

Study of Giant Lipomas: A Case Series of 21 Cases

Dr. Arvind Kumar Prabhat¹, Dr. Niranjan Dash², Dr. Gadekar JM³, Dr. Mrs. Thipse VJ⁴

¹Postgraduate Student, ²Professor, ³Professor and Head of Department, ⁴Professor

Department of General Surgery, DVVPF'S Medical College and Hospital, Ahmednagar, Maharashtra, India

Case Report

*Corresponding author

Dr. Arvind Kumar Prabhat

Article History

Received: 19.11.2017

Accepted: 25.11.2017

Published: 30.11.2017



Abstract: Lipomas are slow growing soft tissue mesenchymal tumor. Size of lipoma greater than 5 cm is known as giant lipoma. We prospectively analysed 498 cases of lipoma during the study period of January, 2014 to December, 2015. Out of 498 cases, giant lipomas were found in 21 cases. In our case series, the size of lipoma in all cases were more than 10 cm in any one dimension. Out of 21 cases, in 15 (71%) cases lipoma located subcutaneously and in 6(29%) cases intramuscularly. All cases underwent excision of the mass with primary closure. Histopathology report of 19(90.47%) patients were benign lipoma and in 2(9.52%) patients well differentiated liposarcoma. Recurrence was reported in 2(9.52%) cases in 2 years of followup. So, lipoma size greater than 5 cm in any one dimension warrants a workup for malignancy.

Keywords: Lipoma, Myelolipoma, Pleomorphic lipoma, liposarcoma

INTRODUCTION

Lipomas are most common soft tumor and very slow growing tumor. They arise from primordial adipocytes. They are circumscribed, encapsulated mass, have doughy feel and are freely mobile. Most common location of lipoma is subcutaneous tissue, other locations are intermuscular, intramuscular, interosseous. Subtypes of lipoma are, Fibrolipoma, Angiolipoma, Spindle cell lipoma, Myelolipoma and Pleomorphic lipoma. Giant lipoma of the upper extremity are very rare and if size greater than 5 cm in single dimension should be surgically removed due to malignant potential[1].

Intramuscular lipoma is a rare condition and it accounts 1.8% of all primary tumor of adipose tissue and less than 1% of all lipoma [4]. Infiltrating lipoma (intramuscular lipoma) first introduced by Regan et al in 1946[5]. In our case series, intramuscular lipoma was present in 6 (29%) cases. The definitive management of giant lipomas is open surgical excision and repeat followup over time to monitor for malignancy and recurrences.

MATERIALS AND METHODS

We prospectively analysed 498 cases of lipoma during the study period of January, 2014 to December, 2015 at DVVPF'S Medical College and Hospital, Ahmednagar, Maharashtra. Out of 498 cases, giant lipomas were found in 21 cases. Clinical diagnosis of lipoma was supported by USG, FNAC & MRI. Size of soft tissue tumor ranged from 11x10x7 cm to 30x28x18 cm.

Inclusion criteria

- Size of lipoma > 5 cm.
- Age group: 38 – 65 years.
- Both sexes.

Exclusion criteria

- Size of lipoma < 5 cm.

All patients underwent excision of the mass with primary closure by vicryl 2.0 and ethilone 2.0. Specimen was sent for histopathology report.

RESULTS

Table 1: Patient characteristics are summarized in Table 1. We prospectively analysed 498 cases of lipoma. Out of 498 cases, giant lipomas were found in 21 cases. In case series of 21 patients, 12(57%) patients were males and 9(43%) patients were females. Mean age of presentation was 52 years (range 38-65). Mean hospital stay was 15 days (range 12-18).

Table-1: Characteristics of patients

| | |
|-----------------------------------|------------------|
| Male | 12(57%) |
| Female | 9(43%) |
| Mean age (Range) in years | 52(38-65) |
| Mean hospital stay in days | 15(12-18) |

Values are mean and range or number of patient's percentage

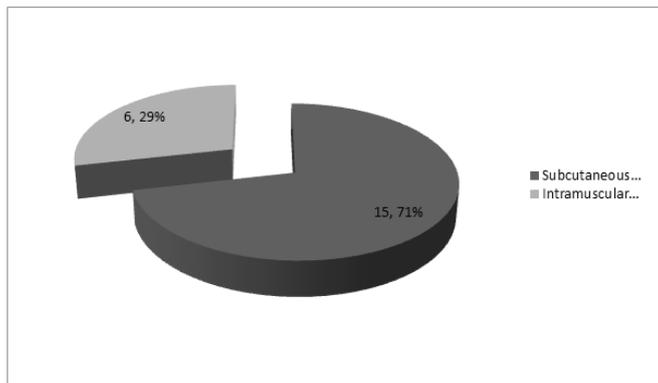


Fig-1: In 15(71%) cases lipoma located subcutaneously and in 6(29%) cases intramuscularly.

