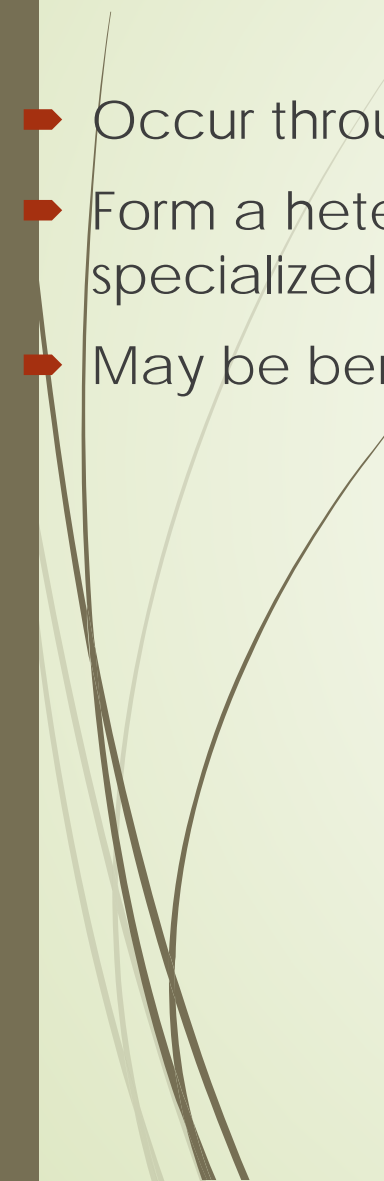




# **CONNECTIVE TISSUE TUMORS**



# MESENCHYMAL TUMORS

- Occur throughout the body where connective tissue is found
  - Form a heterogeneous group that arise from fibrocytes, fibroblasts & specialized mesenchymal cells e.g. fat, muscle
  - May be benign or malignant
- 

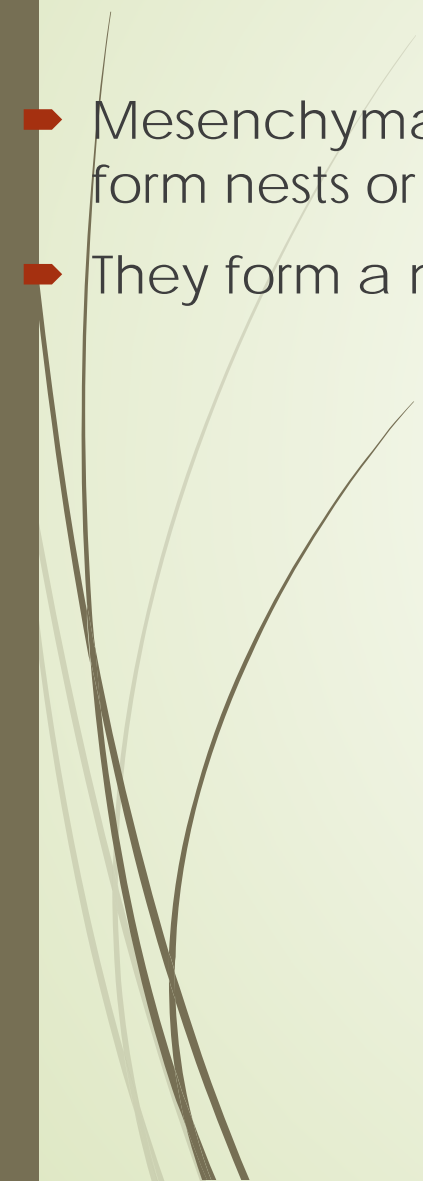


# WHO CLASSIFICATION

- ▶ Fibrous tumor
- ▶ Fibrohistiocytic
- ▶ Lipomatous
- ▶ Smooth muscle
- ▶ Skeletal muscle
- ▶ Tumors of blood & lymph vessels
- ▶ Perivascular tumors
- ▶ Synovial
- ▶ Mesothelial
- ▶ Nasal tumors
- ▶ Paraganglionic tumors
- ▶ Extra-skeletal cartilaginous & osseous
- ▶ Pluripotent mesenchymal tumors
- ▶ Miscellaneous
- ▶ Unclassified



# CONT.

- Mesenchymal tumors form sheets of cells unlike epithelial cells that form nests or groups of cells
  - They form a matrix and have thin walled blood vessels.
- 

# MESENCHYMAL VS EPITHELIAL MALIGNANCIES

## MESENCHYMAL MALIGNANCIES

- Sheets of cell
- Thin walled vascular channels scattered throughout
- Forms matrix
- Confusing variety of histologic types stimulating tissue type often corresponding to the grade of the tumor.

