

Underestimation of a Giant Lipoma on Magnetic Resonance Imaging: A Rare Case Report

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Learning Point of the Article:

Radiological imaging has a tendency to underestimate the size of a lipoma; hence, a surgeon should plan his approach and dissection bearing in mind that a larger lipoma can be encountered intraoperatively to avoid complications and neurovascular sequelae.

Abstract

Introduction: Lipomas are the most common benign mesenchymal tumor. The solitary subcutaneous lipoma accounts for approximately one-quarter to one-half of all soft-tissue tumors. Giant lipomas involving the upper extremities are rare tumors. This case report presents a subcutaneous giant lipoma in the upper arm weighing 350 g. Due to its long-term presence, the lipoma caused discomfort and pressure effects in the arm. Gross underestimation on magnetic resonance imaging (MRI) made its removal challenging and difficult.

Case Report: Through this case, we report a 64-year-old female who consulted us in the clinic with complaints of discomfort, feeling of heaviness, and a mass in the right arm since 5 years. On clinical examination, there was asymmetry in her arms with her right upper arm showing a visible swelling (8 cm × 6 cm) over its posterolateral aspect. On palpation, the mass was soft, boggy, not attached to the underlying bone or muscle, and not involving the skin. A provisional diagnosis of lipoma was made and the patient was asked to undergo plain and contrast-enhanced MRI for the confirmation of the diagnosis, the extent of the lesion, and infiltration into the surrounding soft tissue. The MRI revealed a lobulated deep lipoma in the subcutaneous plane with pressure effects over the posterior fibers of the deltoid muscle. Surgical excision of the lipoma was carried out. The cavity was closed using retention stitches to prevent the formation of a seroma or hematoma. Complaints of pain, weakness, heaviness, and discomfort completely subsided by the 1st month follow-up. The patient was then followed up every 3 months for 1 year. No complication or recurrence was noted throughout this period of time.

Conclusion: The extent of lipomas can be underestimated on radiological imaging. It is common to find a bigger lesion than reported and to plan and execute the incision and surgical approach accordingly. Blunt dissection should be preferred when there are chances of neurovascular involvement or injury.

Keywords: Giant lipoma, benign, upper arm, surgical excision, debridement.

Introduction

The prevalence of lipomas has been cited as affecting 1% of the population, while its incidence, which is possibly underreported, is 2.1/1000 individuals per year [1]. Lipomas are most commonly located subcutaneously but can occur in any tissue planes. Upper extremity lipomas may present with mechanical

dysfunction, pain, or altered sensation due to their size and compression over the neighboring neurovascular structures. Lipomas are slow growing tumors and patients usually seek help due to disturbances in carrying the activities of their daily life. For a lipoma to be referred to as “giant,” it should be at least 10 cm in diameter or weigh a minimum of 1000 g [2, 3], as was the case in

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Author's Photo Gallery



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Figure 1: Intraoperative image showing extent of the giant lipoma starting 3 cm distal to the posterior axillary fold.

our patient. In the current case scenario, we present a giant subcutaneous lipoma in the right arm causing mechanical dysfunction and pressure effects. The patient was treated surgically which resulted in complete relief of symptoms.

Case Presentation

A 64-year-old woman presented to the clinic with complaints of discomfort, feeling of heaviness, and a mass in the right arm since 5 years. She also had complaints of weakness and ipsilateral shoulder pain during exertion, (especially abduction) more since the past 4 months. The swelling was initially asymptomatic and pea-sized; however, over the next 5 years, it increased in size to a table tennis table and started causing night pains. The pain was non-radiating and localized to the posterolateral aspect of her arm. The pain was not related to any specific movement and occurred during periods of both rest and activity. Direct pressure on the mass exaggerated the pain.



Figure 3: Approximation of the cavity using retention stitch technique and closure of the incision after trimming away extra and pathological skin.



Figure 2: Intraoperative picture of the lipoma post excision, measuring 26 cm x 21 cm x 9.5 cm and weighing 350 g.

There was no sensory disturbance of the ipsilateral arm, forearm, or fingers. The patient did not give any history of significant trauma, comorbidities, or similar complaints in another anatomical location.

On clinical examination, there was asymmetry in her arms with her right upper arm showing a visible swelling (8 cm x 6 cm) over its posterolateral aspect. On

palpation, the mass was soft, boggy, not attached to the underlying bone or muscle, and not involving the skin. It was approximately 10 cm x 8.5 cm in extent and started from around 3 cm distal to the posterior axillary fold (Fig. 1). Deep palpation over the mass was tender. A provisional diagnosis of lipoma was made and the patient was asked to undergo plain and contrast-enhanced magnetic resonance imaging (MRI) for the confirmation of the diagnosis, the extent of the lesion, and infiltration into the surrounding soft tissue. The MRI revealed a 13.6 cm x 11.5 cm x 5.2 cm lobulated deep lipoma in the subcutaneous plane with pressure effects over the posterior fibers of the deltoid muscle.