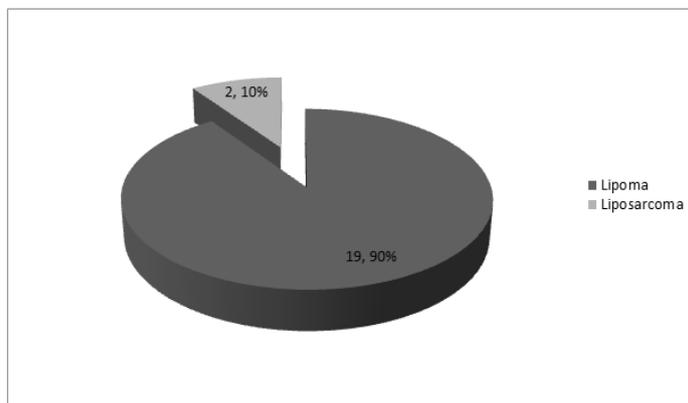


Fig-2: Histopathology report of 19(90.47%) patients was lipoma and 2(9.52%) patients well differentiated liposarcoma.

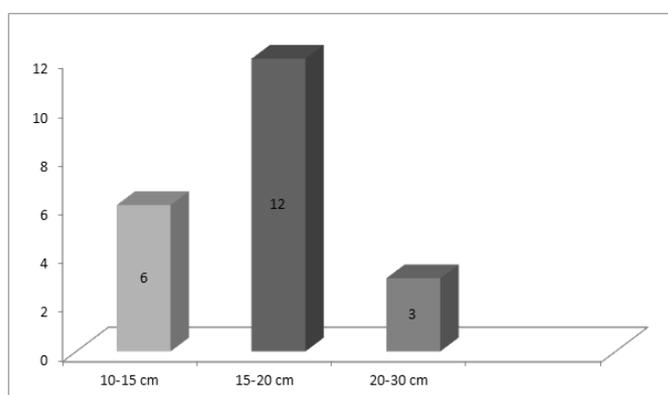


Fig-3: In 6(29%) cases size of lipoma was between 10-15 cm, in 12(57%) cases between 15-20 cm and in 3(14%) cases between 20-30 cm in any one dimension

Table-2: Summarizes location of subcutaneous lipoma, size of lipoma, operation and histopathology report

| Patient | Age/Sex | Location | Size(cm) | Operation | Histopathology Report | Special Remark |
|---------|---------|-----------------|----------|---------------------------------------|-----------------------|----------------|
| 1 | 65/M | Nape of neck | 30x28x18 | Radical Excision with primary closure | Benign lipoma | |
| 2 | 38/M | Upper back | 11x10x7 | Excision with primary closure | Benign lipoma | |
| 3 | 42/M | Upper back | 12x10x9 | Excision with primary closure | Benign lipoma | |
| 4 | 50/M | Left lumbar | 13x10x9 | Excision with primary closure | Benign lipoma | |
| 5 | 55/F | Upper back | 22x15x9 | Excision with primary closure | Benign lipoma | |
| 6 | 58/F | Right mid thigh | 15x10x7 | Radical Excision with primary closure | Benign lipoma | Recurrence |
| 7 | 40/M | Right lumbar | 20x12x11 | Excision with primary closure | Benign lipoma | |
| 8 | 46/M | Upper back | 18x15x10 | Excision with primary closure | Benign lipoma | |
| 9 | 58/F | Upper back | 20x12x12 | Excision with primary closure | Benign lipoma | |
| 10 | 62/M | Left lumbar | 16x15x10 | Excision with primary closure | Benign lipoma | |
| 11 | 52/M | Right shoulder | 25x15x12 | Excision with primary closure | Liposarcoma | |
| 12 | 61/F | Lower back | 17x12x11 | Excision with primary closure | Benign lipoma | |
| 13 | 49/M | Left lumbar | 18x11x11 | Excision with primary closure | Benign lipoma | |
| 14 | 42/F | Upper back | 17x12x11 | Excision with primary closure | Benign lipoma | |
| 15 | 56/M | Upper back | 12x10x8 | Excision with primary closure | Benign lipoma | |