## EPITHELIAL MALIGNANCIES

- Nests, groups, cords, islands
- Well-formed vessels supplying the tumor (desmoplastic response)
- No matrix supported by non-neoplastic stroma
- Mainly squamous glandular, transitional types

# CONT.

➤ Malignant mesenchymal tumors are called **sarcomas**

➤ Benign:

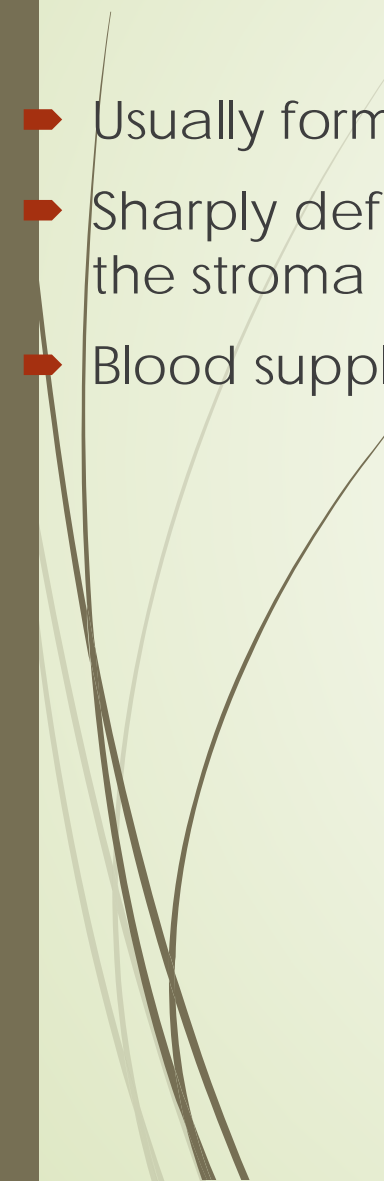
- Lipoma
- Fibroma
- Osteoma
- Chondroma
- Rhabdomyoma
- Hemangioma
- Lymphangioma
- Histiocytoma

➤ Malignant:

- Liposarcoma
- Fibrosarcoma
- Osteosarcoma
- Chondrosarcoma
- Rhabdomyosarcoma
- Hemangiosarcoma
- Lymphangiosarcoma
- Malignant fibrous histiocytoma (MFH)



# BENIG MESENCHYMAL TUMORS

- Usually form rounded masses with a near normal appearance
  - Sharply defined by thin fibrous capsule formed by condensation of the stroma of surrounding tissue
  - Blood supply is through well formed vessels
- 



# LIPOMA

- Benign tumor appearing in the subcutaneous tissue e.g. neck, trunk, face , hands & feet. Sometimes in deeper structures i.e. retroperitoneal, mediastinum, skeletal muscle and GIT.
- Usually a soft, lobulated mass of fatty tissue 3-5 cm, enclosed by a thin delicate capsule disrupted during surgical excision
- Histology show normal adipose tissue with cells that may be larger and more variable in size.



# LEIOMYOMA

- Commonest benign soft tissue tumor seen in the myometrium of up to 20% of women, often multiple
- Spherical sharply demarcated from surrounding myometrium, without fibrous capsule, cut surface is solid with pale grey or pink surface.
- Histology shows smooth muscle lying parallel to one another in interlacing bundles
- Cells are uniform and mitoses are few; well developed blood vessels accompanied by fibrous tissue are distributed through out the tumor
- Tumor cells also respond to sex hormones.
- They develop between puberty and menopause
- Usually symptomless but hen large distort the uterine cavity and cause menorrhagia, abortion, interfere with child birth
- They may also arise in the dermis, GIT and walls of arteries

