



ORIGINAL RESEARCH PAPER

Radio-Diagnosis

MR FEATURES OF SPINDLE CELL LIPOMA IN THE ANTERIOR ABDOMINAL WALL

KEY WORDS:

Sreenath Sethumadhavan*

MBBS DMRD DNB FRCR EDiR FVIR Junior Consultant, Department of Radio diagnosis, G. Kuppuswamy Naidu Memorial Hospital, Coimbatore, Tamil Nadu, India. *Corresponding Author

Geena Benjamin

DMRD DNB FRCR Professor and Head, Department of Radio diagnosis, Pushpagiri Institute of Medical Sciences and Research Centre, Tiruvalla, Kerala, India.

Lipoma, made of mature fat cells, represent the commonest benign mesenchymal neoplasm of the body. Lipoma accounts for almost 50% of all soft-tissue tumors. However, they are not commonly seen in the anterior abdominal wall. A rare variant of lipoma composed of fat and non-adipose tissue is spindle cell lipoma, which is commonly located in the subcutaneous tissue of posterior aspect of neck, back and shoulder.

In this report the MR features of spindle cell lipoma in an uncommon location – the subcutaneous tissue of the anterior abdominal wall is being presented.

Case presentation

A 62 year old male presented to the outpatient department with history of swelling in the right lumbar region for the past 5 yrs. The swelling was gradually increasing in size with no complaints of pain, loss of appetite, change in bowel or bladder habits, or any discharge.

On clinical examination, a firm, round mass was noted involving the subcutaneous plane on the right anterior abdomen. It was slightly mobile and non-tender with no signs of inflammation.

MR imaging showed a large well defined, well marginated, multilobulated lesion noted involving the subcutaneous plane of anterior abdominal wall measuring 11.8 x 10.2 x 7.3 cm (CC x TD x AP) with a peripheral hypo intense rim. The lesion is seen towards the right side extending from the lumbar to iliac region. The lesion exhibits isointense signal intensity on T1W (Figure 1) images and heterogeneously hyper intense signal intensity on T2WI (Figure 2). The lesion is seen to abut the right external oblique, internal oblique and rectus abdominis muscles with preserved fat planes. It exhibits hyper intense signal intensity on diffusion images with normal ADC values. It shows near homogenous mild enhancement on intravenous contrast administration (Figure 3). Multiple tortuous dilated vessels noted surrounding the lesion with few vessels coursing through the lesion. Minimal subcutaneous fluid noted along the lateral wall of abdomen.

The differential diagnosis includes liposarcoma, lipoma, spindle cell lipoma, dermatofibrosarcoma protuberans, desmoid tumor and soft tissue sarcoma. However, desmoid tumor though common in the anterior abdominal wall shows low signal intensity on T1W and T2W images owing to its dense cellularity and fibroblastic content. Soft tissue sarcoma appears less likely as there is no evidence of infiltration into the surrounding tissue. Also, enhancement and isointense signal on T1W images make the diagnosis of simple lipoma less likely, but the possibility of liposarcoma or spindle cell lipoma can be considered.

Discussion

Lipoma is widely reported as the most common mesenchymal neoplasm¹. They are seen to originate from the deep or superficial structures. It can be a single lesion or multiple in

number, called lipomatosis. They have a predilection to involve the trunk, however, they rarely involve the anterior abdominal wall². Some of the risk factors for developing lipoma include - obesity, hypercholesterolemia, type 2 diabetes mellitus, familial tendency etc.³

Described first in 1975 by Enzinger and Harvey⁴, spindle cell lipoma is a rare benign mesenchymal lesion characterized by collagen forming spindle cells replacing the mature adipocytes⁵. The non- adipose tissue may show areas of prominent vascularity in some cases⁶. Their characteristic features include – they are slow growing, painless, single, not reported to metastasize, and are more commonly seen in men between ages 45-65^{4,7,8,9,10}. Few cases of multiple spindle cell lipoma, with some showing a familial predilection has been described recently¹¹. Common in subcutaneous tissue of neck, back and shoulder, rare instances of an intramuscular location has been reported^{4,12,13,14}.

Clinically, spindle cell lipoma manifests as a subcutaneous mobile, painless mass ranging in size from 3-5 cm. The lesion is slow growing and causes no other symptoms^{4,7,8,9,10}. Usually, most of them are relatively equal in their ratio of fat and spindle cells, but there may be instances where one of the components may predominate. It is the alteration in the ratio of fat and spindle cells that result in the varying imaging features of spindle cell lipoma¹⁵. They appear iso to hyperechoic in echogenicity on USC, surrounded by a thin, echogenic capsule. On CT, they show areas of fat attenuation and the non-adipose components show non-specific soft tissue attenuation within a well-defined subcutaneous mass. On MR imaging, the fat component may be seen as a T1W and T2W hyper intense lesion, appearing dark on fat suppressed sequences, whereas the non-adipose tissue shows same signal intensity as that of muscle on T1W images and iso to hyper intense to fat on T2W images. The prominent vascularity within the non-adipose component (pseudoangiomatous component) enhances following intravenous contrast administration⁷.