Subcutaneous lipoma was present in 15(71.42%) cases. Most of them are present on the upper back [7(46.66%) cases]. Histopathology report of

14(93.33%) cases was benign lipoma and liposarcoma of 1(6.66%) case. Recurrence was reported in 1(6.66%) case.

Table-3: Summarizes location of intramuscular lipoma, size of lipoma, operation and histopathology report

| Patient | Age/Sex | Location/Muscle | Size(cm) | Operation | Histopathology Report | Special Remarks |
|---------|---------|---|-----------|------------------------------------|-----------------------|-----------------|
| 16 | 59/F | Back(Trapezius) | 18x12x12 | Excision with primary closure | Benign lipoma | |
| 17 | 49/M | Back(Trapezius) | 22x18x12 | Excision with primary closure | Benign lipoma | |
| 18 | 61/F | Back (Rhomboides major) | 12x11x5 | Excision with primary closure | Benign lipoma | Recurrence |
| 19 | 52/M | Right fore arm(Extrinsic flexor muscle) | 11x5x5 cm | Radical excision & primary closure | Liposarcoma | |
| 20 | 62/F | Back(Trapezius) | 11x8x5 | Excision with primary closure | Benign lipoma | |
| 21 | 56/F | Back(Latissimus dorsi) | 12x10x5 | Excision with primary closure | Benign lipoma | |

Intramuscular lipoma was present in 6(28.57%) cases. Most of them were present on the back (5, 83.33% cases). Well differentiated liposarcoma was found in 1(16.66%) case and rest of the cases was benign lipoma. Recurrence was reported in 1(6.66%) case.

Case Presentations

Seven cases are presented here in more details

Case 1

A 65 years old male presented to our surgical OPD with a big painless mass on his nape of neck. The swelling was present since 27 years. The size of swelling steadily enlarging. On clinical examination, there was a spongy, well defined mass of size approximately 30x25x15 cm present on his nape of neck with a stalk of diameter approximately 10 cm. No overlying skin colour changes. MRI revealed a large well circumscribed, homogenous fatty mass of size 30x28x18 cm present in subcutaneous plane, not taking any vascularity from the underlying structures. Radical excision was performed and primary closure was done by putting a corrugated drain. The mass was sent for histopathology. Drain was removed on 4th postoperative day. The patient recovered satisfactorily and was discharged after removal of skin sutures on 10th postoperative day. The histopathology report was benign lipoma. During the followup visit, the operative scar was found to be well healed and there was no recurrence.



Fig-4: Showing giant lipoma of size 30x28x18 cm over nape of neck

Case 3

A 42 years old male admitted in the surgical ward with a mass on his upper back. The swelling was present since 12 years. There was painless swelling. The size of swelling was gradually increasing. On examination, doughy mass of size, ill-defined border, approximately 12x12x10 size was present on his upper back.

MRI swelling revealed a mass of size 12x10x9 cm present at upper back subcutaneously, not taking vascularity from the underlying structures. Excision and primary closure was done by putting a corrugated drain. The mass was sent for histopathology. Drain was removed on 3rd postoperative day. The patient recovered satisfactorily and was discharged after removal of skin sutures on 10th postoperative day. The histopathology report was benign lipoma. During the followup visit, the operative scar was found to be well healed and there was no recurrence.



Fig-5: Showing giant lipoma of size 12x10x9 cm over back

Case 6

A 58 years old female presented with a mass on her right mid-thigh. The patient reported having fatty tumor was removed from the same location 3 years back. She had noticed recurrence of the mass two years after the initial surgery. On examination, a spongy mass of size approximately 12x10x5 cm ill-defined border present at the mid of right thigh. MRI revealed a mass of size 15x10x7 cm present at right mid-thigh subcutaneously, not taking vascularity from the underlying structures. At this time, radical excision and primary closure was performed and patient recovered well. Histopathology report revealed a lipoma. In 2 years of followup no recurrence was found.



