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Surgical Resection Of A Giant Intramuscular Lipoma Of Thoracic Muscle: A Case Report And Literature Review

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1. Introduction

Lipomas are the most common benign tumors which can be categorized into superficial lipomas, deep lipomas, intramuscular and intermuscular lipomas according to the location of the mass. Although lipomas are relatively common, intermuscular lipomas are rare, representing only 0.3 % of all lipomas [1]. In this article, we present a rare case of a giant intermuscular lipoma (IL) between the major and minor pectoral muscles.

2. Case report

A 68-year-old male patient, with no medical or surgical history, was referred to our clinic due to the giant mass on the right chest. The mass rapidly growing on his chest over the past 65 years, which had already been diagnosed as an intermuscular lipoma by computerized tomography (CT) two years ago. The patient did not complain about any pain or functional restrictions induced by the mass, but considered the tumor cosmetically and mentally disturbing. Therefore, he was referred to our hospital for the surgical resection of the lipoma. The CT showed a30×25×15 cm mass partly located in the thoracic muscle with extension to the skin surface, corresponding to an intermuscular lipoma (IL). CT shown a large lobulated mass, which takes up almost the entireright breast, with possible extension to the skin surface and intercostal muscles (Fig. 1). The exact location was between the major and minor pectoral muscles, extending distally to the arch of ribs. There were no morphological signs of malignancy. The three-dimensional (3D) image shown the giant mass on the right chest (Fig. 2).

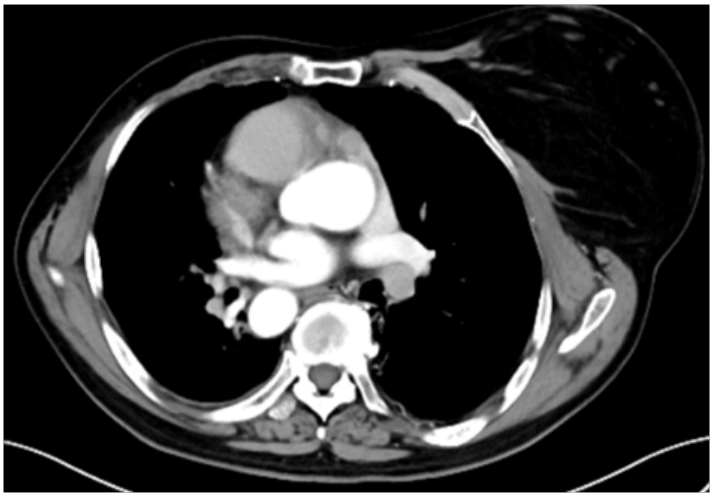

Figure 1: The giant lobulated mass located on the right chest

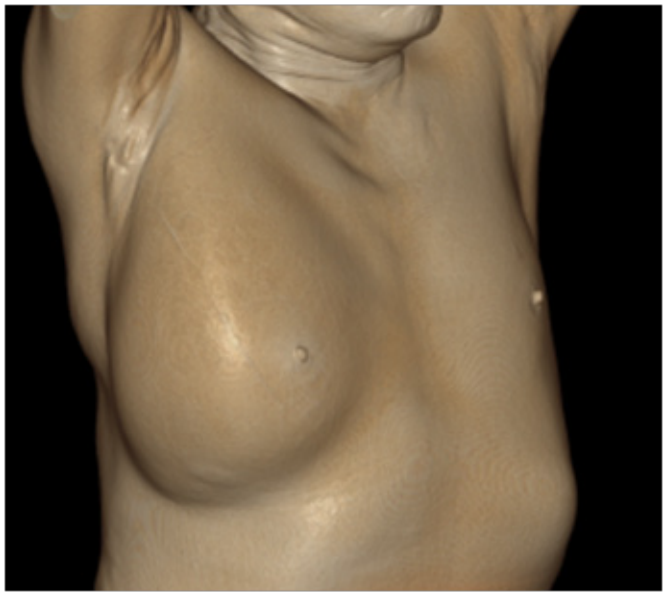

Figure 2: The 3D image of the giant tumor

Surgery was performed in a supine position using a direct anterior approach. After careful dissection, the lipoma was found partly attached to the intercostal muscles. The ectopectoralis and pectoralis minor muscles were destroyed and extended severely due to the occupation of the tumor (Fig. 3). Finally, the lipoma and excess skin were extracted completely. Meanwhile, most muscles and right nipple were preserved. Two suction drainages were placed in the low position and the wound closure was performed in a standard fashion (approximately 35cm). The diameter and the weight of the tumor were about 28cm and 1.9kg. The pathology result

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shown that the tumorwerelipoma with a leaf-like growth pattern of mature adipocytes.