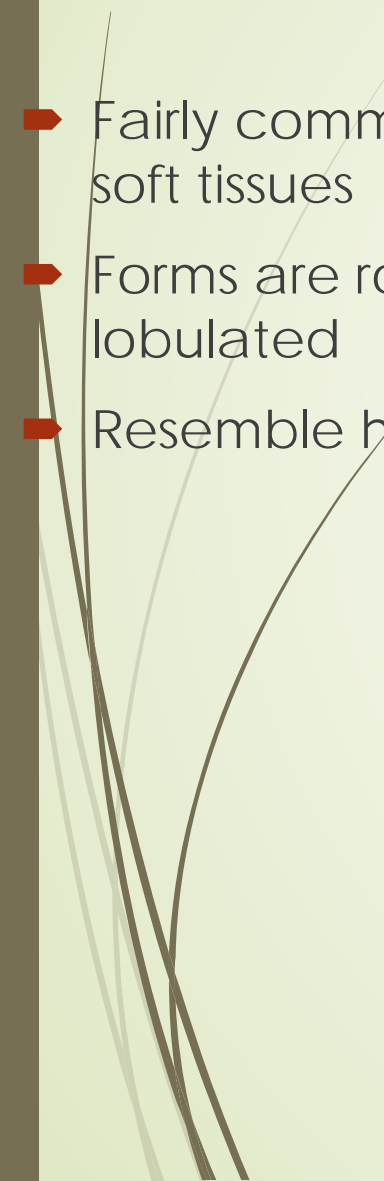


# FIBROMA

- Uncommon, seen in ovaries and GIT
- Rubbery, grey discrete encapsulated masses, cut surface is glistening & greyish white
- Histology shows mature fibrocytes or fibroblasts with no distinct orientation
- Small fibro-fatty nodules are common in the skin and may become pedunculated and are called **skin tags** or fibrous polyps
- Other fibrous proliferation with distinct characteristics are of unknown causes and present features intermediate between reactive fibrosis and neoplastic proliferations; most are self-limiting i.e. keloids, nodular fasciitis, fibromatoses, desmoid tumors.

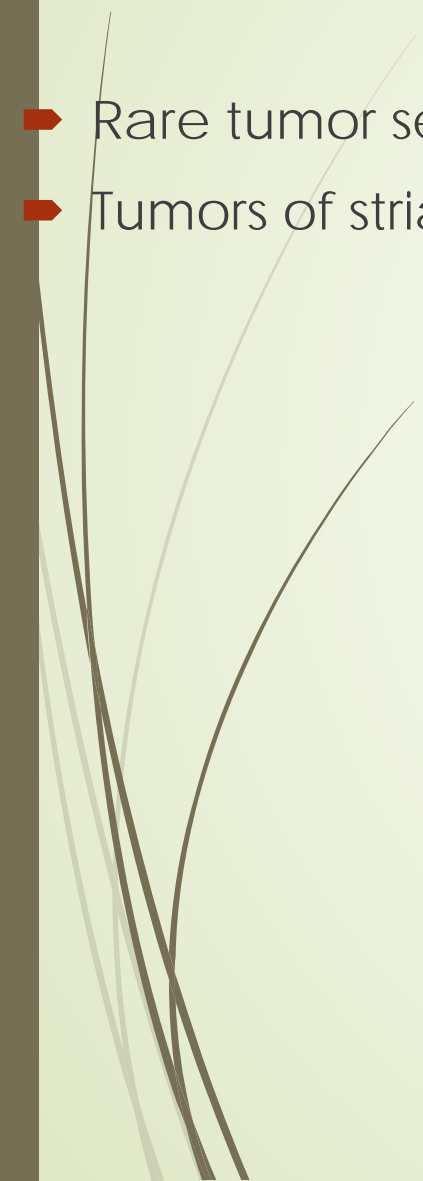


# CHONDROMA

- Fairly common in small bones of the hands and feet and are rare in soft tissues
  - Forms are rounded or ovoid and are encapsulate; they are usually lobulated
  - Resemble hyaline cartilage as they produce chondroid matrix
- 



# RHABDOMYOMA

- Rare tumor seen in those over 40 years in the tongue, heart & neck
  - Tumors of striated muscle
- 

