



Submental Lipoma

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Abstract

Lipomas are common mesenchymal tumours; however, their occurrence in the head and neck region is relatively rare and account for only 15% - 25% of all lipomas. Lipomas of the submental region are even more uncommon, representing only about 1.0% -1.3% of all submental tumours, and are often not included in the initial differential diagnosis of benign tumours. Usually, a soft, non-tender, well-circumscribed tumour of the submental area in an elderly female is considered Salivary gland tumors unless proven otherwise by histopathological examination. A rare case of a large lipoma of the submental area, which had been present for 2 years, is reported in a 42-year old female patient. The literature on clinical presentation, method of investigations and management of submental lipoma is briefly reviewed.

Keywords-CT scan, FNAC, Lipoma, MRI, salivary gland, submental lipoma submandibular lipoma.

Introduction

Lipomas are the most commonly encountered benign mesenchymal tumours. They are composed of mature fat cells and occur predominantly on the back, shoulder, and the abdomen. Below the clavicle, lipomas are more common in obese female patients, usually those over 40 years of age; however in the head and neck region, the most commonly affected group are men in their fifth to seventh decade of life. Indeed some studies have reported that men are more likely to be affected by head and neck lipoma by 52%, 62.5% and 68% respectively. The occurrence of lipoma in the head and neck region is relatively rare, accounting for only about 15% to 25% of all lipomas. most of which occur subcutaneously in the posterior neck . submental lipomas are very rare and are seldom considered in the initial preoperative differential diagnosis of benign tumours . Some authors report that lipomas of the submental area account for about 0.6% -4.4% , However, studies involving large series of patients report an incidence of 1.0% -1-3% of all head and neck tumours. Lipomatous lesions of the submental occur in patients from 7 years to 72 years of age with a peak incidence between the 5th-6th decades of life and are 3-10times more common in males than females. A rare case of a large right submental lipoma of 2 years duration, which was initially diagnosed clinically as sublingual tumor, is reported in a 42-year old female patient. The clinical presentation, diagnostic modalities and methods of treatment are briefly discussed.



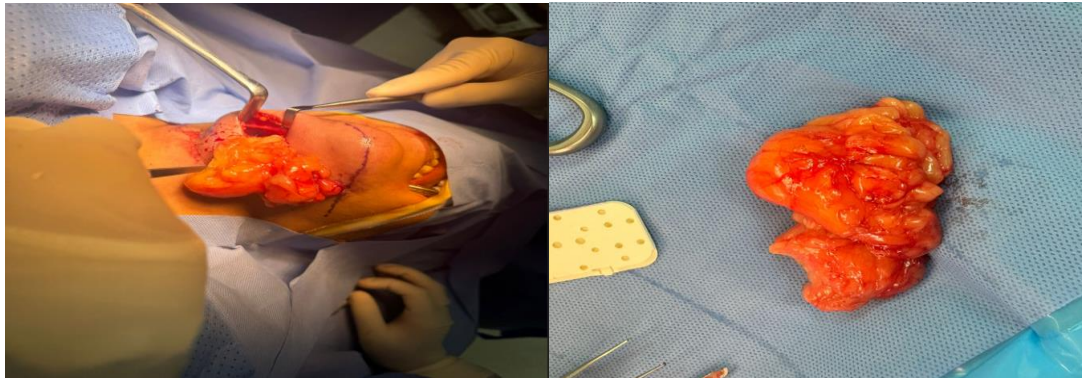
Case Report

A 42-year old female Saudi patient was referred to the Department of Oral & Maxillofacial Surgery by a General Surgeon, concerning a large, painless, gradually enlarging mass in the right submental region of 2 years duration. There was no history of previous trauma or infection. The patient's past medical history fit. Physical examination showed a very large, soft, nontender, well-circumscribed, mobile mass in the right submental region under the chin covered with normal overlying skin and measuring about 10 x 4 x 3.5 cm. The patient has an obvious mass. There was no alteration in facial nerve function, no palpable cervical lymph nodes, no trismus and salivary flow through the sublingual and submandibular glands duct was normal. The provisional clinical diagnosis considered, on account of her age, gender and the consistency of the swelling, was sublingual tumor. The CT scan revealed a well-circumscribed, smooth-walled, hypodense, non-enhancing lesion in the inferoanterior aspect of the chin, measuring 10 x 4 x 3.5 cm, with an attenuation value of -120 Hounsfield Unit (HU) which corresponded to lipoma. There was mild compression of the sublingual vein but no cervical lymphadenopathy. Magnetic resonance imaging (MRI) showed a well-demarcated mass involving the right submental space which was hyperintense on T1-weighted and T2-weighted axial views as well as weak signals on fat-suppressed images (Figure 1).



