MSS - FINAL

Pathology.

(Lecture 1)

Tumors Of Unknown Origin:

1. Giant cell tumor:

- is so named because multinucleated osteoclast-type giant cells dominate the histology.
- It is a locally aggressive neoplasm.
- Destroys vertebral bodies.
- Potentially malignant (rare malignant behavior). 90-95% behaves as a benign tumor.
- High levels of RANKL (that controls osteoclasts' differentiation and maturation)
- almost exclusively affects adults.
- arise in the epiphyses of long bones, (the distal femur and proximal tibia).
- The typical location of these tumors (epiphysis=near joints) frequently causes arthritis-like symptoms.
- Treatment is curetting in cases of fractures and pain.
- Wall to wall giant cells.

2. Aneurysmal Bone Cyst: (ABC)

- a benign tumor.
- characterized by multiloculated blood-filled cystic spaces.
- **May contain multi-nucleated giant cells.**
- generally occurs during the first 2 decades of life. حسب الكتاب

  Adults. حسب الدّكتور :\

  خلص ردّوا على الدّكتور

- metaphysis of long bones and the posterior elements of vertebral bodies.
- Pain and swelling are common.
- Radiographically, metaphyseal lesion with well-defined margins. (No signs of malignancy, no codman triangle filtration or destruction).

Lesions Simulating Primary Neoplasms:

1.Nonossifying fibroma: (NOF)

- Fibrous cortical defect (FCD) & Metaphyseal fibrous defect (MFD) —> other names.
- a benign, likely (maybe) reactive (means that it it's not a true neoplasm).
- Bland Fibroblastic (mesenchymal) proliferation.
- May contain multi-nucleated giant cells.
- Located in metaphysis.
- Resolve spontaneously.

2.Fibrous dysplasia: (FD)

- a **benign** tumor (but not a real tumor).
- **Mutations in GNAS1 gene** (cAMP mediated osteoblast differentiation.
- The lesions arise during skeletal development, and they appear in several distinctive but sometimes overlapping **clinical patterns:**
  - **Monostotic:** involvement of a single bone
  - **Polyostotic:** involvement of multiple bones
  - **Mazabraud syndrome:** fibrous dysplasia and soft tissue myxoma
  - **McCune-Albright syndrome:** polyostotic fibrous dysplasia, café-au-lait skin pigmentations, and endocrine abnormalities (hyperthyrodism), especially precocious puberty + brown lesions in the body.

Metastatic tumors to bone:

- greatly outnumber primary bone cancers.
- Any cancer can spread to bone, but in adults the most is carcinoma.
- 75% of skeletal metastases originate from cancers of the prostate, breast, kidney, lung, kidney and thyroid.
- If the primary tumor wasn't found, the liver should be thought about.
- TTF1 (thyroid transcription factor1) which is an organ specific marker in lung, thyroid and liver.
- In children, metastases to bone originate from neuroblastoma, Wilms tumor, and rhabdomyosarcoma.
- Skeletal metastases are typically multifocal and involve the axial skeleton, especially the vertebral column.
- The most pathway of tumor spread to bone is the hematogenous dissemination.
- The radiographic appearance of metastases may be:
    - purely lytic (bone destroying), — more common than blastic lesions.
    - purely blastic (bone forming),
    - or mixed (via mediators and secretions).
- The best way to determine and diagnose prostate cancer in males is serum prostate specific antigen PSA.

Joints:

Arthritis:

1.Osteoarthritis: (OA)

- also called **degenerative joint disease (DJD).**
- **degeneration of cartilage** that results in structural and functional failure of synovial joints.
- It is the most common disease of joints.
- Although the term osteoarthritis implies an inflammatory disease, it is considered an intrinsic disorder of cartilage in which chondrocytes respond to biochemical and mechanical stresses resulting in the breakdown of the matrix and failure of its repair.
- **not true -itis** الخلاصة انّه.
- In most instances OA appears insidiously, without apparent initiating cause, as an **aging phenomenon** (**idiopathic or primary osteoarthritis**). In these cases the disease is usually oligoarticular (**affects few joints**).
- secondary osteoarthritis —> pre-existing diseases.
- **The prevalence of OA increases exponentially beyond the age of 50, and about 40% of people older than 70 are affected.**
- **Eburnation of the cartilage** takes place.

- **Bone spurs:** When the underlynig bone affected, some pieces of bone will leave it and go to the cartilage, these pieces are called bone spurs.
- In the early stages of OA, chondrocytes proliferate, forming **clusters —> then a granular soft articulate surface —> eventually full thickness portions of the cartilage are sloughed.**
- **Clinically:**
  - Joint pain that worsens with use.
  - morning stiffness
  - Crepitus and range limitation.
  - Radicular pain.
  - Osteophytes impingement on vertebrae.
  - Muscle spasm & atrophy.
- **Treatment**:
  - Pain control.
  - Decrease inflammation (NSAIDs).
  - intra-articular steroids.
  - Joint replacement in severe cases.
- **No magic preventive strategies, maybe loosing weight helps.**

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