



## Lipomas: Review and Evaluation of the Literature

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### Abstract

Lipomas are one of the commonest mesenchymal tumours in adults which are slow-growing benign soft-tissue tumors. Although most lipomas are <5cm in size, giant lipomas >10cm have also been reported in different parts of the body that rarely occur in head and neck region. Infiltrating lipoma is an uncommon mesenchymal neoplasm when a patient presents with a large, rapidly progressing infiltrating lipoma of the head and neck region, the possibility of malignancy should be kept in mind.

### Introduction

Lipoma is the most common benign soft tissue mesenchymal neoplasm with a prevalence rate of 2.1 per 1000 people [1]. It occurs mostly in the fifth and sixth decades of life [2]. Most placements of areas of lipomas are the arm, shoulder, back, legs, forehead and face [3]. Only 13% lipomas occur in the head and neck area [4]. The most common location of lipoma on the head and neck region is the cheek, followed by the tongue, buccal mucosa, lip and neck. Usually it arises in the posterior triangle which is rarely seen lateral cervical area [5]. Rarely these tumors reach huge size (greater than 10 cm) to call a giant lipoma.

### Clinical Features

Lipomas are seen men more than female (9:1) [6]. These tumors usually present painless, subcutaneous, mobile mass. Lipomas are classified histopathologically lipoma (solitary or multiple), hibernoma, pleomorphic lipoma, angioliipoma, infiltrating lipoma, lipoblastomatosis, and fibrolipoma. They are mostly solitary but rarely seen multiple. Lipomas grow slowly and when it is greater than 10cm which called giant lipoma. A few lipomas present as a giant lipoma. Gaur et al. [3,7] reported a case who had a giant cervical lipoma 32 cm × 30 cm × 19 cm, in another study report a cervical lipoma which is 38cm × 18cm × 15cm in dimensions. Etiologic factor or factors are not clear. Some studies reported that trauma can be a reason. It can cause injuring of the fibrous septa and connections between the skin and deep fascia, allowing the adipose tissue to proliferate rapidly [8].

### Giant Infiltrating Lipoma

Infiltrating lipoma is a rare variant of lipoma first defined by Regan in 1946(Regan JM, Bickel WH, Broders AC: Infiltrating lipomas of the extremities. Surg Gynecol Obstet 1946, 54:87). When the lipoma invade muscles or vessels the which is called infiltrating lipoma [9]. These tumors are not encapsulated, extensively involving the vessels, muscle, nerve, or deep soft tissues [10]. The typical infiltrative growth pattern of infiltrating lipoma can cause a misdiagnosis of malignancy. There are two types infiltrating lipomatous; lipoma and angioliipoma. Angioliipoma is characterized by vascular components; otherwise infiltrating lipoma is characterized by mature adipose cells [11]. CT and MRI are important for diagnosis of infiltrating lipoma. Especially MRI provides information about relationship between tumor-surrounding tissues [9].

### Imaging

Diagnostic imaging can be helpful to assess these lesions. CT and MR imaging signal intensity characteristics of lipomas are similar to subcutaneous fat. On CT scans, lipomas observe like homogeneous hypo attenuated lesions. Hounsfield unit measurements of lipomas are between -65 and -120. They usually don't show contrast enhancement. Lipomas have typical signal intensity on MR images. On T1-weighted images, lipomas are seen high signal intensity, on the other hand on T2-weighted images; these lesions have low signal intensity. Both of images can be helpful about mass location and relationship surrounding soft tissue.

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## Histopathologic Features

Macroscopically, lipomas are usually soft, well-circumscribed masses featuring a yellow cut surface. They mostly have a thin capsule. Lipomas are composed of lobules of uniform, mature adipose tissue. Lipomas are diffusely positive for S-100 protein but this is not specific for lipomas [12]. Classic benign lipomas often show chromosomal rearrangements of 12q14-15, 6p and 13q.9 (2). For these lesions, biggest challenge is differentiating a lipoma from a well-differentiated liposarcoma. The absence of vacuoles in the irregularly shaped nuclei and increased size of the cells may be helpful for diagnosis of a well-differentiated liposarcoma [12].

## Differential Diagnosis

Lipoma needs to be distinguished from epidermal cysts, nodular fasciitis, liposarcomas, metastatic disease, erythema nodosum, nodular subcutaneous fat necrosis, subcutaneous tumours, vasculitic nodules, sarcoidosis, rheumatic nodules, hematomas and infections. In additional, giant intramuscular lipomas should be differentiated from liposarcomas, metastatic carcinomas and malignant histiocytomas [2,12,13].

## Treatment

Treatment options are non-excisional and excisional techniques. Non-excisional techniques are steroid injections, which results in fat atrophy, and liposuction, which destroys the adipose tissue. The most common option of treatment of lipomas is simple excision. During excision, Surgeon should be sure to remove the tumor with capsule to prevent recurrence. After excision local recurrence percentage is less than 5%. The infiltrated lipomas have higher recurrence percentage than small soliter lipomas [2,14,15].

## Discussion

Lipomas are the most frequently encountered soft tissue tumors. Lipomas may occasionally occur deeply, growing inter- or intramuscularly, which may infiltrate surrounding tissues (muscle, big vessels etc.). Intramuscular lipoma occurs most commonly on the extremities, but is rare in the head and neck area [16]. Flechter and Martin-Bates classified intramuscular lipomas which were well-circumscribed and infiltrative types, in 1988 [17]. Infiltrative type rarely occurs in the head and neck area. Bennhoff et al. [18] reported an infiltrating lipoma case which was settled in the tongue. Likewise, Shirasuna et al and Takeda et al reported infiltrating lipoma cases in tongue [19,20]. Pilissier et al. [21] reported a case which settled lower lip and buccal mucosa; they also reported that the tumor infiltrated the chin. Derin reported an infiltrating lipoma case, which settled in lateral neck and infiltrated the common carotid artery. All of these cases show us, infiltrating lipomas may cause serious clinical situation. And also they could be misdiagnosed like a liposarcoma. Before planning surgery, radiological exam should be performed carefully. The lipomatosis are composed of only adipose tissue allows a confident diagnosis for lipoma at MR or CT imaging, because well-differentiated liposarcomas have heterogeneous appearance.

## Conclusion

Lipomas are seen as a small soliter tumor, rarely which can grow larger and called giant lipoma. All of lipomas, especially giant lipomas should be distinguished from liposarcoma. After correct diagnosis, imaging should be performed for planning of treatment. CT and MRI can be helpful about location and features of the tumor. The

best option of treatment of giant lipoma is total excision. If tumor is completely removed, recurrence chance will be low. Especially in infiltrating lipomas, treatment of lipomas should be planned carefully. It will allow avoiding complications and recurrence.

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