

GIANT GLUTEAL LIPOMA: A CASE REPORT AND REVIEW OF LITERATURE

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ABSTRACT

Introduction

Lipoma is one of the most common benign mesenchymal tumor which can occur in almost in all organs of the body where fat normally exists, so called as universal tumor or ubiquitous tumor.

Lipomas are slow growing that rarely reach a size more than 2-3cms. Lesions larger than 5cms, so called giant lipomas are seldom found inside the muscle compressing nervous-vascular structures. The large and deep seated lipomas represent a real diagnostic and therapeutic challenge.

Case report: We report a case of 48 year old man with a giant lipoma involving his left gluteal and thigh region. The patient was managed by wide local excision of the lesion. The key issues surrounding the intramuscular lipoma with literature review is discussed.

Conclusion: Intramuscular Giant lipomas are rare and even though they are typical in their presentation, especially when they are large and show findings that can be confused with a well-differentiated low grade liposarcoma, but when they occur an appropriate workup must be done. This should be followed by adequate open surgical excision and repeat examination over time to monitor for recurrence.

KEYWORDS: giant lipoma; benign tumor; wide excision

Introduction

Lipomas being a common mesenchymal tumor is believed to arise from primordial adipocytes rather than adult fat cells. As a result, they increase in size as a person accumulates adipose content but may not decrease with weight loss. They are freely mobile, well-encapsulated tumors that may have a doughy feel. They can occur at almost any location of the body having fat

cells but are commonly found in the subcutaneous plane of the head, neck, shoulders, and back.

Lipomas are usually slow growing and rarely reach a size of more than 2-3 cms. Some of the tumors that do reach sizes greater than 5 cms are known as giant lipomas. These are seldom found in the muscle compressing nervous-vascular structures. [1,2] Clinical manifestations are due to their size and may feature pain as a prominent symptom.

One of the variants of lipoma being intramuscular lipoma is usually deep-seated within the muscles. Even after there being numerous publications regarding intramuscular lipomas, there still exists much confusion and dilemma regarding the exact characteristic feature and the term to describe these intramuscular lipomas.[3]

The terms intramuscular lipoma and intermuscular lipoma, reserving the term infiltrating lipoma when there is clear radiological, surgical or microscopic evidence of infiltration of muscle or other adjacent structure.

The majority of the intramuscular, as well as some intermuscular lipomas, may grow by expansion and compression of sur-

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rounding structures rather than infiltrating them. Many of the times it is very difficult to define the origin or the plane of the tumors like a giant lipoma arising from a small muscle with a prominent extramuscular component or in case of intermuscular lipoma with secondary infiltration into adjacent muscle.

Because many clinicians are still unaware of the significance of a lipoma arising from the muscle, appropriate awareness among physicians is must for proper management of these cases.[3]

We within present a report a one such case of a giant intramuscular lipoma in the gluteal region with features of pain and some amount of restriction of limb movements primarily of the size of the tumor.

This article also reviews the prevalence rate, presentation, clinical, and imaging of an intramuscular lipoma with a brief description of the management in these cases.

Case Report

A 48-year-old male patient presented with complaints of swelling in the left gluteal region for the past three years. Examination revealed a large mass in the left gluteal region, extending to the thigh region, which was non-tender, soft in consistency, non-compressible with well-defined margins (Figure 1). The swelling was not fixed to the skin or underlying structures.

Core needle biopsy of the swelling revealed mature fat cells suggestive of a lipoma. An MRI scan revealed features of a soft tissue swelling with septations, raising the suspicion of malignant transformation. The MRI revealed its relation to the adjacent structures. Thus, it helped in planning the incision and operation (Figure 2).

The patient was positioned in a right lateral decubitus position under general anesthesia with orotracheal intubation.

After adequate preparation and draping, an S-shaped incision was made over the swelling, extending from the upper to the lower extent of the tumor. The tumor was found in between the gluteal muscles.

Careful dissection was carried out to identify and isolate critical neurovascular structures including sciatic nerve and preserve them. The gluteus muscle was divided, and the tumor was dissected out and excised. The tumor measured 18 cm × 15 cm × 12cm (Figure 3) and weighed 1.7kgs.