Fig-6: Showing giant lipoma



Fig-7 : Showing intraoperative excision of giant lipoma



Fig-8: showing specimen of excised giant lipoma

Case 11

52 years old male came in surgical OPD with chief complain of rapid growth of a mass at right shoulder region since 2 years. Swelling was painless. On examination, the swelling was well circumscribed of size approximately 22x18x10 cm present at the lateral aspect of right shoulder. His right upper limb had intact neurovascular with no compromise in motor function due to the mass.

MRI revealed a mass of size 25x15x12 cm present subcutaneously at lateral border of right shoulder. Increased levels of vascularity were seen in septal structures within the lesion. Radical excision and primary closure was performed.



Fig-9: Showing rare giant lipoma of size 25x15x12 cm over right shoulder region

The patient recovered satisfactorily and was discharged after removal of skin sutures on 10th postoperative day. The histopathology report was well differentiated liposarcoma. Chemotherapy and radiotherapy were given later on. Postoperatively the patient recovered well with no any functional deficit.

Case 15

A 56 years old male presented with a swelling on his upper back since 20 years. Swelling was painless. On examination, there was a firm well defined mass of size approximately 11x10x6 cm present at upper back region. Tattooing of swelling was done in periphery for cure of disease. In spite of tattooing, size of swelling was gradually increasing.



Fig-10: showing giant lipoma of size 12x10x8 cm over upper back

MRI swelling revealed a large, well circumscribed homogenous fatty mass of size 12x10x8 cm. The mass located subcutaneously, not taking vascularity from the underlying structures. Excision and primary closure was done by putting a corrugated drain. The mass was sent for histopathology. Drain was removed on 4th postoperative day. The patient recovered satisfactorily and was discharged after removal of skin sutures on 10th postoperative day. The histopathology report was benign lipoma. During the followup visit, the operative scar was found to be well healed and there was no recurrence.

Case 17

A 49 years old male presented in the the surgical OPD with a mass on his upper back. The swelling was present since 4 years. No pain was associated with the swelling. On examination, a firm painless swelling of size approximately 20x15x10 cm was present on his upper back. The swelling was fixed with the underlying structure.



Fig-11: Showing giant lipoma of size 22x18x12 cm over upper back

MRI revealed a large, diffuse fatty mass of size 22x18x12 cm present inside the trapezius muscle. Increased levels of vascularity seen in septal structures within the lesion. Radical excision and primary closure was performed. Mass sent for histopathology. The patient recovered satisfactorily and was discharged after removal of skin sutures on 12th postoperative day. The histopathology report was lipoma.

Case 19

A 55 years old male presented with a mass on his right forearm. He had first noticed the lesion 2 years earlier and reported that it had been steadily enlarging over the previously 1.5 months. On examination, there was a firm well defined mass of size approximately 11x6x5 cm present at the volar aspect of his right forearm. No overlying skin colour changes and his right arm had intact neurovascular.



Fig-12: showing rare giant lipoma of size 11x5x5 cm over right for arm.

MRI revealed a large, well circumscribed homogenous fatty mass of size 11x5x5 cm. The lesion was located intramuscularly, within and volar to the extrinsic flexor muscle of the right hand, increased levels of vascularity seen in septal structures within the

lesion. Radical excision and primary closure was performed. Mass sent for histopathology. The patient recovered satisfactorily and was discharged after removal of skin sutures on 12th postoperative day. The histopathology report was well differentiated liposarcoma. Chemotherapy and radiotherapy were given later on. Postoperatively the patient recovered well with no any functional deficit.

Follow up

During the study period, patients were followed upto a period of 2 years. Recurrence was reported in 2 cases. In one case recurrence occurred after 1 year and in another case after 18 months. Histopathology report of both the cases was benign lipoma. Recurrence was probably due to remnants of fat loculi. In other cases there were no complications of surgical management or readmission.

DISCUSSION

We prospectively analysed 498 cases of lipoma. Out of 498 cases, giant lipomas were found in 21 cases. As per our study, incidence of giant lipoma was 4.21%, inspite of thorough search incidence of giant lipoma not mentioned in the literature. So, further studies need to be conducted.

