

MANAGEMENT OF A GIANT LIPOMA IN THE AXILLA: A CASE REPORT

Peneva Margarita¹, Trencsev Viktor¹, Toleska Natasa², Daskalov Darko¹, Angjushev Darko³

¹University Clinic for Plastic and Reconstructive Surgery, Ss. Cyril and Methodius University in Skopje, Faculty of Medicine in Skopje, Republic of North Macedonia

²University Clinic for Thoracic and Vascular Surgery, Ss. Cyril and Methodius University in Skopje, Faculty of Medicine in Skopje, Republic of North Macedonia

³University Clinic for TOARILUC, Department of Anesthesiology, Reanimation and Intensive Care Ss. Cyril and Methodius University in Skopje, Faculty of Medicine in Skopje, Republic of North Macedonia

e-mail: margarita.peneva@plasticsurgery.com.mk

Abstract

Lipomas are the most common benign mesenchymal tumors in adults. Generally, they are less than 5 cm in size but sometimes they can present as giant lipomas. Axillary region is an unusual localization for lipomas in general, especially for giant lipomas.

A case of a 62-year-old male with a giant lipoma in the axillary region is presented. The tumor was located in the left axillary region beneath the pectoralis major muscle and extended all along to the scapula. It was adjacent to the axillary vessels and the brachial plexus, but did not invade the neurovascular bundle. A team of a plastic and thoracic surgeon performed the operation. The pathology report confirmed a benign lipoma weighting 454 grams and measuring 13.5x8x7 cm. Follow-up examinations (clinical examination and ultrasound) revealed no recurrence three years after the operation.

The mechanism of lipoma formation is not completely clear. It includes two potential and overlapping mechanisms in which trauma seem to have the major role. The treatment includes surgical excision or liposuction. However, excision of large lipomas can sometimes be a surgical challenge.

Giant lipomas in axillary region should be removed in order to establish the pathohistological diagnosis and to prevent possible compression of the neurovascular structures. In our opinion, surgical excision is a preferred method of treatment because there is less possibility of damaging vital structures and it offers better control against local tumor recurrence.

Keywords: giant lipoma, axillary region, surgery

Introduction

Lipomas are the most prevalent benign mesenchymal tumors in adults with an estimated incidence of 10%. Moreover, adipose tissue accumulation is higher in females than in males, therefore lipomas are most frequently encountered in middle-aged females. Several distinct histological subtypes have been described with conventional lipoma being the most common one^[1].

Conventional lipoma is a well encapsulated tumor of mature adipocytes arranged around fibrovascular stroma. Clinically it appears as a soft, well circumscribed and slow growing lesion that can arise in any part of the body where normal fat is present. Although these lipomas usually occur just under the skin or under the fascia of the proximal extremities and the trunk, seldom they can present with inter- or intramuscular localization and can be poorly circumscribed. Intermuscular lipomas tend to grow in between large muscular bundles and secondarily infiltrate adjacent muscles. On the other hand, intramuscular lipomas originate between the muscle fibers of a specific muscle and penetrate the surrounding muscle passing through the muscle septa^[2]. Middle-aged males and females are typically affected population.

Generally, lipomas are less than 5 cm in size with a soft consistency. But, in some cases they can be firm and impressive in size. When lipoma is measured at least 10 cm in diameter or minimum weight of 1000 g it is called giant lipoma^[3,4].

Deep giant lipomas are often asymptomatic and can grow to very large proportions before showing symptoms. The symptoms they produce depend on their localization. Large internal lipomas can present with abdominal pain, kidney failure and other systemic complications. In contrast, cutaneous lipomas are primarily a cosmetic problem but occasionally they can cause movement limitations or lymphedema. When near neurovascular bundles, lipomas can cause compression symptoms and neurologic disparements^[5-7].

Axillary region is an unusual localization for lipomas in general. It is even more rare localization for giant lipomas. A review of the literature presented a very small number of giant lipomas in this region. A case with a giant lipoma in the axillary region is reported below. Its scientific interest is in the size of the lipoma in an untypical and rare localization. The study has been reported in line with SCARE guidelines^[8].

Case report

A 62-year-old male was admitted to the University Clinic for Plastic and Reconstructive Surgery in Skopje, North Macedonia as an emergency case due to complex injury of the left forearm. The operation was to be conducted under supraclavicular nerve block when the anesthesiologist noticed a subcutaneous mass in the left pectoral region extending to the left axillary region.

