Giant lipomas: a 14-case series

ABSTRACT

Introduction: Lipomas are the most common benign mesenchymal tumors worldwide. To be considered giant, they must be at least 10 cm in one of its dimensions or weigh at least 1,000 g. The objective of this study is to analyze a series of cases of giant lipomas seen in our practice. Method: We conducted a retrospective analysis of the medical and anatomopathological records of patients diagnosed with lipomas who underwent surgery between January 2003 and January 2010. Results: We evaluated 14 patients with a mean age of 52.3 years (range, 33–72 years) and a mean evolution time until treatment of 4.4 years (range, 6 months to 20 years); 64% of cases presented no symptoms. All patients underwent surgical tumor resection. The average weight of the pieces was 3.8 kg (range, 512 g to 22 kg), while the average length of the longest axis was 27.5 cm (range, 15–66 cm). Postoperative complications were observed in 42% of cases. Conclusion: We observed prolonged periods of evolution until treatment, even in cases of large-volume lesions. Open surgical excision should be considered the treatment of choice for these tumors.

Keywords: Lipoma surgery; Neoplasms; Adipose tissue surgery.
INTRODUCTION

Lipomas are the most common benign mesenchymal tumors worldwide and have an estimated incidence of 10% and prevalence of 2.1 per 1,000 3,4. They are commonly present in subdermal and subcutaneous locations and can occur in any region of the body, including the viscera and cavities 3,5.

Most lipomas have small dimensions (rarely >10 cm) and weigh a few grams 6. According to Sanchez et al. 4, for a lipoma to be considered a giant one, it must be at least 10 cm long in one of its dimensions or weigh at least 1,000 g. Although the vast majority do not cause symptoms, depending on their location and proximity to other structures, lipomas can cause functional limitations due to size and excessive weight, lymphedema, pain, or nerve compression 7.

OBJECTIVE

This work aimed to analyze a series of cases of giant lipomas that were surgically treated at our institution.

METHOD

A retrospective analysis of medical records and anatomopathology tests of all cases of lipomas that were surgically treated between January 2003 and January 2010 was conducted. Lipomas with at least one dimension > 10 cm were included. Among these, we studied those weighing >500 g with a subdermal or subcutaneous location.

Cases of syndromes associated with lipomatosis were excluded, as were lipomas of intracavitary or visceral location and infiltrative variants (intra- and intermuscular).

RESULTS

A total of 2,101 cases of lipomas confirmed by anatomopathology were treated surgically. Of these, 147 had at least one dimension > 10 cm. Twenty-one cases of lipomas > 500 g were identified, seven of which were excluded due to incomplete data in the medical record. Thus, a total of 14 cases were analyzed.

The average patient age was 52.3 years (range, 33–72 years). There was a predominance of male patients (64%; n = 9). The average time from the injury onset to treatment was 4.4 years (range, 6 months to 20 years) (Table 1).

The majority of patients had no symptoms (64%). Of the five symptomatic patients, two had pain, two had skin ulcerations, and one had lower limb lymphedema (secondary to the location of the lipoma in the scrotum). All of these patients showed symptom improvement after surgical treatment.

The preoperative diagnosis was predominantly clinical, and imaging studies were indicated in seven cases: ultrasonography in four, computed tomography (CT) in one, and magnetic resonance imaging (MRI) in two. The body weights of four patients (>120 kg) was a limiting factor for the performance of CT and MRI. All test results were suggestive of lipoma.

Incisional biopsies were performed in four cases. In one case, a biopsy showed features suggestive of liposarcoma, which was discarded after a detailed study of the surgical specimen was performed.

All patients underwent open surgical resection. No aspiration technique was employed in any case. The average weight of the resected tumors was 3.8 kg (range, 512 g to 22 kg). The average length of the longest axis was 27.5 cm (range, 15–66 cm) (Table 1).

In 10 cases, resection of excess skin was required prior to proper closing of the bloody area. In all cases, aspiration drainage was used in a closed system for an average of 2 days.