The wound was closed in layers after suturing the divided gluteus muscle over a suction drain.

A histopathological examination revealed features consistent with a lipoma with no evidence of any malignant transformation. The postoperative period was uneventful.

Discussion

The prevalence of lipoma is likely to be more than that reported in the literature (16%) [13]; this is partly due to the indolent course of the tumor.

Lipomas in the intramuscular plane are relatively rare and are usually put in the same category as that of the more common and relatively common superficial variety. This has led to the difficulty in better defining the typical epidemiological and demographic characteristics of these tumors.

These account for just over 1.8% of all primary tumors of adipose tissue and less than 1% of all lipomas.[4,5] the majority of intramuscular lipomas are seen within a single muscle component but may rarely include 2-3 muscles and rarely present with non-lipomatous tumors.[Table 1]

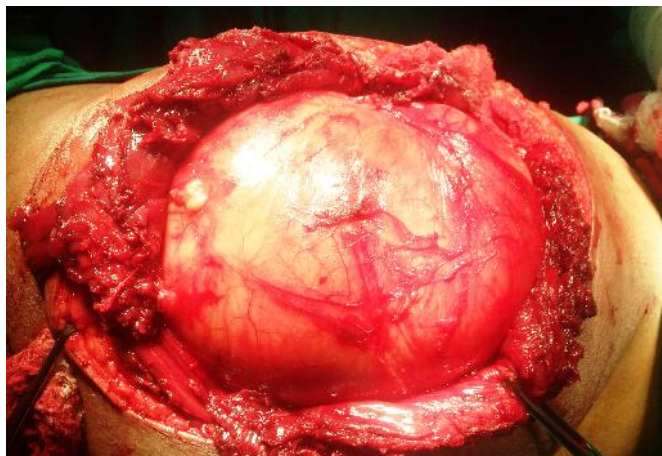


Figure 1: Intraoperative image showing relation of tumor to surrounding structures.



Figure 2: MRI showing extent of the tumour.

These tumors are commonly found in the major muscles of the upper and lower limbs and trunk, but can occur at any anatomical sites [3]. The average age at presentation of intramuscular lipoma has been reported as 48 yrs to 58.7 years and are more common with men (62%) than women(38%). There is no clear gender predilection.[3,6]

Etiopathogenesis

Intramuscular lipomas like most other subtypes have neoplastic pathogenesis and represent a true tumor that directly originate from mesenchymal cells of multipotent origin. Some have been proposed a reactive pathogenesis as well. Recurrent trauma, irritation, obesity, developmental disorders, endocrine, dysmetabolic and genetic factors are some of the possible factors in the development of intramuscular lipomas.[3]

Some studies suggest that type-selective muscular degeneration and endomysial fatty growth as a result of focal atrophy may modulate the infiltrating growth characteristic of intramuscular lipoma. Cathepsin-D immunoreactivity, a lysosomal catabolic

Table 1. Case reports of intramuscular lipoma retrieved from the review of the medical databases. (last 5 years)

Year	Authors	Age/sex	Location	Special features
2015	Klessinger S, et al [7]	58 yr/M	Lumbar paraspinal musculature	Developed after decompression surgery for lumbar spinal canal stenosis
2015	Mizoshiri N, et al [8]	58 yr/M	Deltoid of left shoulder	Mixture of mature, adipocytes and undifferentiated spindle & cells
2014	Berlund P, et al [9]	46 yr/M	Lumbrical muscle	Intramuscular lipoma causing carpal tunnel syndrome with trigger wrist
2014	Tsumuraya G, et al [10]		Masseter muscle	Firmly adherent to, the muscle
2014	Balabram D, et al [11]	58 yr/F	Subscapularis muscle	Presented with axillary lump
2013	Lui TH [12]		Abductor digiti minimi (foot)	Mimicking intramuscular haemangioma in clinical and MRI findings
2013	Larach K, et al [13]	50 yr/F	Biceps brachii	
2011	Jamshidi K, et al [14]	60 yr/M	Vastus medialis and femur bone	Ossified intramuscular lipoma
2011	D'Alfanzo TM, et al [15]	63 /F	Pectoralis major	Simulating breast mass
2010	Sonh WI, et al [16]		Sternocleidomastoid muscle	It is important to establish a preoperative plan as, important structures are present densely in a small space like head and neck region.
2010	Pichierri A, et al [17]		Longus coli muscle of neck	Rare, cause of neck structures compression