In our case series, the sizes of lipoma in all cases were more than 10 cm in any one dimension. Lipoma size greater than 5 cm in any one dimension warrants a workup for malignancy and we have managed accordingly[3]. Nishida J *et al* reported mean age of presentation of lipoma as 58.7 years[6]. In our case series, mean age of presentation as 52 years, 6.7 years earlier than Nishida J *et al.* study, probably due to presence of more adipose tissue in younger age group or due to something else which needs further study.

Gender predilection has not been clearly established. In majority of studies, there is female predominance [7]. In our case series it is male predominance. Out of 21 patients, 12(57%) are males and 9(43%) are females. In our study, male predominance probably due to obesity of male patients.

Ramos-Pascua *et al.* reported that, development of lipoma as 2/3rd (67%) of their cases were obese [8]. In our case series, 12(57%) cases were obese. Obesity was present in majority of male patients that explains the male predominance of lipoma in our case series.

Lipoma is very slow growing benign tumor. The etiology of its rapid growth and its conversion into giant lipoma is still a matter of debate. One of the hypothesis suggested that blunt trauma can cause rupture of the fibrous septa and loss of anchorage connections between the deep fascia and skin which

leads into adipose tissue to proliferate[9]. In our case series, history of trauma was reported in 2(9.52%) cases.

Lipoma can develop spontaneously or present as part of a syndrome such as, Gardner's syndrome, Adiposis dolorosa, Hereditary multiple lipomatosis and Madelung's disease[10]. In our case series, no such type of syndrome was found. Giant lipoma of the upper extremity are very rare and if size greater than 5 cm in single dimension should be surgically removed due to malignant potential[3]. In our case series, giant lipoma in the right upper limb was present in 2(9.52%) cases. Histopathology report of both the cases was well differentiated liposarcoma. Radiotherapy and chemotherapy was given after surgery.

In our case, dose of radiotherapy given was 50-60 Gy. Different regimens of chemotherapy are Doxorubicin / Ifosfamide or Gemcitabine /Docetaxel. Newer ones are Eribulin and Trabectedin. In our case, we have used anthracycline based regimen [Doxorubicin 20 mg/m²(d1-d3); Ifosfamide 2.5gm/m²(d1); Dacarbazine 300 mg/m²(d1); 21 day cycle]. No any complication or recurrence was observed in 2 years of followup after surgical management and thereafter radiotherapy/ chemotherapy.

Liposarcoma is the most common variant of soft tissue sarcoma and it accounts 7-27%[11]. In our case series, liposarcoma was present in 2(9.52%) cases. These results are same as our case series study. In our case series, liposarcoma was well managed by surgery and thereafter radiotherapy and chemotherapy.

In 5-15% of patients lipomas are estimated to be multiple[1]. In our case series, multiple lipomas were present in 3(14%) cases. These results are same as our case series study. Intramuscular lipomas are usually located within a single muscle, only few cases reported involving two or more muscles[12]. In our case series, 6(28.57%) cases lipoma was found intramuscularly and in all cases were present inside the single muscle.

Recurrence of lipoma can occur many years after excision. Fletcher CD *et al.*[13] reported the recurrence range from 14 month to 19 years. Bjerregaard *et al.* surgically excised 12 cases of lipoma. In 7 years of followup, the tumor recurred in 5(41.67%) patients[14]. In our case series, recurrence was reported in 2(9.52%) cases. Histopathology report of recurrent lipoma was benign lipoma. In our case series followup was done for a period of 2 years. In one case recurrence occurred after 1 year and in another case after 18 months. Recurrence was probably due to remnants of fat loculi. Radical excision was done after recurrence of disease. During further followup period, any

complication or recurrence was not found in these two cases.

CONCLUSION

The definitive management of giant lipomas is open surgical excision with primary closure. Lipomas are well encapsulated structures, allowing straightforward complete removal. When lipomas located intramuscularly then its removal is technically challenging and may require removal of some surrounding muscle to ensure adequate margin. Finally, the histopathology report of the specimen is needed to determine the further management. Chance of giant lipoma undergoing into malignancy is not that common. So, lipoma size greater than 5 cm in any one dimension warrants a workup for malignancy. In our case series, all cases were managed accordingly and yielded good results.

Ethical approval

Written informed consent was obtained from the patients for publication of this case series and accompanying images. A copy of written consent is available for review by the Editor-in-Chief of this journal.

Conflict of interest – None

Funding - None

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