

Case Report - Giant Lipoma in the thigh managed in a rural Nigerian hospital and a rapid review of the literature

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Abstract

Lipomas are located in any location in the body in which lipomatous tissue is located, the commonest site being in the subcutaneous area and more commonly in the trunk and neck. These are the commonest benign tumours of the mesenchyme and they are composed of mature lipocytes. The age affected is usually in the fifth or sixth decade of life. They are usually small in size, often less than 2cm. They are defined as giant lipoma's when they have a diameter longer than 10cm or a weight more than 1kg. They can be single or multiple – the multiple lipomas are more common in women. The symptoms of a lipoma are usually those of pressure, often related to giant lipomata and depend on the location in the body – pain, nerve compression and lymphoedema are common. Lipoma rarely become malignant, but this complication is more common in the giant variants.

Giant lipomas are uncommon, usually present in the upper part of the body and often require advanced imaging in the preop workup to aid in the detection of any malignant transformation.

This unusual case is reported because it is scarce in the Nigerian literature, occurred in the lower limb and the patient presented at a rural hospital, where advanced imaging was not available.

A 64-year-old man who had a giant lipoma in the left thigh measuring 30 x 20 x 18 cm, was successfully treated at a rural hospital in Southern Nigeria, without the benefit of advanced imaging. He had serial sections of the huge mass, none of which revealed any sarcomatous change. Furthermore, this report highlights the need for contextually relevant treatment algorithms regarding resource constraints and a pay-from-pocket structure of health care and thus also has a patient advocacy framework.

Key words: Giant lipoma, Nigeria, rural surgery

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Introduction

Giant lipomas have been well reported in the literature from developed countries but the data from developing countries is sparse. The current management protocols in high income countries include the use of advanced radiological imaging such as an MRI due to the increased risk of conversion to a liposarcoma in a giant lipoma.^{1,2} Such an approach is not directly transferable to patients in low- and middle-income countries, due the scarcity of MRI machines and the lack of funds to afford such a procedure in settings where most patients pay from their pocket for health care.

This case report describes the surgical treatment of an elderly male patient with a giant lipoma in the left thigh, which was carried out at a hospital in a rural setting in Southern Nigeria and is scaffolded on resource limitations in pre- and post-operative aspects. The rural setting is that of a village where the inhabitants appear to be in the low socioeconomic class with low-income occupations. The hospital was set up by Christian missionaries, to provide health care for the community. It is located at the border between two states in southern Nigeria. This case report makes the case for contextualizing treatment protocols to our resource limited setting and thus suggests an emphasis on the use of high fidelity USS in the radiologic assessment of giant lipomata. This case report has been reported in line with the SCARE criteria.³

Patient information

ED, a 64-year-old man presented in year 2022, with a three-year history of a slow growing painless anterior left thigh mass. There was difficulty walking as the mass enlarged, but no defined neurological symptoms. There were no symptoms suggesting secondary spread.

The man was not obese but he was ambulant. The mass measured about 30 x 20 x 18 centimetres. There were no skin changes. The surface was lobulated. The mass was not inflamed. The mass was mostly soft. Slipping sign was poorly defined as was the relationship to the surrounding muscle and the underlying femur.

There was no neurovascular deficit. The lung fields were clear. The abdomen was not remarkable.

An x-ray of the left thigh and chest did not

Figure I – showing the extent of the lipoma from the left femoral triangle to the left quadriceps tendon