Due to continuous dragging pain in her arm, the patient was planned for excision of the lipoma. The patient was positioned in a left lateral decubitus position under general anesthesia. After adequate preparation and draping, a straight incision was made over the most prominent part of the swelling under all aseptic precautions. Careful, digital blunt dissection was carried out to separate the lipoma from the adhering structures. On further exploration, it was noted that the extent of the lipoma had been underestimated on radiological imaging. It was observed to originate from the fascia overlying the deltoid muscle and extending up to the subcutaneous plane. No neurovascular structure was noted to be involved. After complete excision of the giant lipoma under vision, it was weighed and found to be 350 g. On gross appearance, it was a lobulated, circumscribed mass of yellowish adipose tissue with mottled, tanned areas, and soft consistency, measuring 26 cm x 21 cm x 9.5 cm (Fig. 2). It was then sent for histopathological reporting (HPR). Further, debridement of the surrounding soft tissue was done to preclude the possibility of persistence of rest cells. This was followed by a thorough wash with 2 g vancomycin. Skin surrounding the incision that was suspected to be pathological was removed. The skin was provisionally approximated and the excess skin formed secondary to the

swelling was cut accordingly to prevent sagging or formation of dog ears. The cavity was closed using retention stitches to prevent the formation of a seroma or hematoma (Fig. 3) [4]. Standard closure was done after this along with a sterile dressing. Rest of the hospital stay was uneventful.

HPR confirmed the lesion to be a lipoma, benign in nature with no nuclear atypia and mature adipocytes with intervening fibrocollagenous septae, congested capillaries, and peripheral nuclei. Sutures were removed after 15 days and the suture line had completely healed, with no scar related complication, signs of infection, or fluid collection. Complaints of pain, weakness, heaviness, and discomfort completely subsided by the first month follow-up. The patient was then followed up every 3 months for a period of 1 year. No complication or recurrence was noted throughout this period of time and the subjective satisfaction level of the patient was 8/10 at 2 weeks follow-up and 10/10 at every follow-up thereafter.

Discussion

A solitary lipoma is the most common soft-tissue tumor, often appearing between 40 and 60 years of age [3]. For a lipoma to be referred to as “giant,” it should be at least 10 cm in diameter or weigh a minimum of 1000 g [2, 3], as was the case in our patient. Its volume is the source of a good many social life problems (keeping the lipoma discreet in clothing, difficulties in dressing) and causes multiple health problems such as pain, difficulties in sleep, compression of nerves or vital structures, and infections [3]. Diagnosis is primarily clinical, but malignancy has to be ruled out. Ultrasound is the first diagnostic modality to confirm the presence of lipoma with sensitivity and specificity in the ranges of 52–100% and 82–100%, respectively [5, 6].

It is difficult to identify encapsulated lipomas on an ultrasound and due to a wide range of interobserver variability; MRI is now the investigation of choice in diagnosing a lipoma. It can also differentiate between typical and atypical lipomas with sensitivity and specificity being 100% [7]. MRI has now become the first choice after clinical suspicion of a lipoma and also aids in anatomical delineation from the surrounding structures. As in our case, the patient after being clinically diagnosed underwent contrast enhanced MRI of the right shoulder and arm. MRI scan revealed a well encapsulated subcutaneous lipoma abutting the posterior fibers of the deltoid muscle and also led us in planning for the excision. Despite the high diagnostic accuracy of an MRI in delineating lipomas, it was grossly underestimated in our case. The actual size of the mass was discovered following blunt dissection (26 cm × 21 cm × 9.5 cm). Although it did not happen in this case, the chances of involvement of neurovascular structures in such cases is high

and can warrant a gross change in the overall surgical approach of the surgeon.

HPR still remains gold standard for diagnosis. Johnson et al. suggested that any soft-tissue tumor >5 cm should be considered malignant until proven otherwise [8]. In our case, the size of the tumor was 26 cm × 21 cm × 9.5 cm, but histopathology revealed a benign lesion. A wide range of treatment options include intralesional transcutaneous injections (mainly sodium deoxycholate), intralesional steroid injections, and the major drawback of the intralesional injections being a high recurrence rate. These intralesional injections are mainly reserved for small sized solitary lipomas.

More recently developed practice includes liposuction of the tumor mass, only after malignant potential is excluded from the study. Liposuction is not a standard surgical modality for lipoma removal; although it causes minimal scarring but, on the other hand, carries a higher risk of recurrence. In our case, liposuction was not advisable due to close proximity of the lipoma to major neurovascular structures.

Surgical excision of lipoma remains the gold standard treatment. A well-defined pseudocapsule encases long standing lipomas due to continuous pressure on the surrounding structures, which makes the excision of the mass easy. It is the treatment of choice, because these large encapsulated lipomas may recur or undergo malignant transformation [9]. The local recurrence rate of lipomas after surgical excision has been reported as low as 1–2% over an indefinite period [10] which is very low as compared to other treatment modalities mentioned in the literature. No recurrence was noted in our case at the same site or other anatomical site.

One debilitating sequelae of excision of giant lipomas is seroma or hemangioma if the remnant cavity or dead space is not managed efficiently. Although literature advises to merely drain this dead space, the surgeon decided to close it as well using the retention stitches techniques [4] which are otherwise used in wound closure of obese patients. This helped in approximating the cavity well, without the risk of any remnant suture or foreign body reaction, as the retention stitches were removed along with the suture removal [11].

In our case, the main concerns of the patient were the discomfort and dragging pain, which were relieved completely after surgical excision. The pre-operative findings and histopathological features confirmed the diagnosis of benign lipoma. Giant lipomas have a tendency for recurrence, and the patients should be regularly followed up.

Conclusion

The extent of lipomas can be underestimated on radiological imaging. This bears more prominence when the anatomical

location of these lesions is either uncommon or in close proximity to major neurovascular bundles. It is advisable that a surgeon always expects to find a bigger lesion than reported and plans his incision and surgical approach accordingly. Blunt dissection should be preferred when there are chances of neurovascular involvement or injury.

Clinical Message

Radiological imaging has a tendency to underestimate the size of a lipoma; hence, a surgeon should plan his approach and dissection bearing in mind that a larger lipoma can be encountered intraoperatively to avoid complications and neurovascular sequelae.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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