

# Intra-Oral Lipoma—Case Report and Look into the Differential Diagnoses

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**Abstract:** *Lipoma is a rare intraoral tumor. Recurrences after excision are minimum. Its important to differentiate it from other lesions of the oral cavity presenting as a swelling. Further investigations into the etiopathogenesis of intraoral lipomas, would provide more light in the direction of their development and towards better management and treatment options. Here we present a case report of an intra-oral lipoma in relation to floor of the mouth in a 40 year old male patient.*

**Keywords:** Adipocytes, Lipoma, Leptin, Mucocele

## 1. Introduction

Lipomas are usually slow growing, soft and silent masses. It is the most common neoplasm arising from fat tissue. However, lipomas presenting as intraoral masses is an uncommon intraoral finding [1]. Intraoral lipomas represent 1% to 4% of all benign tumors involved in the oral cavity [2]. Histopathologically, most oral lipomas are composed of mature fat cells. The cells have a clear cytoplasm with a flat nucleus located at the periphery of the cell [3]. The most common locations of lipoma in the oral cavity have been reported to be in the buccal mucosa, a region abundant in fatty tissue, followed by tongue. The hard palate has very little fatty tissue and the incidence of a lesion here is quite low [4]. The exact etiology remains unknown, although trauma, infection and other factors have been proposed as etiological agents for lipomas [5].

Through this article, weve attempted to highlight the clinical and histopathological differential diagnoses of lipoma, and review the etiopathogenesis of this rare benign tumor affecting the oral cavity.

## 2. Case Description

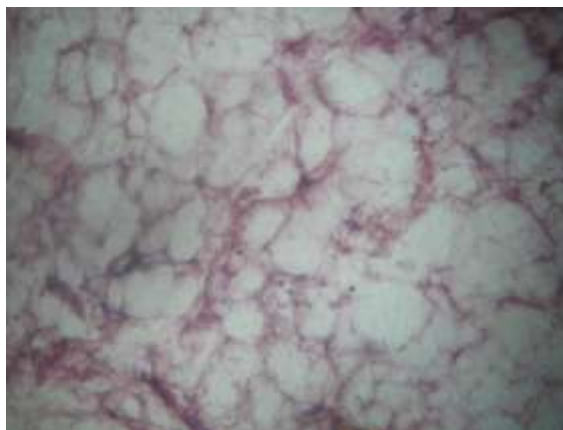
A 40 year old man, presented with a chief complaint of an intraoral swelling in relation to the floor of the mouth. The patient had first noticed the lesion 4 months back, before it slowly grew to the present size. It was asymptomatic and painless except associated discomfort during mastication of food. The lesion presented lateral to the midline, in the floor of the mouth, close to the opening of submandibular and sublingual salivary ducts [Fig:1].



**Figure 1:** Intraoral photograph showing swelling in relation to floor of the mouth

It was regular in shape and of size 1.5 x 1x 0.7 cm, sessile and slightly fluctuant on palpation. Inspection did not reveal sign of ulceration in the overlying mucosa. Local examination also did not reveal any inflammation in relation to the opening of ducts of major salivary glands. The submandibular and submental nodes were not palpable and non-tender.

A provisional diagnosis of mucocele, was arrived at because of the anatomical site where the lesion arose, with differential diagnosis of fibroma, lipoma, salivary gland neoplasm. Excision of the pathology was planned and executed under local anaesthesia. Upon histopathologic examination, the section revealed, resemblance to mature adipose tissue divided into lobules by intervening connective tissue. Section did not show any signs of cellular atypia, vascularity was moderate [Fig: 2].



**Figure 2:** Photomicrograph showing the tumor composed of adipose tissue [H&E, 10x]

Based on the clinical and microscopic examination, the final diagnosis of intraoral lipoma was arrived at. The postoperative healing was uneventful and no recurrence has been reported till date.

### 3. Discussion

Intraoral lipomas are benign mesenchymal neoplasms that originate in mature adipose cells with differential diagnosis of other soft tissue pathologies [2]. Lipomas generally grow slowly, because pain is not a feature in many cases, many years may elapse before patients consult their dentist or physician [5]. The metabolism of lipomas is completely independent of the normal body fat. If the caloric intake is reduced, then lipomas do not decrease in size, although normal body fat may be lost [6]. This is because the adipose tissue in lipoma is pathologic and is not utilized for body metabolism. Histologically, it is usually well-circumscribed and may demonstrate a thin capsule [7].

Adipocytes are categorised as physiologic clear cells of mesenchymal origin because, during routine histological sectioning, lipids are lost when subjected to organic solvents like xylene during processing, consequently cells appear clear [8]. Microscopically, it is not possible to distinguish these lipomas from normal adipose tissue, despite their different metabolism, probably due to high lipoprotein lipase activity in neoplastic lipoma cells [9]. The most common lesions are simple lipomas and fibrolipomas and rarer variants include angiolipoma, intramuscular (infiltrating) lipoma, pleomorphic lipoma, spindle cell lipoma, adenolipoma, myxoid lipoma and atypical lipomas [5].

Macroscopically, lipoma can be differentiated from other swellings in the oral cavity such as [10], [11], [12], [6]:

- **Torus palatinus** : It is usually asymptomatic. Located in the midline of the palate, bony hard, can be lobulated. Ulceration is rarely seen. Clinical appearance is usually diagnostic. Histopathology shows normal bone tissue.
- **Benign salivary gland neoplasm:** Usually slowly growing asymptomatic swelling. Seldom painful. Rarely ulceration is present. Occurrence in the tongue and the lower lip is rare. Palate is the most frequent site for minor salivary gland tumors. Are rare in children. Occlusal radiograph is taken to rule out a sialolith. Can be differentiated on the basis of histology.

