- Soft tissue Tumors II
-

# Lecture 36: Soft tissue tumors II

***At the end of session the student should be able to:***

- Discuss benign and malignant <u>fibrohistiocytic tumors</u>

- Describe morphological changes of benign and malignant fibrohistiocytic tumors
- Discuss benign and malignant smooth muscle tumors
- Describe morphological changes of benign and malignant smooth muscle tumors

Suggested Ref: Robbins Basic Pathology 8th edition 832 – 836

# Fibrohistiocytic Tumors

- A definition of the fibroblast tumour is required  a range of **cellular differentiation**, consists of spindle-cell morphology, **vimentin-staining**

- **Fibrohistiocytic tumors:**
- **defined as neoplastic tumors contain cellular**

**elements that resemble both fibroblasts and histiocytes (macrophages)**

- **The phenotype:fibroblasts& fibrohistiocytic should be viewed as descriptive in nature and not one that connotes the cell of origin.**

■

# Fibrohistiocytic Tumor classification

- **I. Benign fibrohistiocytic tumor:**

**1-Benign Fibrous histiocytoma (Dermatofibroma)**

- _____

- **II. Malignant fibrohistiocytic tumor:**

**2-Dermatofibrosarcoma protuberans (DFSP)**

# 3- Malignant fibrous histiocytoma (MFH)

# Benign

# Fibrohistiocytic Tumors

## FIBROUS HISTIOCYTOMA (DERMATOFIBROMA)

- **Site: Common lesion- dermis and subcutis.**
- **Age: presents in mid-adult life (F>M).**
- **Clinically: It is painless and slow growing.**

- **Morphologic features:**
- **Gross:** firm, small mobile nodule, skin intact.
- **Circumscribed- sharp border between tumor & subcutis**

- **Basophilia is due to increased cellularity**
- **Storiform pattern  arranged foam cells, fibroblasts and histiocyte-like cells; foam cells are somewhat specific for this lesion.(positive Vimentin, Factor XIIIa, CD34)**

## CASE- 1

**Skin nodule over right thigh in a 38 year old woman, excisional biopsy done with safe margin?**

# Dermatofibrosarcoma protuberans

* **Site: Common lesion- in dermis**
- **Age:** usually adults 20-40 years
- **Clinically:** Low grade malignancy, Locally aggressive, low rate of metastasis,

- **Morphologic features:**
- **Gross:** firm, papulo-nodular skin lesion.
- **Un-circumscribed- locally aggressive, entrappment.**

- **Tight Storiform pattern, radiating& infiltrating subcutaneous fat**. Hemorrhage and necrosis are rare
- **Special stains(Positive Vimentin, Negative for CD34)**

## CASE 2

**Left chest wall recurrent nodule slowly growing for 15 years with sudden recent growth in a 43 year old woman, with another papulonodular lesion on the thigh, chest lump is excised with safe**

**margin and sent for histopathology?**

- **<u>Malignant fibrous histiocytoma (MFH)</u>**

- **Groups of soft-tissue tumors, previously diagnosed as MFH, composed of considerable cellular pleomorphic sarcoma with prominent osteoclast-like giant cells-DIAGNOSIS BY EXCLSUSION- origin has been debated.**
- **<u>How common</u>: most common type of** soft tissue sarcoma of adults. F>M

- **<u>Currently</u> classified as variants of Fibrosarcoma**

(myxofibrosarcoma, pleomorphic fibrosarcoma)

- **Site:** occur in thigh, retroperitoneum and upper limbs, bone, muscles, cartilage
- **Associated with** radiation therapy or surgical scars
-
- **Malignant fibrous histiocytoma MFH**
- **Microscopic features:** Characterized by

1- Non-circumscribed, uncapsulated highly cellular,
2- "tight" storiform pattern.

**3- considerable cytologic pleomorphism with Presence of bizarre multinucleate cells, mitoses**

## The phenotype of the neoplastic cell:

**1- SMA stain: Negative**

**2- Desmin: Negative**

**3- CD34: Negative**

**4- Positive CD68, S100 and S100**

- Case 3
- 62 year old woman
- Large subcutanous mass on anterior aspect of right lower leg

# smooth muscle tumors classification

- **I. Benign**
- **1- LEIOMYOMAS (Benign)**

- _____

_____

- **II. Malignant**
- **2- LEIOMYOSARCOMA**

- **I. LEIOMYOMAS (Benign) morphology**
- **benign SMT, They develop in 77% of women.**
- **Clinically: depending on (number, size, and location) may cause a variety of symptoms including infertility.**
- **Gross: Solitary "uni-focal" or multiple.**
- **Size > variable ,** whorled, firm cut surface, and they are usually not necrotic or hemorrhagic, pseduo-caspulated.

- **Microscopic**
- **Fascicles of SMspindle cells that tend to intersect each other at right angles. "storiform pattern"**
- **The tumor cells have blunt-ended, elongated nuclei and show minimal or no atypia.**
- **Few mitotic figures (<5 per 10 hpf)**
- **No necrosis or frequent mitoses.**

## LEIOMYOSARCOMA- Malignant SMT

* **Malignant SMT, considered as 10% to 20% of soft-tissue sarcomas**
* Bulky, invasive solid masses into adjacent structure

**Age: occur in adults and afflict women > men.**

**Commonest sites:**

1) Retroperitoneum.
2) Deep soft tissues of the extremities.
3) Uterus
4) Blood vessels 5) Superficial dermis.

**Clinical outcome:** depend on the size& site.

(Prognosis of cutaneous tumor better> retroperitoneum )

- **LEIOMYOSARCOMA- Malignant SMT**

**Morphology:**

a) Gross: Size- large and bulky, infiltraive
b) Microscopic: consist of

- **Malignant spindle cells with cigar-shaped pleomorphic nuclei arranged in interweaving fascicles.**
- **Brisk mitoses**
- **- Necrosis- coagulative**

## c)Immunohistochemical:

**stain positive with antibodies to smooth muscle actin and desmin.**

- summary
- **I) Fibrohistiocytic tumor:**
- **A- Dermatofibroma**
- **B- MFH**
- **II) Smooth muscle tumor:**
- **A- Leiomyoma**

- **B- Leiomyosarcoma**
- Excision of the tumour

- **Based on features noticed in next slide**
- **How to differentiated between these sections:**
- **a) MFH?**
- **b) Leiomyosarcoma?**

- **Spindle cell sarcomas**

**1- <u>Adequate clinical history</u>, past hx, pre-operative**

**image and operation findings.**

**2- <u>Previous biopsy report</u> .**

**<u>3- Histopathology diagnosis-</u>**

**- Study gross appearance.(Consistency, color,..**

**- Study of cells shape and pattern(differen.)**

**- Presence of mitoses, necrosis.**

- **- Presence of multinucleated giant cells,**
- **Heterologus material, Vascular invasion ,**
- **Nerve invasion • Bone invasion.**

## 4- Immunohistochemical stain& Ancillary techniques

# Basic Panel of Immuno markers for Spindle Cell Tumours

- **Vimentin** (all mesenchymal tumour- SMA, MFH, **etc**
- **Cytokeratin/EMA-** (epithelial markers)
- **S100P-** (Smooth muscle tumour- origin)

- **Desmin** (Smooth muscle tumour- origin)
- **SMA** (Smooth muscle tumour- origin
- **CD34** (benign fibrohistiocytic tumour)
- **Ckit** “CD99”– (GIST)