing 47, 48.

On clinical examination, a small sessile, ovoid to spherical shaped lesion with well-defined margin and smooth non-inflamed surface was noted in the vestibular area with respect to 48 region (Figure 1). The swelling measured 9 x 9 x 8 mm in size and had colour similar to the buccal mucosa at the edges but with yellowish tinge near the center, soft and rubbery consistency, freely movable, and non-tender on palpation.

No other anomalies other than a sharp cusp on maxillary molars opposing the lesion was detected. The patient's systemic and drug histories were non-contributory.

3. Special Investigations

Slip Test

The Slip test was performed by holding and compressing the swelling in between the two fingers. The swelling would not get compressed and would slip between the fingers, confirming a positive Slip test finding.

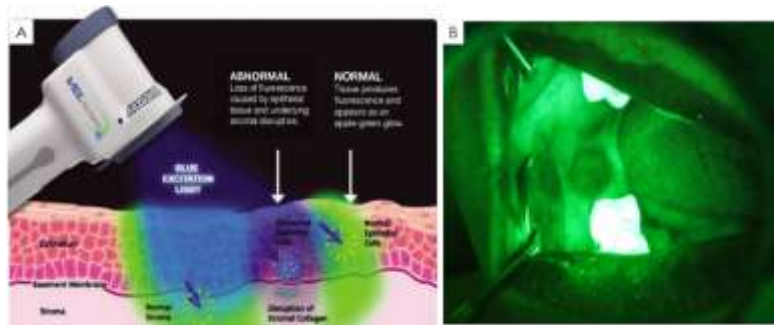


Figure 2: A: Schematic representation of mechanism of working of autoimmunization
 B: Pre-operative imaging shows distinct loss of tissue fluorescence at the site of pathology

Tissue Fluorescence Visualization

VELscope® Vx Enhanced Oral Assessment System is an oral mucosal assessment system that uses the natural tissue fluorescence to visualize oral mucosal abnormalities that might not be apparent or even visible to the naked eye (Figure 2A). When viewed through the filters, the oral mucosal tissue fluoresces green. There was marked darkening in the area of the lesion suggesting presence of abnormal tissue. [5] (Figure 2B)

Differential Diagnosis

A provisional diagnosis of irritational fibroma was determined. Lipomas, Benign salivary gland lesion, Traumatic Neuroma were other possibilities, though rare. Oral dermoid and epidermoid cysts, oral lymphoepithelial cyst, mucocele, benign mesenchymal neoplasm, ectopic thyroid tissue, and lymphoma were other differentials to consider.

Biopsy of this lesion was planned.

Treatment Objectives

The primary objective was to remove pathology, restore the normal soft tissue anatomy and facilitate prosthodontic rehabilitation along with reducing chances of recurrence by performing complete excision.

Case Management

The treatment plan was explained to the patient, and written informed consent was obtained. The source of irritation, i.e., the sharp cusp, was managed by coronoplasty, before excision of the lesion to prevent recurrence. Excisional biopsy was performed to remove the lesion using a no.15 blade under infiltration anaesthesia. The lesion was held in the tissue forcep (Figure 3A) and was excised carefully from its base. The raw area was explored and tissue tags were carefully removed (Figure 3B). Simple interrupted suture was placed for obtaining closure and healing with primary intention (Figure 3C). The patient was recalled after one week for suture removal and was observed for an extended period of one year to check for recurrence.

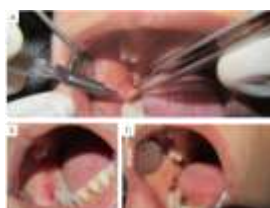


Figure 3: A Excision of overgrowth. 3B: Immediately post excision. 3C: Simple interrupted sutures placed.

Clinical Outcomes

Clinical Examination

At the end of 1 week, no scar tissue was observed. The healing site was light pink in colour, and the area of excision was non-tender to palpation. The patient was comfortable and did not report any postoperative complications. At the end of 1 month, complete healing was observed (Figure 4B). The patient was followed up for 1 year and did not show any signs of recurrence (Figure 4C).

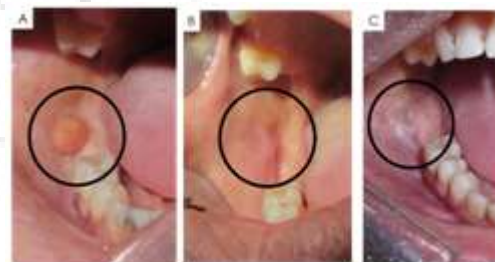


Figure 4: 4A: Pre-operative
 4B : 1 month post excision.
 4C: 12 months post excision.