enzyme, was increased in the involved muscle fibers. Subsarcolemmal vacuoles in the muscle fibers of the peripheral areas were also positive for cathepsin-D, and ultrastructural analysis revealed degenerative changes in those fibers. [18] In one study by Fregnani et al., PCNA, and ki-67 expression indexes were higher in spindle cell lipoma, intramuscular lipomas and fibrolipomas compared to common lipomas, but the differences were not statistically significant. [19]

Moreover, even the patterns of fiber atrophy were not confined to the areas of fatty infiltration but were also detected in the peripheral muscle fibers where tumor involvement was not prominent.

Clinical presentation

Clinically the most common presentation of an intramuscular lipoma is a slow growing mass or swelling that is asymptomatic. Pain is an unusual and late symptom that is seen in deep-seated lipomas, and the probable cause is likely to be compression of an adjacent peripheral nerve or soft tissue.

With the increase in the size range of motion decreases or there may be a functional limitation due to mechanical restriction. Duration in these cases may be from months to years.

Treatment, Recurrence and Prognosis

Tumor location, size, and clinical symptoms decide the treatment of intramuscular lipomas. There is the limited role of conservative treatment of symptomatic intramuscular lipomas. Observation and reassurance are all that is necessary if the lipoma is small and does not cause functional limitations.

Surgical excision is the treatment of choice when the patient is symptomatic and also for cosmetic purposes. Marginal excision is described for well-circumscribed lesions and wide excision with free margin is necessary for the infiltrative types, which will help in preventing recurrences.[20]

One of the primary reasons for the recurrence of lipomas is thought to be due to incomplete removal of lipoma during surgery. The recurrence rate after treatment has been reported anywhere between 3 and 62.5% depending on the literature.[3] The most likely reason is the proximity of the tumor to important anatomical structures or fear of disabling functional limitations with complete resection of the involved muscle.

Recurrence can occur many years after excision ranging from 14 months to 19 years.[3,4] Studies that reported short-term recurrence rates, most likely did not represent the true recurrence rate of intramuscular lipomas, and none of the well-circumscribed tumors recurred locally in previous studies. Most of the studies strongly suggest despite their infiltrative nature and their tendency to recur locally, intramuscular lipomas are benign lesions, which do not have malignant potential and do not metastasize.

However, malignant transformation of intramuscular lipoma has been suggested, even though; no definite evidence is available.

Conclusion

Giant lipomas especially those that are intramuscular in nature are rare and when present have typical features, but some of them especially in our case may be confused with the malignant lesion like liposarcoma that needs an entirely different approach.

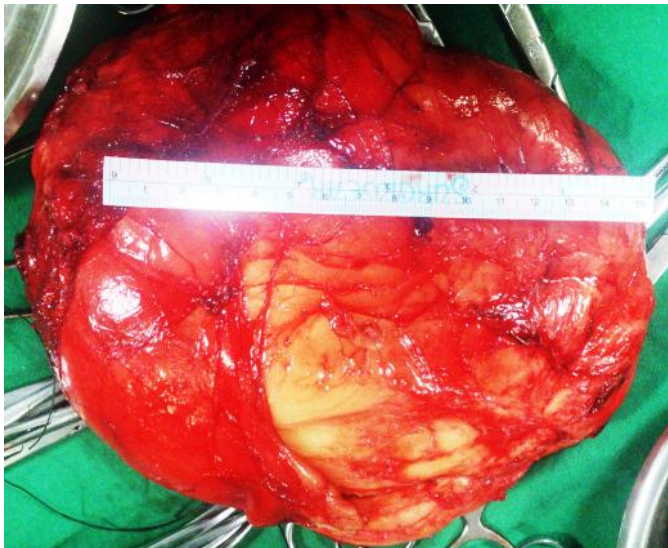


Figure 3: Postoperative image of excised lipoma.

Careful clinical examination, imaging and histological and cytogenetic examination of the specimen can reveal the typical characteristics of intramuscular lipomas.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Authors' Statements

Competing Interests

The authors declare no conflict of interest.