Figure 1 Axial MRI view showing a large hyperintense lesion of the right submental region surrounded by a black capsule suggesting a lipoma.

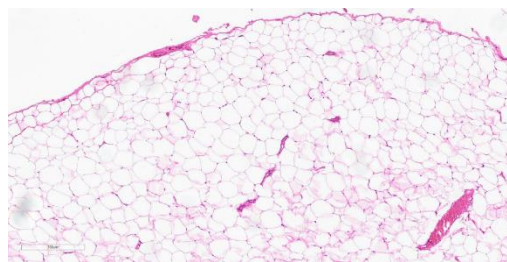
Preoperative hematological investigation results were within normal range. Under general anesthesia with orotracheal intubation, the flap was raised through the standard methods incision in the right submental region with cervical extension. When the incision was opened, a large lipomatous lesion was found entirely within the inferior aspect of the submental and submandibular spaces. The soft, glistening, yellowish lump, measuring 10 x 4 x 3.5 cm, was excised by a combination of blunt and sharp dissection after preserving the lingual, marginal mandibular and cervical branches of the facial nerve (Figure 2 and 3).



(Figure 2) Intraoperative photo showing excision of the lipoma.
(Figure 3)Excised surgical specimen.

The wound was closed in layers. The post-operative wound healing was uneventful with no Complications.

The histopathology examination was reported as “lobulated fatty tissue lesion with focal thin capsule and . The Lobule are made of sheet of homogenous mature adipocytes . these lobules are separated with interveinig thin fibrous septae with tiny capillary sized blood vessels . No malignancy seen in section examined”(Figure 4). This confirmed the preoperative diagnosis provided by CT scan and MRI.



(Figure 4) Photomicrograph of the RT sub mental mass showing adipose tissue consistent with lipoma.

The patient still follow up in the clinic. It has been 10 months post-operatively and there is no sign of recurrence of the tumor as evident clinically and confirmed from a brain CT scan and MRI taken 6 months after surgery for an unrelated CNS ailment.

Discussion

lipomas are rare benign tumors composed of mature adipose tissue. Their occurrence in proximity to the sublingual and submandibular glands within the gland that are totally surrounded by salivary tissue is an unusual presentation that poses diagnostic and surgical challenges due to the complex anatomy of the head and neck region. This case study highlights the clinical, diagnostic, and therapeutic aspects of managing a submental lipoma, emphasizing its unique features and implications. Below is a comprehensive discussion of the case.



Clinical Presentation

The clinical presentation plays a critical role in narrowing the differential diagnosis. Key features suggesting a lipoma in this case included:

Slow, progressive growth.

Painless, mobile, soft, well-circumscribed mass.

Lack of systemic or inflammatory symptoms.

Normal overlying skin and no involvement of deeper structures.

This clinical profile, combined with imaging and histopathological findings, allowed for a definitive diagnosis of submental or submandibular lipoma.

sub mental lipomas usually present as slow-growing, asymptomatic, non-tender, freely movable, soft masses. however, 30% of cases have been reported as indurated masses. Occasionally, lipomas have been described as rubbery or hard in consistency. Lipomas may present as focal encapsulated lesions or diffuse infiltrative masses. About 50% of sub mental lipomas are of the focal variety. sub mental lipomas have a benign presentation and are most often confused with sublingual or Salivary Gland tumours. Clinically, a soft, non-tender and well defined tumour in the submental area, in an elderly woman, is normally considered a Salivary Gland tumour unless proven otherwise through histopathological examination. Although they are generally asymptomatic, some submental lipomas have been associated with lingual paralysis. and pain the painful submental lipomas were all of the diffuse type and suggested that diffuse fatty infiltration of the glands may have led to distortion of the ductal architecture thus predisposing them to obstructive sialadenitis.

Methods of Investigation

Ultrasonography, high resolution CT scan or magnetic resonance imaging (MRI) are helpful in the further assessment and diagnosis of submental lipomas. In the head and neck region, ultrasound shows lipomas as well-defined masses, hyper echoic to adjacent muscles however, others have also been described as isoechoic or hypo echoic so ultrasound is less specific than CT scan or MRI. Compared to CT scan and MRI, ultrasonography is quick, easy, less costly and, with the use of high-frequency transducers, more suitable for imaging superficial lesions and therefore can be used as initial study.