- **Fibroma** : Often incidental finding. Located on the cheek mucosa on the line of occlusion or near the commissures. Often along the borders of the denture. After excision a lipoma floats in water as opposed to a fibroma, which does not. Histopathology shows collagen bundles arranged in a radiating, circular or haphazard fashion.
- **Mucocele (Ranula):** Asymptomatic soft, bluish swelling. Size may vary from a few millimeters up to several centimeters. It is located usually unilaterally. Clinical appearance in most cases is more or less diagnostic. Histopathology is more or less characteristic.
- **Squamous cell carcinoma:** Usually appears as an ulcerative lesion. Occasionally as a submucosal swelling or an erythroplakia or leukoplakia. Lesion is unilateral. Histopathology is diagnostic.
- **Fibrous dysplasia and other fibro-osseous lesions, cysts and neoplasms of the jaws:** Slow-growing swelling. Consistency may vary from firm elastic to bony hard. Diagnosis depends on radiograph and biopsy.
- **Neurofibroma:** Rare; easily diagnosed in cases of neurofibromatosis, in neurofibromatosis, patients have multiple neurofibromas that can occur anywhere in the body but are most common on the skin, highly characteristic feature is the presence of *café au lait* (coffee with milk) pigmentation on the skin, *lisch nodules*, translucent brown – pigmented spots on the iris are found in nearly all affected individuals; can be differentiated histologically.

Other differential diagnoses of lipoma, based on histopathology include:

#### a) Other benign tumors

**Neurofibroma** : As described previously

**Giant cell granuloma** : Can be differentiated on the basis of histological features, consisting of large numbers of ovoid or spindle-shaped young connective tissue cells and multinucleated giant cells.

**Odontogenic tumors:** Firm in consistency, produce observable changes on radiograph

**Fibroma** : As described previously

#### b) Yellowish tumors

**Fordyce's Granules:** Can be confused with small lipomas; helpful for diagnosis are the other scattered heterotopic sebaceous glands of the area.

#### c) Soft, sometimes fluctuant tumors

**Mucocele** : As described previously.

**Cavernous haemangioma, lymphangioma** : In superficial location – bluish; in deeper locations – pink; empties under pressure; aspiration yields venous blood or lymph.

#### d) Firm variants (lipomas of firm consistency)

These can be confused with other mesenchymal tumors with yellow-reddish color. Histology is diagnostic. Tentative diagnosis is suggested by localization.

- **Fibroma** : most common mesenchymal tumor
- **Salivary gland tumors:** As described previously.
- **Myoma:** Often in the tongue; can be differentiated on the basis of histology. Rare, benign tumor made up of muscle fibers.

The intraoral myomas are circumscribed, reddish masses of firm consistency.

Although there are reports in the literature of proliferative activity and chromosomal aberrations of lipoma adipocytes, details of the cellular and molecular phenomena underlying the pathogenesis of this tumour remain unclear [13]. Lipomas of the mouth are benign tumors; they grow slowly, do not infiltrate other tissues, do not ulcerate and are painless [14]. Heredity, fatty degeneration, hormonal basis, trauma, infection, infarction, lipoblastic embryonic cell nest in origin and chronic irritation are probable representative theories to elucidate the pattern of a lipoma [15]. In few cases of lipoma, rearrangement of 12q, 13q, 6p chromosomes have been observed [16].

H.Suga et al., found enhanced adipogenesis in lipoma compared with normal adipose tissue. Similar to obese adipocytes, lipoma derived adipocytes showed upregulation of leptin and downregulation of adiponectin. From the results of their study, they concluded that lipoma tissue showed a positive balance of adipocyte turnover involving proliferating ASCs (adipose derived stem/progenitor/stromal cells) and several transcriptional differences from adipose tissue enlargement in obesity [13]. Multiple head and neck lipomas have been observed in neurofibromatosis, Gardner syndrome, encephalocraniocutaneous lipomatosis, multiple familial lipomatosis and Proteus syndrome. Generalized lipomatosis has been reported to contribute to unilateral facial enlargement in hemifacial hypertrophy [16]. Lipomas generally are, well-circumscribed, painless soft tissue tumors that may be superficially or more deeply located, but has a malignant counterpart called liposarcoma [2].

The histopathology remains the gold standard in the diagnosis of lipoma [14]. The majority remain un ulcerated but ulceration leads to difficulty in diagnosis [1]. Special stains for lipoma cells include Oil red O, Sudan black B and Bromine Sudan black [17]. Adipocytes stain positively for vimentin and S-100 protein [18]. Lipomas are treated by conservative local excision and recurrence is rare.

#### 4. Conclusion

Diagnosis of lipoma warrants exclusion of other connective tissue, salivary gland neoplasms and malignant adipocytic neoplasms occurring in this location [1]. Recurrence may occur in the case of infiltrating lipomas basically due to an inadequate excision combined with a non-encapsulated lesion [19]. As oral pathologists, we can contribute to the management of lipoma, thus providing better patient comfort and quality of life.

#### 5. Source of support

None

#### 6. Conflict of interest

Nil

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