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References

1. Brian Allen MD, Christine Rader MD, Alan Babigian MD. Giant lipomas of the upper extremity. *Can J Plast Surg* 2007;15:141-144
2. Mohammad Inam Zaroo, Mir Mohsin, Syed Suraiya Arjumand Farooq. Giant Lipoma: A Case Report, *JIMA* 2011;43:77-9
3. Shane McTighe, Ivan Chernev. Intramuscular lipoma: a review of the literature, *orthopaedic reviews* 2014;6:56185618
4. Fletcher CD, Martin-Bates E. Intramuscular and intermuscular lipoma: neglected diagnoses. *Histopathology* 1988;12:275-87.
5. Chernev I. Intramuscular lipoma: infiltrating vs. well-circumscribed variant. *Pan Afr Med J* 2014;17:170.
6. Ramos-Pascua LR, Guerra-Álvarez OA, Sánchez-Herráez S, et al. Intramuscular lipomas: Large and deep benign lumps not to be underestimated. Review of a series of 51 cases. *Rev Esp Cir Ortop Traumatol* 2013;57:391-7.
7. Klessinger S, Freund W, Karpel-Massler G, et al. First Report of Recurrent Intramuscular Lipoma after Decompression Surgery of the Lumbar Spine. *J Neurol Surg A Cent Eur Neurosurg*. 2015.
8. Mizoshiri N, Shirai T, Terauchi R, Arai Y, Intramuscular spindle cell lipoma of the deltoid: a case report. *J Med Case Rep*. 2015 Feb 19;9(1):38
9. Berlund P, Kalamaras M. A case report of trigger wrist associated with carpal tunnel syndrome caused by an intramuscular lipoma. *Hand Surg*. 2014;19(2):237-9.
10. Tsumuraya ,Hiroyuki Yamada Hajime Shimizu, Yoshiaki Hamada. Intramuscular lipoma in the masseter muscle: a case report. *Br J Oral Maxillofac Surg*. 2014;52(4):21-3
11. Balabram D, Cabral CC, Filho Ode P, Barros CP. Intramuscular lipoma of the subscapularis muscle. *Sao Paulo Med J*. 2014;132(1):65-7
12. Lui TH, Intramuscular lipoma of the abductor digit minimi mimicking intramuscular haemangioma. *BMJ Case Rep*. 2013 Dec 17;2013
13. Lahrach K, el Kadi KI, Mezzani A, Marzouki A, Boutayeb F. An unusual case of an intramuscular lipoma of the biceps brachii. *Pan Afr Med J*. 2013 Jun 2;15:40.
14. Khodamorad Jamshidi, Iman Qomashi, and Mehdi Ramezan Shirazi. An Unusual Location of Ossified Intramuscular Lipoma: A Case Report. *Acta Med Iran*. 2011;49(9):630-2
15. D'Alfonso TM, Shin SJ. Intramuscular lipoma arising within the pectoralis major muscle presenting as a radiographically detected breast mass. *Arch Pathol Lab Med*. 2011; 135 (8):1061-3.
16. Sohn WI, Kim JH, Jung SN, Kwon H, Cho KJ Intramuscular lipoma of the sternocleidomastoid muscle. *J Craniofac Surg*. 2010; 21 (6):1976-8.
17. Pichierri A, Marotta N, Raco A, Delfini R Intramuscular infiltrating lipoma of the longus colli muscle. a very rare cause of neck structures compression. *Cent Eur Neurosurg*. 2010; 71 (3):157-9.
18. Kanji Mori, Tokuhiro Chano, Keiji Matsumoto, et al. Type-selective muscular degeneration promotes infiltrative growth of intramuscular lipoma. *BMC Musculoskeletal Disorders* 2004;5:20
19. E. R. Fregnani, F. R. Pires, R. Falzoni, M. A. Lopes, P. A. Vargas: Lipomas of the oral cavity: clinical findings, histological classification and proliferative activity of 46 cases. *Int. J. Oral Maxillofac. Surg*. 2003; 32: 49–53.
20. William C. Wood. Soft tissue tumours. *Oxford Text Book Of Surgery*. 2nd ed. oxford university press; 2002