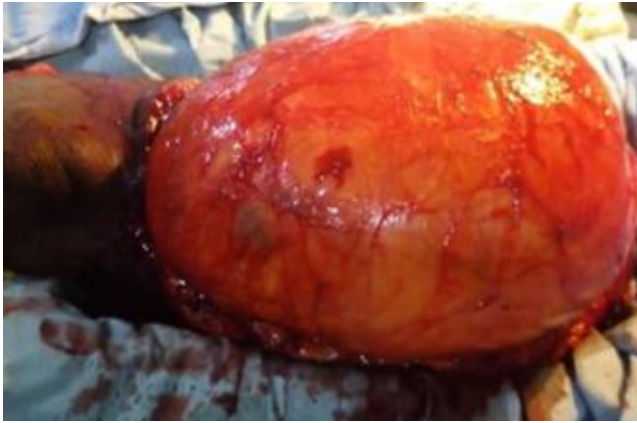


Figure II - showing severe wasting of the left quadriceps femoris

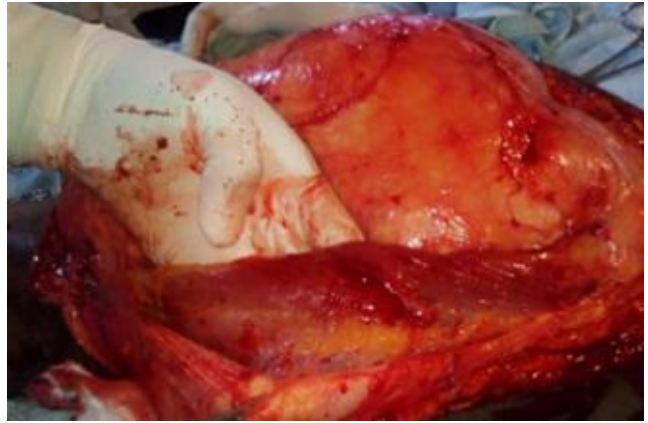


Figure III – revealing the giant lipoma excised with its capsule



Figure IV – Picture of the histology slide of this patient, showing mature adipocytes with peripherally disposed nuclei

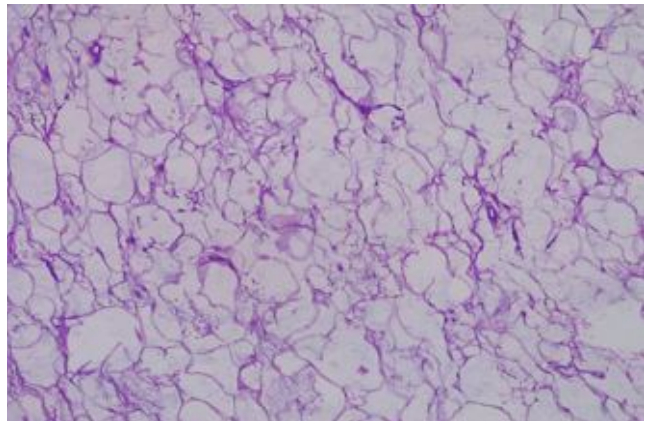


Table 1: Literature review of selected giant lipomas on pubmed using the search criteria “giant lipoma” and on google with the search criteria ‘giant lipoma thigh Nigeria’

No	Age (years)	Sex	Year	Size	Location	Diagnosis	Article Id
1	52	F	2009	58x37x24.5	Right thigh	Lipoma	doi - 10.5580/1964
2	62	F	2013	24x15x10	Right gluteus	Lipoma	doi - 10.4103/2276-7096.123630
3	72	M	2015	38 x 22 x 21	Back	Lipoma	doi - 10.1016/j.amsu.2015.08.001
4	48	F	2002	55x38cm	Anterior right thigh	Lipoma	doi - 10.1097/00006534-200204010-00052
5	90	M	2019	30×60 cm	Right gluteus	Lipoma	doi - 10.1136/bcr-2019-229842

reveal any left femur and chest changes, respectively. The abdominal USS scan did not reveal tumour deposits or organ enlargement.

An MRI of the lesion would have been useful as a screen for features of sarcomatous change in the lesion, but this was not available.

The patient was counselled and gave informed consent for surgery. Later, he gave consent to have the details of his treatment documented anonymously, for publication. A diagnosis of a giant lipoma in the left thigh with uncertain tissue planes was made and he was worked up for surgery.

The surgery was carried out with standard settings and on-table preparation, under spinal anaesthesia. An anterior direct approach was used. The submuscular fatty mass was noted to extend from the femoral triangle to the quadriceps tendon, with no gross features of local spread. The quadriceps femoris was markedly wasted. The lipomatous tissue was dissected out from the surrounding muscle in the usual fashion. (Figures I–III)

The skin was closed over two subfascial tube drains. The post op period was uneventful.

At two weeks postoperatively, the wound was healing well. Straight leg raising was normal in range. The patient was discharged to the outpatient where he was seen once before being lost to follow up. The pathology report revealed a benign neoplasm composed of lobules of mature adipocytes with peripherally disposed nuclei, separated by thin vascularized tissue with areas of haemorrhage and areas of chronic inflammation with fat necrosis. (Fig. IV) The histological diagnosis was a lipoma with fat necrosis and myxoid changes. Figure IV

Further sectioning was carried out, but no areas of malignant change were noted. Diagnostic staining such as immunohistochemistry was not sought as the histopathology was definite. Both the surgeon and the pathologist work at a tertiary hospital in a nearby state and had to travel over a 100 km to consult with patients in the index hospital. Follow up of the patient was limited to a clinic visit. The long-term outcome of the case is not certain with respect to recurrence and the need for rehabilitation.