Tissue Fluorescence Visualization

The Velscope examination was performed after 1 month (Figure 5B) and 12 months (Figure 5C) of surgical excision. There was complete return of the normal tissue fluorescence in the area of the lesion. The 12-month scan did not reveal any recurrent dark appearance.

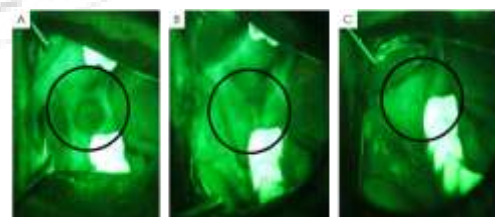


Figure 5: 5A- Pre-operative scan. 5B: 1 month post-surgery- complete recovery of the same. 5C: 12 months post-surgery.

Excised tissue

Macroscopic appearance

The excised tissue specimen consisted of a nodular, soft tissue, measuring 9 x 9 x 8 mm (Figure 6). The gross appearance of the cut section was yellow and greasy in consistency. The specimen showed a characteristic floating appearance when immersed in water (Figure 7). It was sent to the laboratory for histopathologic examination.



Figure 6: A, B, C – Excised tissue dimensions.



Figure 7: 7A Specimen floating in water. 7B: cut section of the lesion shows yellowish mass of tissue.

Microscopic appearance

Light microscopic examination with hematoxylin and eosin (H&E) staining revealed an encapsulated mass of tissue, lined by thin stratified squamous epithelium (Figure 8A). The connective tissue consisted of numerous mature adipocytes and thin fibrous connective tissue strands. Adipocytes having large empty cytoplasm with eccentrically placed nuclei were seen (Figure 8B). There was no evidence of cellular atypia.

A diagnosis of lipoma was confirmed

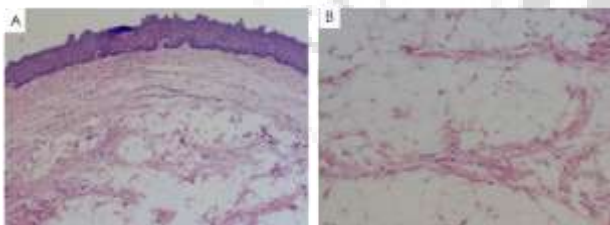


Figure 8: 8A - Well defined capsule. 8B: Adipose tissue with thin matrix interspersed

4. Discussion

Lipoma is most common benign neoplasm in the body. They are relatively uncommon in the oral and maxillofacial region. The term Yellow Epulis was first used by Roux et al in 1848 to describe the characteristic yellow appearance [6]. They represent a slow enlarging, soft, smooth surfaced mass of submucosal tissues. They may present as sessile or pedunculated and are usually well circumscribed.

The various theories to explain pathogenesis of lipoma include;

- True neoplasm /Metaplasia
- Herniation of buccal fat pad
- Trauma and chronic irritation
- Chromosomal aberrations

True lipoma are rare. The fibroblasts in the connective tissue undergo metaplastic change. These transformed cells begin production of fat tissue in abnormal sites resulting in a true lipoma. [7]

The buccal fat pad (also known as Buccal Fat Pad of Bichat) is thin encapsulated mass of adipose tissue in cheek region. It is anatomically wedged between buccinator and masseter muscles. Injury/trauma or intraoral surgical procedure in the vicinity may lead to herniation of this fat tissue intra-orally. Such herniation will not have a true capsule encompassing the adipose tissue. It is also called as Pseudo lipoma. [8]

Trauma and chronic irritation has also been reported to cause lipoma. Adair et al [9] first suggested a link between trauma and benign fatty tumor. Brooke and MacGregor et al in 1969 [10] suggested that occurrence of lipoma seen after soft tissue trauma may actually be a pseudolipoma. They suggested that the trauma would lead to subcutaneous scar formation and contracture leading to prolapse of adipose tissue.

Sigmorini and Campiglio et al [11] suggested the link between chronic inflammation and lipoma. They termed it Lipoma Arborescence. They suggested that chronic inflammation leads to local and systemic cytokines and growth factor release by damaged and necrotic cells after trauma. These lead to terminal proliferation of pre-adipocytes or de novo formation of precursor cells of adipose tissue. These would further form lipoma- Post traumatic lipoma.

