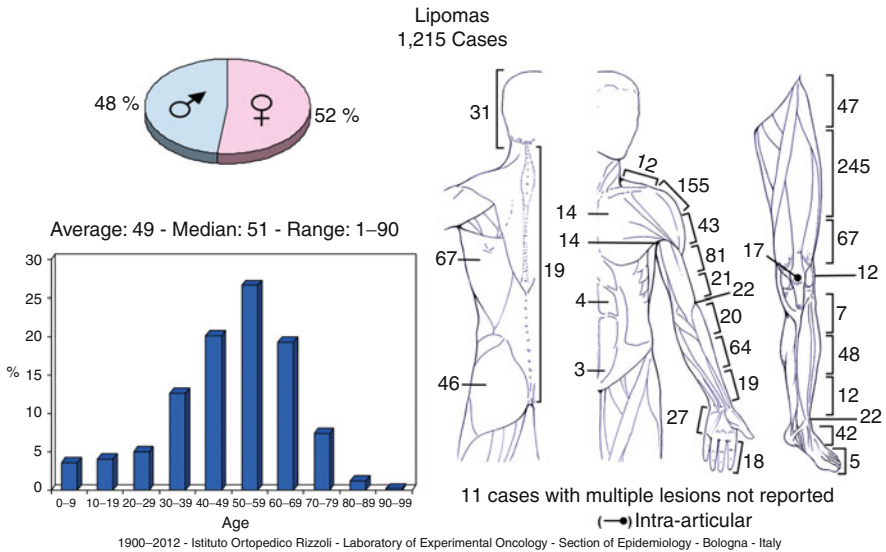


# Chapter 62

## Lipomas

Nicola Fabbri

**Definition:** A benign tumor constituted by well-differentiated adipocytes.  
**Epidemiology:** The most common among soft tissue tumors. It is more frequently observed between 40 and 60 years of age and prevails in females when it is superficial, whereas in males when it is deep and multiple.



**Localization:** (a) Superficial (frequent): in the subcutaneous tissue of the back, shoulder, neck, and proximal extremities. (b) Deep (rare): within or between

N. Fabbri, MD  
 Department of Surgery, Orthopaedic Service, Memorial Sloan-Kettering Cancer Center,  
 1275 York Avenue, New York 10065, NY, USA  
 e-mail: fabbrin@mskcc.org

muscles or adherent to bone, tendons, joints or nerves. In 5 % of cases lipomas are multiple with symmetrical distribution in the dorsum and proximal upper limb.

**Clinical:** Solitary lump, slow growing, and painless unless there is nerve compression. Superficial lipoma never grows large size (average 4 cm.) and it is movable. Deep lipoma tends to be larger (average 10 cm) and with a spherical, fixed, and firm mass.

**Imaging:** On X-ray, a radiolucent mass with or without calcification or ossification; mild cortical thickening when parosteal. On CT scan, a lobulated, sharply marginated radiolucency with homogeneous density. On MRI, an encapsulated, bright mass without enhancement after contrast administration; signal intensity equal to that of fat; regular thin septation. On angiography, avascular. On bone scan, there is no uptake.

**Histopathology:** It is often lobulated with a very thin true capsule and pseudocapsule fibrous, thick, and adherent to the surrounding tissues. Soft on palpation, pale yellow in color, lipoma is constituted by lipocytes, mature “signet ring” cells. Vessels are not very apparent, because they are thin and compressed by lipocytes. On immunohistochemistry, all lipomas are diffusely positive for S-100 and vimentin. Spindle cell and pleomorphic lipoma are also positive for CD34.

**Course and Staging:** a) Superficial lipoma: easily diagnosed, asymptomatic, generally stage 1, but it may behave as active stage 2 lesion. According to AJC classification, lipoma is more frequently stage Ia. b) Deep lipoma: an extensive anatomic-pathological study with multiple specimens is necessary to exclude liposarcoma lipoma-like. Usually, stage 2 or stage Ib according to AJC classification. Malignant changes are exceptional.