The patient reported progressive tumor growth over a period of more than 10 years. Otherwise, the lesion was asymptomatic. On physical examination it was a solid, painless and

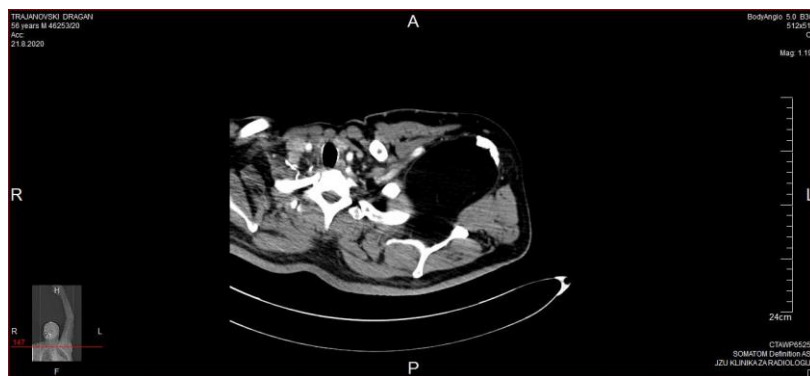


Fig. 1. A CT scan angiography depicted encapsulated, hypodense and oval image measuring 15x9x8cm mass strongly indicative for lipoma

slightly mobile mass. No skin changes were present and neurological examination of the left upper extremity was normal. A CT scan angiography depicted encapsulated, hypodense and

oval image measuring 15x9x8 cm mass strongly indicative of lipoma [Figure 1]. The mass was located in the left axillary region beneath the pectoralis major muscle and extended all along to the scapula. The tumor was adjacent to the axillary vessels and the brachial plexus, but did not invade the neurovascular bundle. An indication for tumor removal was established without performing percutaneous biopsy.

A team of a plastic and thoracic surgeon performed the operation. The patient was in a supine position with the arm placed above the head for better exposure to the axillary region. The operation was conducted under general anesthesia.

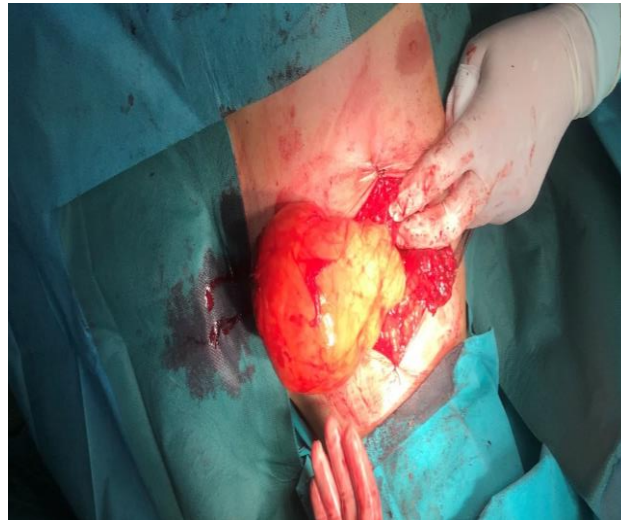


Fig. 2. Intraoperative view of the tumor resection

The tumor was approached through a large "S" incision beginning at the pectoral region and spreading out to the axilla. Skin incision was followed by subcutaneous preparation and visualization of the tumor envelope. The tumor had multiple well defined fibrous pseudocapsules and they were meticulously removed using ligasure. After removing the tumor pseudocapsules, a complete tumor resection was possible [Figure 2].



Fig. 3. Image of the completely removed lipoma

Abdominal drain was placed and removed on the 2nd postoperative day. The postoperative course was uneventful and the patient was discharged on the 3rd postoperative day. The pathology report confirmed a benign lipoma weighting 454 grams and measuring 13.5x8x7 cm [Figure 3]. Follow-up examinations (clinical examination and ultrasound imaging) revealed no recurrence three years after the operation.

Discussion

In majority of cases lipomas are small and solitary subcutaneous lesions without manifesting any symptoms. They can arise in any part of the body where adipose tissue is present but most often on the trunk and extremities. However, they have been reported in areas where there is very little or no adipose tissue such as various internal organs including liver, kidney, and lungs^[4,9].

The mechanism of lipoma formation is not completely clear. It includes two potential and overlapping mechanisms in which trauma seems to have the major role. Microtrauma of the tissue can cause rupture of the fat fibrous septa resulting in migration of the adipocytes. Migrated adipocytes then anchorage between the skin and deep fascia and start to proliferate. An alternative theory is that the local inflammation secondary to blunt trauma and hematoma formation induces cytokine release that mediates preadipocyte differentiation and their proliferation^[9,10]. The end result in both theories is lipoma formation^[4,6,9].

The axillary region is very movable area of the body where microtrauma can easily occur with each movement of the upper extremity. Nevertheless, it is a rare location for lipoma formation, especially for large lipomas.