Lipoma exhibit chromosomal aberrations such as translocations involving 12q13-15, locus interstitial deletions of 13q, and rearrangements involving 8q11-13 locus. [12]

Lipoma may occasionally be found within the muscle, which is the intramuscular, infiltrating lipoma [13]. Intramuscular, infiltrating lipoma is an uncommon lesion, and local recurrence can be expected if the surgical margins are not clear. Intramuscular lipoma is a rare benign mesenchymal tumor that infiltrates the skeletal muscle. These lipomas are usually found on the extremity, but rarely occur in the head and neck.

Tissue Fluorescence Visualization test was used to detect recurrence of the lesion [5, 14, 15]. This is an enhanced visualization device used for detection of oral mucosal abnormalities, such as oral cancer or pre-malignant dysplasia. It is a non-invasive test wherein a blue excitation light in range of 400-460nm is used to excite epithelial cells and underlying stroma. All living soft tissues have a peculiar self-fluorescence upon activation with blue light. This is seen when viewed from a viewer as an apple green fluorescence. In presence of abnormal changes in morphology or composition of tissue in the path of the blue light, there is loss of fluorescence at the abnormal site and it appears as a dark shadow. This is a quick chairside tool to detect and monitor progress of treatment of mucosal lesions.

The return of normal apple green fluorescence in post-operative VELscope scan indicated complete removal and absence of recurrence of abnormal tissue [5, 14].

Fine-needle aspiration biopsy (FNAB) or Ultrasound – guided FNAB sometimes can be used for aspiration, especially in infiltrating lipoma. Ultrasonography (USG) is a preferred technique as it is faster and inexpensive, and lipomas are hypoechoic with echogenic spots. [16] Magnetic resonance imaging (MRI) can be used to find the anatomical extent of intraoral tumors. [16] A color Doppler ultrasonography can also be done to evaluate the content of the lesion and its vascularity. [16]

Approximately, 5–8% of lipoma patients may present with multiple tumors which occur predominantly in upper half of the body and are three times more common in men than in women. The term lipomatosis has been used to describe this condition. The occurrence of multiple lipomas can be seen in association with Cowden's syndrome or multiple hamartoma syndrome, Frohlich syndrome, Proteus syndrome, and Bannayan–Zonanas syndrome. [17]

Histopathology remains the gold standard in the diagnosis of lipoma.

The histopathological features constitute of a circumscribed aggregate of mature adipocytes which may be encapsulated. Adipocytes show large clear cytoplasm in the absence of vascularity which serves as diagnostic feature of classic lipoma. [18] All lipomas are usually well-vascularized, but the vascular network is compressed by the distended lipocytes and is usually not appreciable. [19]

The various histologic types of lipoma include;

- 1) *Classic lipoma*
- 2) *Lipoma variants*- Admixed with other mature benign mesenchymal tissues
 - a) Fibrolipoma,
 - b) Spindle cell lipoma,
 - c) Intramuscular or infiltrating lipoma,
 - d) Angiolipoma,
 - e) Salivary gland lipoma (sialolipoma),
 - f) Pleomorphic lipoma,
 - g) Myxoid and Atypical lipomas

In this case, the diagnosis of lipoma was made after histopathological examination based on the presence of mature adipocytes contained within a well-defined capsule and presence of thin connective tissue stroma interspersed with collagen fiberbundles.

Immunohistochemistry has been used for differentiation between benign and malignant adipose tissue tumours with detection of aP2, a protein expressed by lipoblasts. [20] Immunocytochemical studies with CD34, bcl-2, 21, 24 assists in differentiating lipomas from other myxoid lesions. [21]

In the present case, lipoma was excised using conventional scalpel. Treatment by surgical excision generally results in a uniformly excellent prognosis compared with other methods

like electrosurgery and laser. Although surgical excision gives a cleaner wound and more rapid healing compared with ES in the initial stages, both techniques are comparable as healing progresses. However, it has been suggested that Electrosurgery use results in low tactile sensitivity for cutting, unavoidable burning flesh odour, and poorer postoperative healing in the early stages [22, 23].

5. Conclusion

Intraoral lipomas are uncommon tumours which may arise in any site in oral mucosa. Since they are asymptomatic, patients usually do not seek treatment and may be observed during routine oral examination. Accurate clinical and surgical information along with a histopathological examination is the mainstay to definitive diagnosis. The possibility of multiple lipomas must be considered, and an elaborate upper body examination must be done in patients with intraoral lipomas. Practitioners should assess innocuous looking swelling carefully and consider lipoma as a differential diagnosis with further confirmatory tests.

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Author Profile



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