However, the soft tissue characterization seen in ultrasound is less specific than with CT scan or MRI and therefore where the mass is deep or difficult to identify on ultra sonogram, either CT scan or MRI is necessary as they provide the best tool for diagnosis and surgical planning . They are the investigative tools of choice and are very accurate in preoperative diagnosis of lipoma. On CT scans, lipomas typically have characteristics of homogenous, well-encapsulated masses with few septations and specific negative attenuation with values ranging from -50 to -150 Hounsfield Units (HU) and with no contrast media enhancement . MRI remains the best diagnostic imaging technique that can accurately diagnose lipoma preoperatively by comparison of signal intensity on T1 weighted and T2-weighted, as well as fat-suppressed images . Lipomas usually show as strong signals on T1-weighted images and T2-weighted MR images and weak signals on fat-suppressed images .. The fat suppression sequence distinguishes these lipomatous tissues from other types of tumours. MRI, unlike CT scan, can



also define the capsule of lipoma and its limit from normal adipose tissue by a black rim around the mass.. In addition, MRI is safe with few biological effects on the patient.

Although CT scan is three times cheaper, extremely valuable and as effective as MRI, if not more straightforward, the latter is preferable by many surgeons because of better imaging of soft tissue. The drawback for CT scan is that it exposes the patient to ionizing radiation, which could be avoided by using MRI . The submental lipoma in our report registered -120 HU on CT scan thus confirming lipoma. Magnetic resonance imaging (MRI) of the right submental lipoma of the same patient showed a well-demarcated mass involving both the submental area which was hyper intense on T1- weighted and T2-weighted views and showed weak signal on fat-suppressed images.

There is a general consensus among authors that one weakness in the current diagnostic imaging techniques in the diagnosis of tumours of fatty tissue is that, none of the imaging methods including CT scan and MRI can differentiate a lipoma from a liposarcoma. Such distinction can only be made with certainty by histopathological examination However, Kransdorf et al . 2002, in a study of reliability of CT scan and MRI in distinguishing lipoma from liposarcoma, concluded that lipoma can be successfully distinguished from well-differentiated liposarcoma when it is completely composed of adipose tissue. Lipomas are benign tumours which are histologically similar to mature adipose tissue, but the presence of a fibrous capsule serves to distinguish them from simple aggregation of fat. The fibrous capsule shows as a black rim on MRI but is not observed on CT scan.

Fine needle aspiration cytology (FNAC) is very valuable in investigating other tumours (masses), but it is not helpful in lipoma. Although FNAC has been used with some success in lipoma other authors deem the technique unreliable for diagnosing a lipoma due to a significant rate of false negative results in salivary gland tumours. even with experienced cytologist. Moreover, fat cells from lipomas are identical to normal subcutaneous fat cells. Unlike normal adipose tissue, lipoma is not metabolized during starvation. When the diagnostic accuracy of MRI, CT scan and FNAC were compared in a small group of patients with parotid lipoma, it was concluded that CT scan and MRI are more reliable with 100% accuracy compared with 25% accuracy of FNAC in the diagnosis of lipoma. Furthermore, FNAC may cause fibrosis or adhesion between the facial nerve branches and the lipoma capsule and this may increase the risk of facial nerve damage during surgery.

Management

The treatment of choice of submental lipomas is surgical excision. The recommended surgical approach should be the same as for any other suspected benign submandibular and sublingual tumors with due consideration for the presence of nerves in the operation field. These include marginal mandibular or lingual nerves preservation, excision of the well-encapsulated lesion of the lipoma without injury for those very close to the lipoma capsule and total conservative of the salivary glands. Wu et al. and Ohyama et al, Recommend that when the deep lipoma is associated with the lower branches of the facial nerve, these branches should be meticulously



dissected from the overlying tissue They believe that this technique helps to maintain better facial contour, and avoid the need to excise redundant skin there by contributing to better post-operative aesthetics and functional results as well as preventing the occurrence of Frey's syndrome . The certainty with which CT scan and MRI, can establish the correct diagnosis of lipoma has led some authors to justify long-term clinical and imaging observation as a management option for small lipomas and clinically static deep lipomas especially in patients reluctant to undergo surgery . Surgical intervention in such patients may be reserved for those with cosmetic or pressure effects. Careful follow-up review for cases treated conservatively is necessary because malignant transformation has been reported. If adequately resected, recurrence of a lipoma is less than 1%. Re-excision of the recurrent lesion is curative. Our patient has no recurrence 10 months after the surgery.

Conclusion

In the light of the case presented in this report, it is recommended that lipoma be included in the differential diagnosis of submental tumours in elderly female patients. As the histopathology report confirmed, MRI and CT scan can be accurately used to diagnose lipoma on their own and therefore should be used, where it is available and affordable, to aid in the preoperative investigation of submental tumours. While FNAC is useful in the diagnosis of some tumours, it is rather unreliable when used in the diagnosis of lipomas.

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