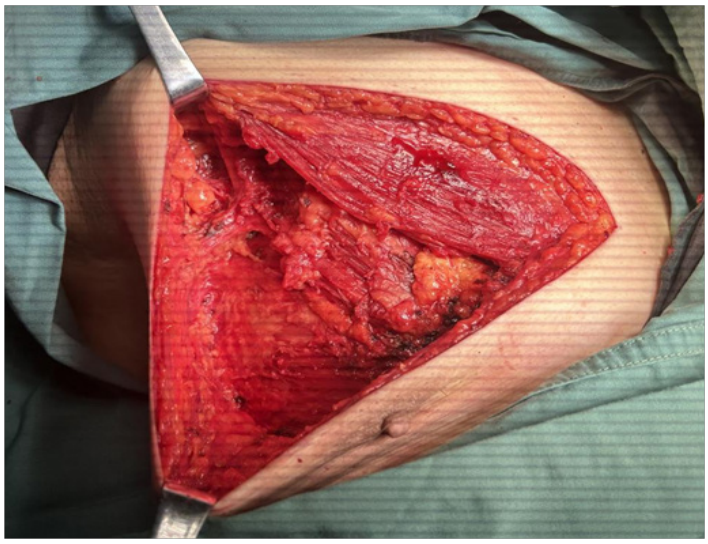

Figure 3: The mass located between the major and minor pectoralis muscles was removed with capsule. The nipple was reserved.

3. Discussion

Lipomas are the most common benign tumors (2% of the population and50% of all musculoskeletal soft tissue tumors), which are commonly found on surface or the subcutaneous site of extremities[1,2]. Normally, the sizes of the lipomas are not so large due to the tissue pressures during growth. In our case, both the location and size of the mass are rare. The pathogenic factors of lipoma are unclear yet. Obesity and Local growth of adipose tissue may be responsible for the formation of lipomas. Metaplasia, trauma, chronic irritation and congenital development are the other suggested theories [3, 4]. According to the newest classification of soft tissue tumors from World Health Organization (WHO), lipomatous tumors are divided into conventional lipoma, fibrolipoma, angiolipoma,myxolipoma, chondroid lipoma, osteolipoma, myolipoma, lipomatosis,nerve lipomatosis[2,5]. The clinical features vary due to the size and location of the tumor. In some cases, the mass exerts pressure on the blood vessels, lymphatic structures, and crucial nerves with gradual growth [6]. However, in our case, the presence of a mass often serves as the most prevalent subjective symptom in patients with an IL [7]. Lipomas normally grow very slowly and finally are detected at a relatively later period (symptoms endured from 1 month to 10 years) [8,9], like in our case, the patient live with the giant mass for over 65 years.

Diagnosis of an IL necessitate the use of appropriate imaging studies, including ultrasound examination, computed tomography (CT), MRI, and histological examination. The accurate locationof tumor by CT and MRI is advised for further assessment of the lesion features. An IL typically appears as a mass with signal intensity consistent of adipose tissue when under MRI (on short T1 and long T2 signal) [9]. Histologically, lipomas display characteristics similar to those of normal adiposetissue. By contrast, well-differentiated liposarcomas exhibit dense collagen bands that traverse themass, accompanied by gelatinous areas, nuclear pleomorphism, and multinuclear giant cells [10]. There are various nonoperative treatments for ILs, including liposuction, sodium deoxycholate injection, steroid combined isoproterenol injection, andliposuction. However, surgical resection is the most effective treatment [1]. An IL is characterised by awell-defined pseudocapsule that facilitates surgical dissection[10].Excision is preferred when cases are in the following conditions: tumour size of >5 cm, subfascial location, progressive growth of thetumour, and clinical features such as pain, firmness, or irregularity [1]. This case satisfied all conditions except the clinical features. Reports on the postoperative ILrecurrence rate are varying, ranging from 3% to 62.5%.However, higherrecurrence rates were likely attributable to incomplete surgical excision [8]. Therefore, continuous and extended long-term follow-up visit is crucialfor more effective management of potential recurrences.In cases of recurrence, surgical intervention and radiation are viable treatment options [9]. No recurrence was observed for the moment in this case. This case is rare for the following factors: giant lipoma (about 30cm × 25 cm × 15cmlarge,2kg) were completely removed with part capsule reserving the nipple. Very long time of growth (over 65 years). Deep location of the mass (between the major and minor pectoral muscles).

4. Conclusion

Intermuscular lipomas are rare benign tumor in contrast to superficial lipoma, which is more common. The lipomastypically growvery slowly over years without any discomfort but the cosmetic defect when theybecome large. CT and MRI are usually diagnostic. Intermuscular lipoma should be considered as a differential diagnosis when a largemass exerts pressure on the surrounding tissues. Thus, careful surgical resection is yet vital and must be resected completely to prevent furtherrecurrence.

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