Lipomas of oral cavity: case reports with review of literature

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Abstract Lipomas represent about 1 to 5% of all neoplasms of the oral cavity. Although relatively common, few large series of intraoral lipomas and its variants are seen in the literature. Therefore, the author presents the four cases of intra-oral lipoma with one case of histological variant of lipoma, the fibrolipoma. All lesions were removed surgically with the intra-oral approach and none showed recurrence.

Keywords Benign tumor · Lipoma · Fibrolipoma

Introduction

Lipoma is a benign neoplasm which seldom occurs in oral cavity. The most frequent site is buccal mucosa, followed by tongue, floor of mouth, buccal sulcus, palate, lips and gingiva. Lipoma makes up 4–5% of all benign tumors in the body. Oral lipomas compromise 2.2% of all lipomas and 2.4% of all benign tumors of oral cavity [1].

The first description of oral lipomas was given by Roux [2] in 1848 in a review of alveolar mass; he referred it as a “yellow epulis”. Most of the lesions are developmental anomalies. Those which occur in the maxillofacial region usually arise late in life, presumed to be neoplasm of adipocyte. Most lipomas have chromosomal aberrations such as translocation involving 12q13–15, interstitial deletion of 13q and rearrangement involving 6p21–23. Chop gene is involved in adipocytic differentiation.

Case report 1

A 48-year-old female presented with history of swelling in the vestibule of oral cavity for the last 3 months. Clinical examination revealed a solitary swelling measuring about 1.5x1.5 cms located in the buccal mucosa in proximity to 44 and 45 (Fig. 1). Surface of the swelling was smooth and shiny (Fig. 1a). The swelling was non tender on palpation, soft in consistency and

mobile with well defined edges. It showed a yellow hue through mucosa. Ultrasound of the tumor was suggestive of soft tissue lesion (hypoechoic).

An excision biopsy (Fig. 1b) was done intra-orally under local anesthesia, the specimen (Fig. 1c) in formalin and was sent for histopathological examination.

Histopathological examination revealed lobules of mature fat cells surrounded by thin fibrous connective tissue septa. Adipose cells were uniform, round, with clear cytoplasm and eccentrically placed nucleus mimicking signet ring appearance confirming the diagnosis of lipoma (Fig. 1d).

Case report 2

A 30-year-old male patient reported with a history of swelling on right side of cheek for the last 2 years. Clinical examination revealed a solitary sessile, ovoid swelling measuring approximately 0.5 x 0.5 cms with smooth surface and soft consistency on the right buccal mucosa. The swelling was non-tender on palpation and mobile.

An excision biopsy was done under local anesthesia, the specimen was sent for histopathological examination. The postoperative period was uneventful.

Histopathological examination shows mature adipose tissue interspersed by broadbands or fascicles of dense connective tissue without presence of capsule

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confirming the diagnosis of fibro-lipoma (Fig. 2).

Case report 3

A 45-year-old male patient reported with a chief complaint of painful swelling in the upper jaw and pain for the past 1 week. The patient gave a history of growth in the palate since 15 days which was slowly growing. Pain was felt in the growth since 1 week which was continuous in nature. Patient also gave a history of thermal injury to the growth

Clinical examination revealed a solitary, pedunculated, roughly spherical growth measuring about 1.5 x 1.5 cms on the posterior part of the palate in the midline. The surface of the swelling was smooth and on palpation it was soft in consistency.

An excision biopsy was done under local anesthesia, the specimen in formalin was sent for histopathological examination. The postoperative period was uneventful.

Histopathological examination revealed atrophic parakeratinised stratified squamous epithelium with H & E stain. The underlying connective tissue showed the tumor mass, was enclosed by fibrous capsule. It showed the proliferation of mature adipocyte with clear cytoplasm and a peripheral nucleus giving a signet ring appearance suggestive of lipoma.