Discussion

This case highlights the constraints within which surgeons in resource limited settings work, having adequate surgical skills but limited in societal impact by patient factors (inadequate funds for modern treatment and entrenched local beliefs about disease causation and animistic cures) and facility factors (scarce advanced facilities, like an MRI in this case) and limited funds to pay for those advanced tests.

The patient was lost to follow up as is often the case in resource constrained settings - the phone number in the case record was not reachable. People in a similar situation to the case under review would benefit from government policies to provide funding for indigent patients whose livelihoods are markedly constrained by an easily treatable but severely limiting disease.

This case report also showcases the size to which these benign lesions can grow, noting that much bigger lesions have been reported in the literature but few from Nigeria – supposedly, the largest in the English literature being a 22.7kg mass on the left scapula of a young man.^{4,5} Desktop review of the

English literature on Google yielded one other case of a giant lipoma in the thigh in Nigeria, making this the second such case report.⁶ (Table 1 number 1)

A lipoma is a benign adipose tumour which can occur anywhere in the body where adipose tissue is found, the commonest site being in the subcutaneous area, which is the largest and most widespread adipose sheet in the body.⁷ Lipomas make up 16% of all mesenchymal tumours, are usually slow growing, are common in the upper trunk and are “the most common soft tissue tumour in adults”.⁸⁻¹⁰ They tend to be solitary and slow growing masses, with space occupying effects, rare malignant transformation and onset usually between the age of 40 and 60 years of age.^{11,12} Patients with lipomas often present when the masses cause cosmetic or functional disturbance. Giant lipomata are those larger than 10 cm or weigh greater than 1kg; they are thought to be rare.^{7,10} A 60cm giant lipoma located in the right gluteus of a 90-year-old man is possibly the second largest reported in the English literature.¹³ (Table 1 number 5) The patient opted to ignore the mass until it reached this massive size! The index patient presented to a community surgery in a rural area in southern Nigeria, after some years of progressive debility due to the giant lipoma in his left thigh.

The year 2020 WHO classification of soft tissue tumours no longer uses the location of the tumour as a major feature – i.e., superficial, deep, intra or intermuscular and osteolipoma; rather the histology of the tissue is key for classification into benign, intermediate and malignant groups.^{10,14} The benign adipocytic group includes lesions such as lipoma, lipomatosis, lipoblastoma, angiolipoma, myolipoma etc.¹⁴

Kransdorf et al noted that features on CT or MRI statistically significant for liposarcoma included “size greater than 10cm, presence of thick septa, presence of globular and/or nonadipose areas, lesion less than 75% fat”, in addition to increased patient age and male sex.² Advanced radiologic imaging is helpful in ruling out malignant transformation in a giant lipoma but is scarcely available in a resource limited country such as Nigeria and is out of reach for most of the population due to a pay-from-pocket health care financing structure. As in this case, the treatment method recommended is careful complete extracapsular excision biopsy and request of the pathologist to carry out several slices of the lesion to rule out malignancy. A large (>5cm) lipoma in the thigh was noted to have a higher likelihood of being a sarcoma, in a classic paper by Rydholm and Berg.¹ A right thigh giant lipoma in a female patient in an urban setting in Nigeria, was subjected to MRI scanning, which revealed features suggestive of a liposarcoma.⁶ Fortunately, the histology was that of a fibrolipoma and she was discharged with no adverse sequelae. The index patient did not have

access to an MRI but was successfully managed. This is coherent with another case in an urban area in Nigeria by Adebayo et al, in which the patient did not have funds for advanced radiology.¹⁵ In addition, USS was found adequate in the diagnostic algorithm of a patient with a breast liposarcoma, in the setting of resource constraints.¹⁶ This suggests that in resource limited settings, the use of an USS should be adopted when the patient cannot access an MRI.

The index patient required unavailable rehabilitation services, especially due to the severe wasting of his left quadriceps noted intraoperatively and may have had to cope with any disability until he could access such services.

Conclusion

This case report highlights financial and social system constraints in managing and following up a patient with a giant lipoma in a resource constrained society and suggests the need for contextualized patient care protocols, such as placing more emphasis on high fidelity USS rather than an MRI; careful extracapsular excision and making several sections of the tumour for histological diagnosis to ascertain there is no sarcomatous change. Early presentation of patients and following them up adequately remains a problem in a background of generally low education and scarce resources.

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