<table>
<thead>
<tr>
<th>Weight (g)</th>
<th>Axis 1</th>
<th>Axis 2</th>
<th>Axis 3</th>
<th>Evolution time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>22,000</td>
<td>66.0</td>
<td>38.0</td>
<td>18.0</td>
<td>10 years</td>
<td>Scrotum</td>
</tr>
<tr>
<td>13,902</td>
<td>60.0</td>
<td>40.0</td>
<td>13.0</td>
<td>3 years</td>
<td>Abdominal wall</td>
</tr>
<tr>
<td>6,000</td>
<td>35.0</td>
<td>30.0</td>
<td>7.0</td>
<td>20 years</td>
<td>Gluteus</td>
</tr>
<tr>
<td>2,689</td>
<td>34.0</td>
<td>26.0</td>
<td>9.0</td>
<td>1 year</td>
<td>Thoracic wall</td>
</tr>
<tr>
<td>1,998</td>
<td>30.0</td>
<td>28.0</td>
<td>7.0</td>
<td>3 years</td>
<td>Thigh</td>
</tr>
<tr>
<td>1,154</td>
<td>20.0</td>
<td>16.0</td>
<td>9.0</td>
<td>6 months</td>
<td>Gluteus/thigh</td>
</tr>
<tr>
<td>890</td>
<td>20.0</td>
<td>13.0</td>
<td>7.0</td>
<td>3 years</td>
<td>Thoracic wall</td>
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<tr>
<td>783</td>
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<td>NA</td>
<td>3 years</td>
<td>Thigh</td>
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<tr>
<td>730</td>
<td>23.0</td>
<td>11.0</td>
<td>5.0</td>
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</tr>
<tr>
<td>729</td>
<td>18.0</td>
<td>11.0</td>
<td>5.0</td>
<td>8 months</td>
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</tr>
<tr>
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<td>13.0</td>
<td>6.5</td>
<td>4 years</td>
<td>Axilla</td>
</tr>
<tr>
<td>567</td>
<td>16.0</td>
<td>14.0</td>
<td>5.0</td>
<td>5 years</td>
<td>Thoracic wall</td>
</tr>
<tr>
<td>532</td>
<td>15.0</td>
<td>13.0</td>
<td>6.0</td>
<td>3 years</td>
<td>Gluteus/thigh</td>
</tr>
<tr>
<td>512</td>
<td>15.0</td>
<td>13.0</td>
<td>5.0</td>
<td>6 years</td>
<td>Head</td>
</tr>
</tbody>
</table>

NA: not applicable.
Anatomopathological examination showed common lipomas in 13 cases and fibrolipoma in one case. During the postoperative period, six patients (42%) had complications. Paresthesia was observed in two patients but improved after a few weeks. Two patients required skin grafts, one due to a residual bloody area after skin flap ischemia and one due to infection and wound necrosis. There was one reported case of lower limb varicose veins after thigh lipoma resection. Pulmonary complications not directly related to the surgical area occurred in a patient with severe chronic obstructive pulmonary disease.

The patients were followed up and reviewed at regular intervals with a minimum of 24 months of follow-up after tumor resection without evidence of late complications or signs of recurrence.

**DISCUSSION**

Giant lipomas are rare. They usually evolve over long periods of time, tending to be insidious and progressive, with intervals of up to 10–15 years. The largest skin lipoma, reported by Brandler in 1894, weighed 22.7 kg and was located in the scapular region of a 26-year-old man. In this series, we report the case of a 22-kg lipoma in the scrotum of a 58-year-old man with a 10-year evolution period (Figure 1A and B, Figure 2A and B, Figure 3).

In this series, we chose to include only cases of lipomas >500 g with the aim of analyzing the most significant samples in relation to the associated symptoms as well as difficulties in preoperative diagnosis and complications. Lipomas are twice as common in women, probably due to their greater accumulation of adipose tissue. In our series, however, there was a male predominance (64% of cases). Lipomas are typically unique tumors, multi-lobulated and pseudoencapsulated, that are composed of mature adipocytes. They usually present as mobile and asymptomatic lesions with a fibro-elastic consistency. Apart from the typical subcutaneous location, they may also be present in the subfascial plane and as rare infiltrative variants (intra- and intermuscular). The viscera and cavities can also be affected.