Fig. 1a Clinical picture of solitary swelling measuring about 1.5x1.5 cms located in the buccal mucosa in proximity to 44 and 45

Fig. 1b Mass popping out from the buccal mucosa

Fig. 1c Specimen in toto

Fig. 1d Histopathological examination revealed lobules of mature fat cells surrounded by thin fibrous connective tissue septa (H&E stain, 10X)

Fig. 2 Histopathological examination shows the mature adipose tissue was interspersed by broadbands or fascicles of dense connective tissue without presence of capsule. (H&E stain, 40X)

Fig. 3 Lobules of adipose tissue consisting of adipocytes with clear cytoplasm and eccentric placed dark nucleus, separated by loose connective tissue. (H & E stain, 40X)

Case report 4

A 60-year-old male patient reported with a complaint of swelling in the right lower jaw region for the past 2 years. The swelling was initially small in size and gradually increased in size. Patient was a known diabetic for the past 25 years and a known hypertensive for the past 3 years and under medication for both.

On examination a solitary sessile swelling measuring about 2x3 cms was present over the right parasymphysis region extending anteroposteriorly 0.5cms away from the symphysis to 0.5cms away from the corner of the mouth and superoinferiorly from below the lower lip to lower border of the mandible. Skin over the swelling

appeared normal. Swelling was soft in consistency and non-fluctuant.

Intraoral examination revealed a solitary diffuse swelling in the region of buccal vestibule measuring about 2x2 cms extending from the region of 42 to 45. Mucosa over the swelling appeared normal. No signs of inflammation were seen. On palpation swelling was non tender, soft in consistency, with no local rise in temperature.

An excision biopsy carried under local anesthesia, and the specimen sent for histopathological examination. The post operative period was uneventful. Histopathological report revealed lobules of adipose tissue consisting of adipocytes with clear cytoplasm and eccentrically placed dark nucleus, separated by loose

connective tissue septa suggestive of lipoma (Fig. 3).

Discussion

Lipoma is a benign slow growing neoplasm composed of mature fat cells. Lipomas in the oral cavity are rare. 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 [3]. Lipoma differs metabolically from the normal fat cells even though they are histologically similar. It has been shown that the fat of lipoma is not used for energy production during starvation period, as it happens with normal adipose tissue [3]. Adipose tissue is present in two basic forms white fat and brown fat.

The aetiology varies from the differentiation of multipotent mesenchymal cells in fat tissue, cartilage, and bone to metaplasia of a pre-existing lipoma. Mesenchymal cells are modified by systemic and local influences that range from local trauma to prolonged ischaemia [4].

Benign tumors of the adipose tissue have been classified according to their histologic features and growth patterns into simple lipoma, fibrolipoma, angiolipoma, infiltrating (intramuscular) lipoma, pleomorphic lipoma, osseolipoma, sialolipoma, chondrolipoma, myxolipoma, and spindle cell lipoma [5]. These microscopic subtypes have no clinical significance with respect to the behavior of tumors. Depending upon the site, lipoma can also be categorized into superficial, deep, and periosteal.

The cause of simple lipoma and fibrolipoma remains unclear. Various pathogenetic mechanisms, such as origin from lipoblastic embryonic cell nests, metaplasia of muscle cells, and fatty degeneration, have been proposed as a

putative causative factor for simple lipoma. Other factor such as trauma, infection, chronic infection and hormonal imbalance may also have been implicated. Fibrolipoma has been thought to be congenital to be caused by endocrinal imbalance, to be the product of a degenerated fibromatous tumor, or to be arise from maturation of lipoblastomatosis [5].

It has been suggested that oral lipomas are more common in males, while oral fibrolipomas are more frequent in females, in contrast with the whole body where lipomas are twice as common in females as in males [5]. Lipomas and fibrolipomas are both usually well circumscribed and thinly encapsulated, features that help in their differential diagnosis with herniated adipose tissue and fibrous polyp with fat entrapment, respectively. Oral lipoma often exhibit capillary vessels in the overlying mucosa [1].

The clinical features of lipoma's vary according to their rate of growth, size, and location. The usual complaint is of a painless palpable mass, and there is seldom dysfunction of an involved muscle. A characteristic feature is a change in consistency and form of many of these lesions during contraction of involved muscle. The tumor is soft and flat when the muscle is relaxed and becomes firm and more spherical when muscle contracts.