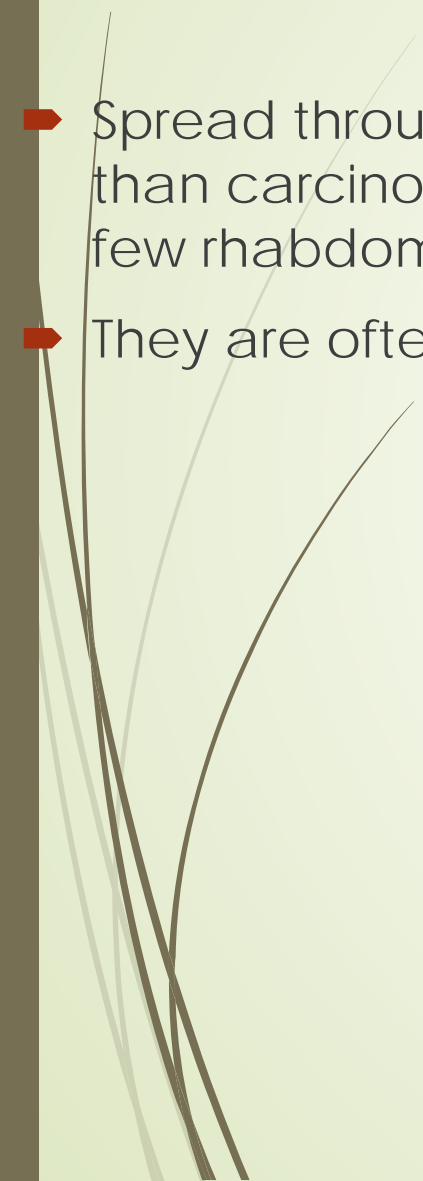


# SARCOMAS

- ▶ They are less common than carcinomas causing only 3% of all cancer deaths
- ▶ They show all features of malignancy i.e. rapid growth rate (generally)
- ▶ Frequent sometimes abnormal mitoses
- ▶ Various degrees of atypia and anaplasia
- ▶ Locally invasive
- ▶ Metastases
- ▶ They vary in degree of malignancy in that some grow slowly over many years while others enlarge rapidly and metastasise early
- ▶ High grade tumors are highly aggressive
- ▶ Vascular with many small and medium sized vessels that are poorly formed, have endothelial cells with incomplete basement membrane hence bleeds easily. Cut surface shows hemorrhage & infarction
- ▶ Tumor penetrates vessels to form emboli that spread to the lung, liver & bones



# CONT.

- Spread through lymphatics occurs less frequently and usually later than carcinomas. Local lymph nodes are free of tumor except in a few rhabdomyosarcoma.
  - They are often coarsely nodular and may be partially capsulated.
- 

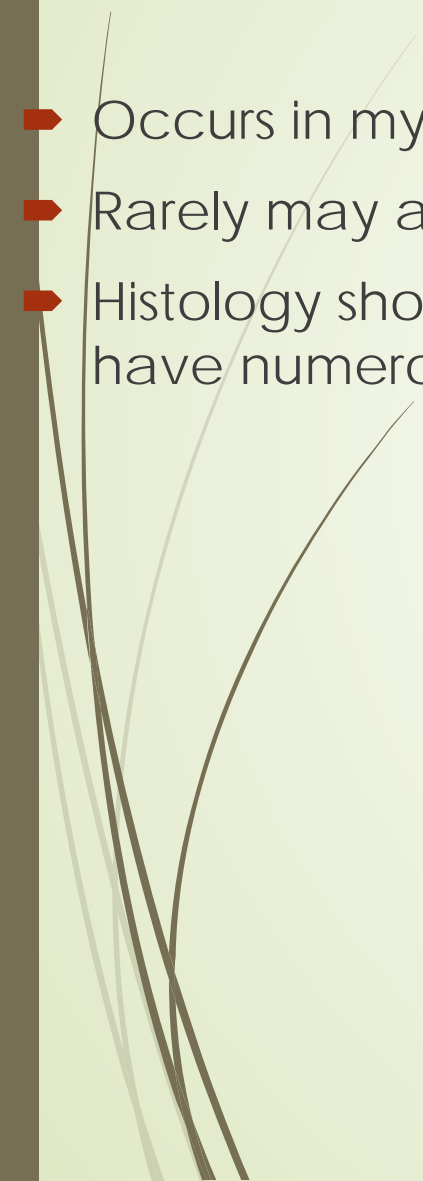


# LIPOSARCOMA

- Occurs often in the deep tissues of thigh and retro-peritoneum, usually after the age of 30 years
- Spreads extensively by local invasion
- Gross appearance depends on the degree of differentiation i.e. well differentiated appear fatty, myxoid ones are gelatinous and those with collagen are firm. Varied histologic types.