The main concern in the diagnostic procedure of huge lipomas should be to rule out malignancy. Differential diagnoses especially of rapid growing lipomas include lipoblastomas and liposarcomas. Liposarcomas are the most common soft tissue sarcomas with an incidence of 7 to 27%. It is impossible to distinguish between lipomas and liposarcomas by the clinical appearance alone. Therefore, it is mandatory to rule out malignancy by surgical biopsy although some authors consider that histological evaluation of the entire lesion is necessary for diagnosis^[4]. Lipomas can also be removed because of cosmetic reasons. This especially refers to large subcutaneous lipomas.

Lipomas can be removed by surgical excision or liposuction^[11]. Lipomas usually have a well-defined pseudocapsule, therefore dissection around these benign neoplasms is performed rather easily and they sometimes can be squeezed out through short incisions. However, excision of large lipomas can sometimes be a surgical challenge, as it was in our case, due to their extension near vital structures and dimensions.

Some authors perform liposuction even of huge and deep lipomas. However, recurrence due to incomplete removal is a drawback of the procedure. Moreover, in a case of a deep lipoma near major nerves and vessels, there is possibility of injury while aspiration. That is why in our opinion in cases of giant lipomas near vital structures a complete surgical excision is a method of choice.

Here presented case was treated following the well accepted guidelines. Lipoma removal was indicated in order to establish pathohistological diagnosis and to prevent possible compression of the neurovascular bundle and it was removed with classical surgical excision.

Conclusion

Axillary region is an unusual location for lipomas in general, especially for giant lipomas. Giant lipomas in this location should be removed in order to establish the pathohistological diagnosis (large tumors should always raise awareness of malignant transformation) and to prevent possible compression of the neurovascular structures. In our opinion, surgical

excision is a preferred method of treatment because there is less possibility of damaging vital structures and it offers better control against local tumor recurrence.

Conflict of interest statement. None declared.

References

1. Kumar V, Abbas AK, Aster JC. Robbins Basic Pathology (10th ed.). Elsevier - Health Sciences Division. 2021.
2. Morales Morales CA, González Urquijo M, Morales Flores LF, Sánchez Gallegos MN, Rodarte Shade M. Giant intramuscular thigh lipoma: A case report and review of literature. *Int J Surg Case Rep* 2021; 82: 105885. doi:10.1016/j.ijscr.2021.105885.
3. Sanchez MR, Golomb FM, Moy JA, Potozkin JR. Giant lipoma: case report and review of the literature. *J Am Acad Dermatol* 1993; 28(2 Pt 1): 266-268. doi: 10.1016/s0190-9622(08)81151-6.
4. Nakamura Y, Teramoto Y, Sato S, Yamada K, Nakamura Y, Fujisawa Y, et al. Axillary giant lipoma: a report of two cases and published work review. *J Dermatol* 2014; 41(9): 841-844. doi: 10.1111/1346-8138.12598.
5. Guler O, Mutlu S, Mahirogulları M. Giant lipoma of the back affecting quality of life. *Ann Med Surg (Lond)* 2015; 4(3): 279-282. doi:10.1016/j.amsu.2015.08.001.
6. Vandeweyer E, Scagnol I. Axillary giant lipoma: a case report. *Acta Chir Belg* 2005;105 (6): 656-7. doi: 10.1080/00015458.2005.11679797.
7. de Werra C, di Filippo G, Tramontano R, Aloia S, di Micco R, Del Giudice R. Giant lipoma in the thigh A case report. *Ann Ital Chir* 2016; 87: S2239253X16024579. PMID: 27872427.
8. Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A; SCARE Group. The SCARE 2020 Guideline: Updating Consensus Surgical CAse REport (SCARE) Guidelines. *Int J Surg* 2020; 84: 226-230. doi: 10.1016/j.ijisu.2020.10.034.
9. Gembruch O, Ahmadipour Y, Chihi M, Dinger TF, Rauschenbach L, Pierscianek D, et al. Lipomas as an Extremely Rare Cause for Brachial Plexus Compression: A Case Series and Systematic Review. *J Brachial Plex Peripher Nerve Inj.* 2021; 16(1): e10-e16. doi: 10.1055/s-0041-1726087.
10. Aust MC, Spies M, Kall S, Gohritz A, Boorboor P, Kolokythas P, Vogt PM. Lipomas after blunt soft tissue trauma: are they real? Analysis of 31 cases. *Br J Dermatol* 2007; 157(1): 92-99. doi: 10.1111/j.1365-2133.2007.07970.x.
11. Peev I, Spasovska L, Mirchevska E, Tudzarova Gjorgova S. Liposuction Assisted Lipoma Removal-Option or Alternative? *Open Access Maced J Med Sci* 2017; 5(6): 766-770. <https://doi.org/10.3889/oamjms.2017.186>.