Lipomas vary in size from 3 x 3 mm to 25 x 30 mm, with most measuring around less than 10 mm in diameter. Tumor found in the hard palate was largest with a mean size of 60 mm. In a report of 125 cases, the mean tumor size was 22 mm with the largest being 70 mm found in the cheek [6]. The lipoma with an 80 mm diameter is one of the largest cheek lipomas reported in the oral medicine literature [7].

Occasionally, the lipoma may invade muscles or grow between them: the so-called infiltrating lipoma. Infiltrating lipoma is an uncommon mesenchymal neoplasm that characteristically infiltrates adjacent tissues and tends to recur after excision. This type of lipoma is extremely rare in the head and neck region, and its congenital type is rare [8,9]. No case of infiltrating lipoma undergoing malignant changes has been reported in the literature [10]. Angiolipoma is characterized by prominent vascular components, whereas infiltrating lipoma is composed of mature adipose cells, inconspicuous blood vessels, and delicate strands of connective tissue [11].

Tosios et al. (1995) [12] have presented a case of painless mass in left cheek,

histologically revealed to be spindle cell lipoma. Spindle cell lipoma is not encapsulated and sometime infiltrates adjacent muscles. Spindle cell lipomas accounts for approximately 1.5 % of all adipocyte tumors and 1/60th of incidence of ordinary lipoma.

The overgrowth of the interlobular connective tissue can make the tumor turn into fibrolipoma: the growth of the vascular tissue converts it into an angiolipoma, or its subtype, a cavernous lipoma with spaces filled with blood [11]. In mixed types, the name of tumor is determined by the tissue which prevails. In some cases, either ossification (lipoma ossificans), or mucous (myxolipoma), and cystoids degeneration of some parts of lipoma may be observed.

The ability of infiltrating lipoma to infiltrate adjacent muscle and recur locally may lead to a rise false clinical diagnosis such as liposarcoma. This malignant tumor is characterized by areas of the lipoblastic proliferation, myxoid differentiation, cellular pleomorphism, increased vascularity, and mitosis, feature that are not present in infiltrating lipoma. A useful diagnostic marker in the differential diagnosis between benign and malignant adipose tissue is the immunohistochemical detection of al 2 protein, which is expressed in lipoblasts.

Regarding the proliferative activity of lipomas, Fregnani found that there are differences in PCNA and ki-67 expression in the different histological groups their cases. The proliferative rate of fibrolipomas was greater than common lipomas, but no differences in clinical behaviour were noticed after surgical treatment. Although the increased PCNA expression would suggest faster growing of the lesion, this was not reflected in a worst prognosis, as showed by the absence of recurrence in all the followed-up cases after surgical approach. Phenotypical individual alterations could lead to different proliferative rate expression in the various groups analysed, without reflections in the prognostic features. However, some of their cases showed short follow-up period, bringing difficulties in the correlation of the proliferative activity with the absence of recurrence [13].

Barker GR (1986) [14] presented a rare case of intraosseous lipoma of mandible and reviewed the clinical, radiological and histopathological findings in the previously reported cases in jaws. There are no pathognomonic histological features to differentiate the diagnosis of intraosseous lipoma from a developmental, marrow

defect or 'reactive' increase in adipose issue.

On some occasions lipoma of the buccal mucosa cannot be distinguished from a herniated buccal fat pad, except by the lack of a history of sudden onset after trauma.

Lesions outside the oral cavity could show greater recurrence rates after surgical excision, but intraoral intramuscular lipomas, although not well-limited, rarely show recurrence if completely excised as seen in our cases. Liposarcoma is important in the differential diagnosis, because well differentiated liposarcoma often contains many areas of lipomatous tissue. These sarcomas characterized by areas of lipoblastic proliferation, myxoid differentiation, cellular pleomorphism, increased vascularity, and mitosis.

To conclude lipomas found in the oral and maxillofacial region are usually slow growing lesions. The clinical course is usually asymptomatic until they get larger in size. In the present case reports surgical excision was done immediately with histological analysis. Prognosis is good for all these patients and no recurrence reported with mean follow up of two years.

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