

## CASE REPORT

**Web Space Lipoma Causing Separation of Toes - A Rare Case Report with Review of Literature**

*Manish Swarnkar<sup>1</sup>\*, Sheel Chand Jain<sup>1</sup>*

*<sup>1</sup>Department of General Surgery Jawaharlal Nehru Medical College, Sawangi (M), Wardha-442001 (Maharashtra) India*

**Abstract:**

Lipomas are common and benign soft tissue neoplasms which are composed of fat cells. These tumours often develop where adipose tissue is present. Some lipomas are believed to develop after blunt trauma. Reports of a lipoma in the foot exist, but the occurrence of the tumour in web space is rare. Here we present case of a 65 year old female with lipoma at the third web space causing separation of toes.

**Keywords:** Lipoma, Web Space Separation, Toes, Mature fat cells

**Introduction:**

Lipomas are the most common type of soft tissue mesenchymal tumours[1]. They are typically located subcutaneously, consists of mature fat cells and account for nearly 50% of all soft tissue tumours that occur in the extremities [2]. Most lipomas usually present as non-painful, asymptomatic, round, mobile masses with a characteristic soft, doughy texture. They predominantly affect the obese individuals and tend to be encapsulated and well demarcated from surrounding tissues [2]. Lipomas are further subclassified as conventional lipoma, fibrolipoma, angioliipoma, spindle cell lipoma, myelolipoma, and pleomorphic lipoma depending on their morphologic features [3]. The most common locations for lipomas to occur are the upper back, neck, abdomen, and the proximal portions of the extremities [4]. When a lipoma localizes to the foot, the patient may complain of cosmetic

concerns and/or irritation with shoe gear [2]. This report describes a rare case of benign lipoma occurring on the foot in the third web space causing separation of toes.

**Case Report:**

A 65 year female came with complaint of swelling at the 3<sup>rd</sup> web space of right foot since 3 years causing separation of toes without any difficulty in walking. The swelling was gradually progressive in nature. There was no history of trauma or infection the foot, and patient had no systemic disease. On physical examination a Single swelling, nontender, mobile, soft in consistency of size 3 x 4 cm was present at the 3<sup>rd</sup> web space of the right foot (Fig. 1), displacing 3<sup>rd</sup> and 4<sup>th</sup> toe. FNAC showed clusters of mature adipocytes; suggesting a lipoma. On USG homogenous hyper-echoic mass with minimal colour Doppler flow was present. Radiograph showed low density soft tissue shadow in the third web space with displacement of the adjacent toes; no bony pathology was present (Fig. 2). Owing to the patient's complaint, surgical treatment was advised. Under regional anesthesia, Vertical incision was taken over the swelling, Blunt dissection was then used to identify the borders of the mass which was then excised (Fig. 3). On histopathology, mature adipose cells with cytoplasmic vacuoles were seen (Fig. 4).



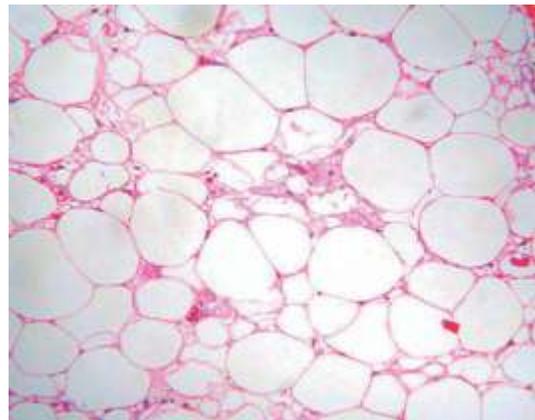
**Fig. 1: Clinical View of the Soft-Tissue Mass in the Third Web Space Right Foot**



**Fig. 3: Dissection Revealed an Encapsulated and Multilobular Lipoma**



**Fig. 2: Radiography showing the Soft Tissue Shadow (Arrow), No Bony Involvement**



**Fig. 4: Histological Findings With H & E Stain, Showing Viable Mature Fat Cells**

**Discussion:**

Soft-tissue tumours involving foot are usually uncommon; accounting for only 4% of tumour [5], among these, foot lipomas arising in interdigital space are very rare [6]. A few cases of lipomas at different sites of the foot have been reported previously. Vandeweyer *et al.* [7] reported a lipoma on the plantar aspect of the

second toe similarly Lisch *et al.* [8] reported a lipoma that completely involved the fourth digit of the foot. To our knowledge, this is the second case report of a lipoma involving the web space first being described by Akgün *et al.* in 2012 [6].

Lipoma can occur at any age, they most often appear between the ages of 40-60 years. They are

the most common soft tissue tumours found in adults. They occur more often in males than in females. Lipomas usually do not often change their form and have very little potential for malignancy [9]. The etiology of a lipoma is unknown. Multiple causative factors have been proposed that include genetic [10], traumatic [11], and metabolic [12]. The leading genetic theory for lipoma formation proposes that spontaneous karyotypic anomalies lead to chromosomal fusion products which promote proliferation of adipocytes [10]. Although numerous other chromosomal aberrations have been described, lipomas are most commonly associated with translocations and rearrangements of the 12q13~q15 chromosomal region [10]. History and physical examination are the foundation of diagnosis. When a subcutaneous tumour cannot be diagnosed by palpation, or when a lipoma develops within deeper structures where palpation is difficult, imaging may be necessary for diagnosis. On plain radiograph, lipomas appear as

an area of characteristic radiolucency referred to as a “water-clear density” [13]. Ultrasound examination demonstrates a homogeneous and circumscribed hyper echoic area [14]. With computed tomography, lipomas exhibit smooth edges with distinct margins, a uniform density comparable to normal fat, and do not enhance with intravenous contrast [15]. Small asymptomatic lesions that have been diagnosed by history and physical examination may be observed without intervention. However, surgical excision is indicated when pain, interference with walking and shoe wearing, compression neuropathy, or cosmetic concern are present [16].

### Conclusion:

Although lipomas of the foot in the interdigital area are rare, they must be considered in the differential diagnosis of soft tissue masses of the foot. However, if the mass causes neurovascular compromise, separation of toes and mechanical discomfort, it should be excised.

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\**Author for Correspondence: Dr. Manish Swarnkar, Department of General Surgery, JNMC Campus, Sawangi (M), Wardha-442001 Maharashtra Email: mswarnkar1971@gmail.com Cell: 9763703920*