**Treatment:** Marginal excision is curative. Recurrence is rare (<5 %).

Variants	Age	Sex	Clinical	Gross	Histology
Angiolipoma	20	Male	<2 cm/forearm Subcutaneous Pain	Firm Yellow/reddish	Lipocytes + Network of capillaries with fibrin thrombi
Spindle cell lipoma	Adult	Male	4 cm/back Subcutaneous Painless	Soft Yellow/whitish	Lipocytes + Vessels + spindle cells + Myxoid matrix + Collagenous bands
Pleomorphic lipoma	Adult	Male	4 cm/back Subcutaneous Painless	Firm Yellow/whitish	Lipocytes + Bizarre floret-like multinucleated cells
Lipoblastoma	<2	Male	3 cm/limbs Subcutaneous Painless	Lobulated translucid	Like myxoid liposarcoma
Lipomatosis	10	-	Large/diffused Pain	Dense Tissue infiltrating	Mature adipose
Intraneurovascular L	<30	Male	Hand/wrist Pain + neuropathy	Hard	Surrounds and infiltrates the nerve
Hibernoma	Adult	Male	4 cm/scapular Subcutaneous Painless	Firm	Central nucleus + Foam cytoplasm = Brown fat

### Immunohistochemical Panel

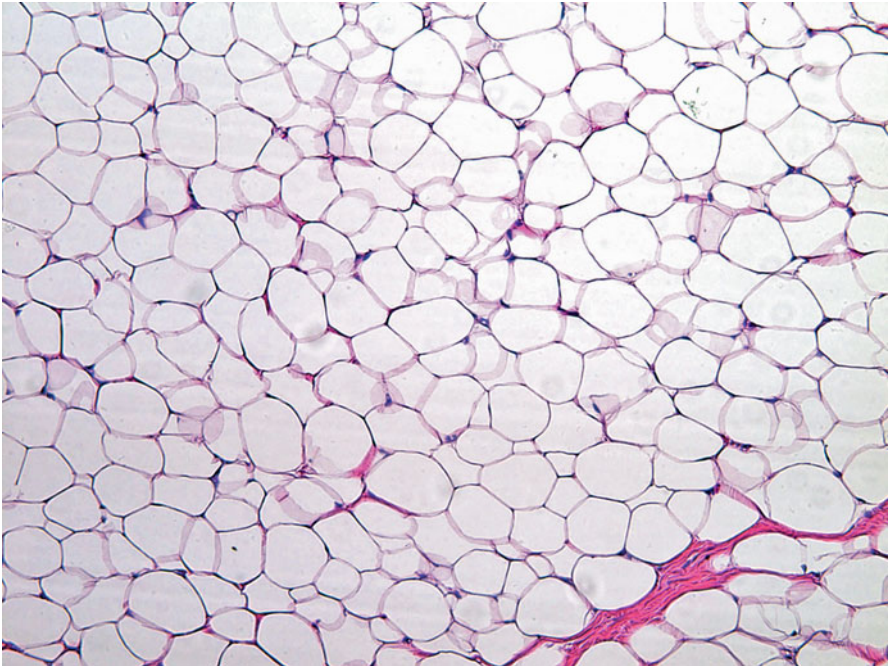
Usual Lipoma

VIM	+
S100	+

### Immunohistochemical Panel

Spindle Cell Lipoma

VIM	+
S100	+
CD34	+



Mature adipocytic cells organized in lobules with flat nuclei at the periphery and optically empty cytoplasm. No atypia of the cells

## **Selected Bibliography**

- Drevelgas A, Pilavaki M, Chourmouzi D (2004) Lipomatous tumors of soft tissue: MR appearance with histological correlation. *Eur J Radiol* 50(3):257–267. Review
- Goodwin RW, O'Donnell P, Saifuddin A (2007) MRI appearances of common benign soft-tissue tumours. *Clin Radiol* 62(9):843–853. Review
- Lee JC, Gupta A, Saifuddin A, Flanagan A, Skinner JA, Briggs TW, Cannon SR (2006) Hibernoma: MRI features in eight consecutive cases. *Clin Radiol* 61(12):1029–1034
- Rubin BP, Dal CP (2001) The genetics of lipomatous tumors. *Semin Diagn Pathol* 18(4):286–293. Review
- Zamecnik M, Michal M (2007) Angiomatous spindle cell lipoma: Report of three cases with immunohistochemical and ultrastructural study and reappraisal of former 'pseudoangiomatous' variant. *Pathol Int* 57(1):26–31. Review