The fat contained within lipomas usually increases as body weight increases but does not decrease even in times of starvation or cachexia. The commonly reported evolution time is not reliable since most of the giant lipomas are asymptomatic in the initial period. When present, the symptoms result from compression of the neighboring structures, size, and/or excessive weight, as seen in three of the cases in this series. Skin ulcers, the most common secondary changes in giant lipomas, occurred in two cases in this series.

On imaging, lipomas have characteristic features. On ultrasonography, they present as hyperechoic lesions (relative to the musculature) with echogenic lines corresponding to the septa. On CT, they are hypoattenuating lesions (-50 to -150 HU) and are not impregnated by contrast (Figure 4). On MRI, the signal is similar to that of conventional fat with
hyperintensity on T1-weighted and hypointensity on T2-weighted imaging, and their margins adjacent to normal tissues are clearly defined. They appear as homogeneous lesions with thin and uniform septa and have a >75% fat composition.\(^5,7,12,14,15\)

According to Terzioglu et al.\(^7\) and Phalen et al.\(^10\), there is no way to definitely differentiate lipomas from liposarcomas using imaging studies only. However, other authors believe that this differentiation can be accomplished in most cases.\(^16-18\) The greatest difficulty in differentiation occurs in cases of well-differentiated liposarcoma.

On radiography, calcified areas that are highlighted secondary to fat necrosis are present in 10–15% of malignant lesions but rarely in benign lesions; however, this is a nonspecific finding.\(^17,18\) On MRI, liposarcomas have irregular septa and thick non-adipose–associated tissue with a small proportion of fat within the tumor (<75%) compared to nodular and associated globular\(^17,18\) lesions. According to Kransdorf et al.\(^17\), lesions with one dimension >10 cm are 14 times more likely to be malignant.

Suspicious lesions may require an incisional biopsy or fine-needle aspiration, but the latter is often inconclusive for these cases.\(^7,12,13,15\) (Figures 5A and B). Malignancy is very rare in cutaneous lipomas, and its possibility is even questioned by some authors. This hypothesis should be considered in lesions showing rapid growth, high volume, and the presence of symptoms or ulceration.\(^4,5,7,16-18\) In our series, the incisional biopsy results of one of the patients were suggestive of liposarcoma, but malignancy was excluded after excision of the lesion.

There are reports of using the aspiration technique (using conventional liposuction canulas) for these tumors,\(^4,8,9,11\) but the risk of recurrence or incomplete removal of the lesion as well as a high incidence of seroma and hematoma are possible. With this type of treatment, a precise histological diagnosis is impossible. Thus, surgical excision is the modality of choice for treatment, generally with dissection facilitated by the presence of a pseudocapsule involving the lesion (Figures 6A and B, Figure 7).

![Figure 4](image1.png) Computed tomography image of a giant lipoma within the thoracic wall (sub-pectoral).

![Figure 5](image2.png) Lateral (A) and posterior (B) photographs of a 54-year-old man with a 730-g giant cervical lipoma that evolved over 5 years. *Incisional biopsy scar.

![Figure 6](image3.png) Pre- (A) and postoperative (B) photographs of a 48-year-old man with a 512-g giant lipoma of the scalp (subgaleal) that evolved over 6 years.

![Figure 7](image4.png) Surgical piece from the resected 512-g giant lipoma of the scalp (subgaleal).
None of the patients presented with tumor recurrence, but this may have been influenced by the limited postoperative follow-up in some cases.

CONCLUSION

In the present study, we observed similar characteristics to data found in the literature regarding the evolution time, presence of symptoms, and incidence of complications. Similar difficulties regarding the differential diagnosis of liposarcoma were also observed. This is the largest case series of giant lipomas in the literature and includes the second largest case ever reported.

REFERENCES


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