

Table 26-9 Soft Tissue Tumors

Category	Behavior	Tumor Type	Common Locations	Age (yr)	Morphology
Adipose	Benign	Lipoma	Superficial extremity, trunk	40-60	Mature adipose tissue
	Malignant	Well-differentiated liposarcoma	Deep extremity, retroperitoneum	50-60	Adipose tissue with scattered atypical spindle cells
		Myxoid liposarcoma	Thigh, leg	30s	Myxoid matrix, "chicken wire" vessels, round cells, lipoblasts
Fibrous	Benign	Nodular fasciitis	Arm, forearm	20-30	Tissue culture growth, extravasated erythrocytes,
		Deep fibromatosis	Abdominal wall	30-40	Dense collagen, long, unidirectional fascicles
Skeletal muscle	Benign	Rhabdomyoma	Head and neck	0-60	Polygonal rhabdomyoblasts, "spider" cells
	Malignant	Alveolar rhabdomyosarcoma	Extremities, sinuses	5-15	Uniform round discohesive cells between septae
		Embryonal rhabdomyosarcoma	Genitourinary tract	1-5	Primitive spindle cells, "strap" cells
Smooth muscle	Benign	Leiomyoma	Extremity	20s	Uniform, plump eosinophilic cells in fascicles
	Malignant	Leiomyosarcoma	Thigh, retroperitoneum	40-60	Pleomorphic eosinophilic cells
Vascular	Benign	Hemangioma	Head and neck	0-10	Circumscribed mass of capillary or venous channels
	Malignant	Angiosarcoma	Skin, deep lower extremity	50-80	Infiltrating capillary channels
Nerve sheath	Benign	Schwannoma	Head and neck	20-50	Encapsulated, fibrillar stroma, nuclear palisading
		Neurofibroma	Wide, cutaneous, subcutis	10-20+	Myxoid, rosy collagen, loose fascicles, mast cells
	Malignant	Malignant peripheral nerve sheath tumor	Extremities, shoulder girdle	20-50	Tight fascicles, atypia, mitotic activity, necrosis
Uncertain histotype	Benign	Solitary fibrous tumor	Pelvis, pleura	20-70	Branching ectatic vessels,
	Malignant	Synovial sarcoma	Thigh, leg	15-40	Tight fascicles of uniform basophilic spindle cells, Pseudoglandular structures
		Undifferentiated pleomorphic sarcoma	Thigh	40-70	High grade anaplastic polygonal, round or spindle cells
		Alveolar soft part sarcoma	Trunk, extremities	15-35	Bizarre nuclei, atypical mitoses, necrosis
		Clear cell sarcoma	Tendons, extremities	20-40	Multiple nodules of eosinophilic round cells, septae
					Sheets of pale or clear spindle cells, wreath-like giant cells

and stage (size and depth) are important prognostic indicators.

With this as a primer, we will next consider representative or especially illustrative soft tissue tumors.

Tumors of Adipose Tissue

Lipoma

Lipoma, a benign tumor of fat, is the most common soft tissue tumor of adulthood. These tumors are subclassified according to morphologic and/or characteristic molecular features as conventional lipoma, fibrolipoma, angiolipoma, spindle cell lipoma and myelolipoma.

MORPHOLOGY

The conventional lipoma, the most common subtype, is a well-encapsulated mass of mature adipocytes. It usually arises in the subcutis of the proximal extremities and trunk, most frequently during middle adulthood. Infrequently, lipomas are large, intramuscular, and poorly circumscribed.

Lipomas are soft, mobile, and painless (except angiolipoma) and are usually cured by simple excision.

Liposarcoma

Liposarcoma is one of the most common sarcomas of adulthood. It occurs mainly in people in their 50s to 60s in the deep soft tissues of the proximal extremities and in the retroperitoneum. Amplification of 12q13-q15 and t(12;16) are characteristic of well-differentiated and myxoid liposarcomas, respectively. One of the key genes in the amplified region of chromosome 12q is *MDM2*, which you will recall encodes a potent inhibitor of p53. Pleomorphic liposarcomas contain complex karyotypes without reproducible genetic abnormalities.

MORPHOLOGY

Liposarcomas are histologically divided into three morphologic subtypes:

- Well-differentiated liposarcoma contains adipocytes with scattered atypical spindle cells (Fig. 26-50A).
- Myxoid liposarcoma contains abundant basophilic extracellular matrix, arborizing capillaries and primitive cells at various stages of adipocyte differentiation reminiscent of fetal fat (Fig. 26-50B).
- Pleomorphic liposarcoma consists of sheets of anaplastic cells, bizarre nuclei and variable amounts of immature adipocytes (lipoblasts).