Preferred mode of treatment is local surgical excision. The chance of recurrence following surgery is low and hence, shows good prognosis once resected¹⁶. On macroscopic examination, they appear well-circumscribed, yellow to grayish-white in color and are firm in consistency¹⁶. On microscopy, mature adipocytes are seen, with areas that are replaced by spindle cells included in a matrix comprising of fibrils of mucin and collagen¹⁶. Other components may include lymphocytes, mast cells, myxoid tissue and rarely vascular elements¹⁶.

Figures and legends

FIG 1 – On axial T1W image, a well-defined lesion involving subcutaneous plane of the anterior abdominal wall exhibiting isointense signal intensity to surrounding muscles.

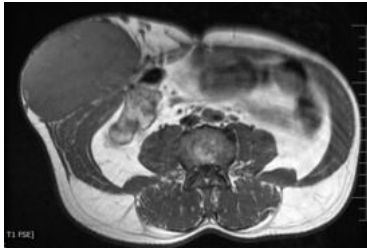


FIG 2 – On axial T2 Fat sat image, the lesion shows heterogeneously hyperintense signal intensity and abutting the right external oblique, internal oblique and rectus abdominis muscles.

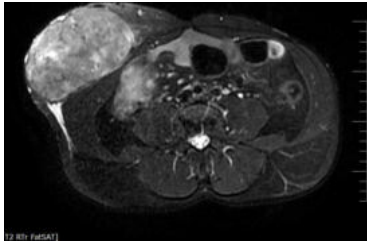
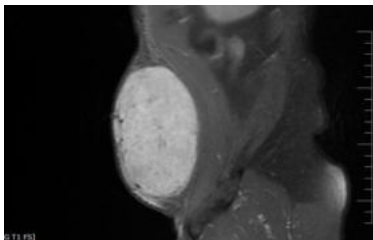


FIG 3 – On post contrast T1W sagittal image, the lesion shows near homogenous enhancement



REFERENCES

1. Myhre-Jensen O. A consecutive 7-year series of 1331 benign soft tissue tumors. Clinicopathologic data. Comparison with sarcomas. *Acta Orthop Scand* 1981;52:287-293.
2. S. Gokhale. "High resolution ultrasonography of the anterior abdominal wall". *Indian Journal of Radiology and Imaging*, vol 17 (4), pp.290-298, 2007.
3. S.W. Weiss, J.R. Goldblum. "Soft tissue tumors". (5th ed) St Louis, MO: Mosby, 2007.
4. Enzinger FM, Harvey DA. Spindle cell lipoma. *Cancer* 1975;36:1852-1859.
5. Bolen JW, Thorning D. Spindle-cell lipoma: a clinical, light- and electron-microscopical study. *Am J Surg Pathol* 1981;5:435-441.
6. Fletcher CDM, Martin-Bates E. Spindle cell lipoma: a clinicopathological study with some original observations. *Histopathology* 1987;11:803-817.
7. Bancroft LW, Kransdorf MJ, Peterson JJ, Sundaram M, Murphey MD, O'Connor MI. Imaging characteristics of spindle cell lipoma. *AJR Am J Roentgenol* 2003; 181:1251-1254.
8. Evans HL. Liposarcoma: a study of 55 cases with a reassessment of its classification. *Am J Surg Pathol* 1979;3:507-523.
9. Evans HL, Soule EH, Winkelmann RK. Atypical lipoma, atypical intramuscular lipoma, and well differentiated retroperitoneal liposarcoma: a reappraisal of 30 cases formerly classified as well differentiated liposarcoma. *Cancer* 1979; 43:574-584.
10. Fletcher CD, Martin-Bates E. Spindle cell lipoma: a clinicopathological study with some original observations. *Histopathology* 1987; 11: 803-817. Hawley IC, Krausz T, Evans DJ, Fletcher CD. Spindle cell lipoma: a pseudoangiomatous variant. *Histopathology* 1994;24:565-569.
11. Fanburg-Smith JC, Devaney KO, Miettinen M, Weiss SW. Multiple spindle cell lipomas: a report of 7 familial and 11 nonfamilial cases. *Am J Surg Pathol* 1998; 22:40-48.
12. Weiss SW, Goldblum JR. Benign lipomatous tumors. In: Weiss SW, Goldblum JR, eds. *Enzinger and Weiss's soft tissue tumors*, 4th ed. St. Louis: Mosby, 2001:571-639.
13. Sund S, Hordvik M, Maehle B, Waloe A, Myking A. Large intramuscular spindle-cell lipoma: a case report. *APMIS* 1988;96:347-351.
14. Tosios K, Papanicolaou SI, Kapranos N, Papadogeorgakis N. Spindle cell lipoma of the oral cavity. *Int J Oral Maxillofac Surg* 1995;24:363-364.
15. Laura W. Bancroft, Mark J. Kransdorf, Jeffery J. Peterson, Murali Sundaram et al. Imaging characteristics of spindle cell lipoma. *AJR*; 181, November 2003.
16. Mark D. Murphey, John F. Carroll, Donald J. Fleming, Thomas L. Pope et al. Benign musculoskeletal lipomatous lesions. *RadioGraphics* 2004; 24:1433-1466.