# LEIOMYOSARCOMA

- Occurs in myometrium, GIT, Deep soft tissue
  - Rarely may arise in a fibroid (leiomyoma)
  - Histology show elongated cells, nuclei have rounded or blunt ends, have numerous mitoses, pink cytoplasm
- 



# FIBROHISTIOCYTIC TUMORS

- Fibrous histiocytoma (dermatofibroma)
- Affects 2024 year, skin in the sub-cutaneous tissue especially of the extremities
- Presents as a nodule that shows fibroblasts and fibrocytes
- MFH was one of the commonest sarcoma seen in deep tissues of the limbs and retro-peritoneum
- Shows pleomorphic cells with storiform (cartwheel) appearance
- Other histologic type include myxoid, inflammatory & angiomatoid.
- FH tumors of borderline malignancy e.g. dermato-fibrosarcoma protuberance. Locally aggressive and rarely metastasizes.

# FIBROSARCOMA


- Initially was the commonest sarcoma but separation of nodular fasciitis, fibromatosis and fibrohistiocytic tumors has reduced incidence to 15% of all sarcomas
- Disease of adults, peak in 30-55 years.
- Arises in deep fasciae ad aponeuroses most often in the thigh or around the knee, rarely in the trunk, forearm or leg
- Presents as a deep seated often painless swelling which grows slowly and may reach the surface where necrosis, ulceration & infection are liable.
- It may also arise in peri-osteum or medulla of bones
- May appear as rounded or nodular masses of pale, grey or yellowish white fleshy or firm depending on the amount of collagen.
- Margins may be deceptively well defined, may have out lying masses that may be detached
- Poorly differentiated are more cellular and therefore soft often with hemorrhage and necrosis.

# RHABDOMYOSARCOMA

- Rare, highly malignant tumors with four distinct histological and clinical types
- Embryonal rhabdomyosarcoma
  - Seen in children, involves genital tract and presents as a bunch of grapes hence called **sarcoma botryoides**
  - Shows undifferentiated small round or spindle cells with hyper-chromatic nuclei and loose myxoid stroma
- Spindle cell rhabdomyosarcoma a type of alveolar rhabdomyosarcoma
- Alveolar rhabdomyosarcoma
  - Adolescent 10-25 years on limbs and trunk
  - Packet of cells forming alveolar pattern. Occasional giant cells and striated cell may be seen
- Pleomorphic: adult type found on limb. Cells are large and pleomorphic with cross striations, racket cells, spider web cells (giant cells with vacuoles)

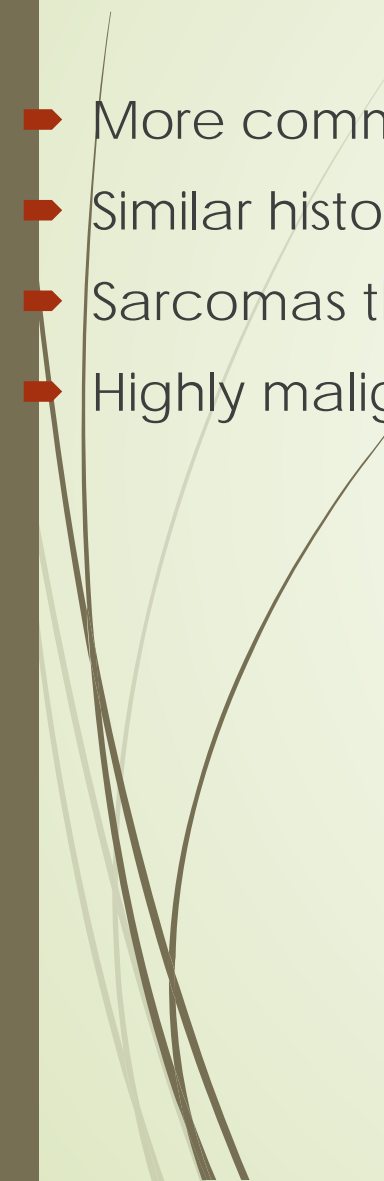


# CHONDROSARCOMAS

- Occur more commonly in bones in a patient of 40-70 years
  - Half occur in the pelvic girdle
  - Male more affected than females
  - Well differentiated kinds may be confused with chondromas.
- 



# OSTEOSARCOMA

- More common in the bones
  - Similar histology to those in bone
  - Sarcomas that form bone & osteoid (un-mineralized bone) matrix
  - Highly malignant tumors.
- 



END 😊