

\*Bone infection needs a long time to be treated.

\*bone infection routes:

-hematogenous most common route of infection. through bloodstream to bone from tonsillitis, UTI ,.....

-open fracture

-Acute on top of chronic infection.

-Most common organism overall is staph. aureus

in sickle cell: salmonella

in heroin addict: neisseria gonorrhoeae

-infection usually occurs in high virulence organisms with low immunity.

\*in a case with moderate immunity and low virulence "weak organism": can cause subacute hematogenous osteomyelitis called Brodie abscess.

-bacteria has adherence force to foreign body or metal twice than adherence to normal tissue.

لو التصقت البكتيريا فيهم بتكون pyogenic membrane which is hard to be eradicated

-characteristic of acute bone infection: pus "active and dead leucocyte and bacteria and necrotic tissue"

-characteristic of chronic infection: fibrous and granulation tissue discharge it could (-) culture.

-treatment:

-eradicate infection

-maintain normal bone growth

-reduce pain

\*The most common **typical** organism in sickle cell is salmonella but the most common organism in sickle cell is staph "فلسفة" mcq.

-Acute haematogenous osteomyelitis:

in neonates: route of infection is infected umbilical cord.

site: most common in metaphysical plate due to high blood supply here and stasis of blood

-2 types of bone infection:

1- necrotic "sequestrum"

2- involucrum: new bone formation which will encircle the sequestrum.

-Disease of childhood but in adulthood due to post trauma and open fracture.

-clinical picture:

systemic: in neonate alter in his feed and usual state

-un able to walk

-fever

-ما يعتمد على الحرارة يمكن م تكون موجودة

-local sign:

-pseudoparalysis from the pain and refuse to use the affected limb

-hotness redness tenderness

diagnosis:

1-history: any history of tonsillitis, UTI or local septic disease in the past 2 weeks.

2-CBC: leukocytosis, elevated ESR, elevated WBCs

3-imaging: US, X-ray, CT and bone scan

4-blood culture 75% sensitive

-Ultra sound: to detect abscess or joint effusion usually in superficial joints

-x-ray: no finding in first 2 weeks except soft tissue swelling then can see: bone erosion and periosteal reaction

لو طولت المدة اكثر بلاقي: involucrum او sequestrum

-U.S in septic arthritis: distention later on subluxation of joint

-there is no role to C.T in osteomyelitis except to detect sequestrum which can be detected by MRI and X-ray

-MRI: Gold standard, most sensitive and specific less radiation.

-bone scan: 3 types

technetium, gallium and indium

in active phase: increase uptake

-the difference between benign pathology and tumors: is well and ill defined surfaces

treatment of osteomyelitis:

- supportive, symptomatic treatment
- pain relief
- empiric broad spectrum antibiotic before confirming the organism by culture.

"culture needs 2 days"

- role of surgery: "excision of all necrotic tissues"
- thick pus on aspiration
- no improvement after 36 hours after proper antibiotics

complication of osteomyelitis:

joint dislocation, subluxation and deformities.

\*subacute haematogenous osteomyelitis:

low virulence organism in high immunity

cause thin fibrous tissue called **Brodie abscess**

- clinical picture: long standing distal leg pain
- treatment: antibiotic

\*chronic osteomyelitis:

- chronic from beginning or badly treatment acute osteomyelitis
  - histopathology: sequestra or sinus secreting pus
  - organisms: staph, E.coli, proteus or other organisms
- culture can be negative

Sclerosing osteomyelitis Garré:

without organism

affect upper face and clavicle

resolve spontaneously can use NSAIDS

\*Septic arthritis:

one of top orthopedic emergency

- articular cartilage completely destroyed and joint will be ankylosed and stiffed

and lost

if joint lost in pediatric group it will be lost forever

-0.2-0.7 of total hospital admission

-commonly between 1-4 years

-commonly by staph aureus

-in pediatric age group by hematogenous spread

-increase intra-articular joint will cause pressure in adjacent vessels will lead to ischemic pain

-erosion and fragmentation of the articular cartilages → new bone formation by osteoblast → fibrous ankylosed

-sometimes it is hard to differentiate septic arthritis from osteomyelitis

same clinical picture as osteomyelitis and same investigations

plus Synovial fluid analysis.

Synovial fluid analysis: WBCs more than 50000

color gray turbid "normal color is faint yellow"

friable clot

synovial glucose low in comparison to blood glucose

synovial protein high

-Radiology:

X-ray: soft tissue swelling then subluxation

treatment: IV antibiotic and surgery

duration of treatment: 6 weeks antibiotics 2 of them IV

goal from treatment: sterilize the joint, prevent deformities and rehabilitate the joint

-You should not do arthroplasty after septic arthritis due to high rate reactivation of infection.

surgery:

-washing and lavage by needle

-excision 3-5 cm in joint and washing

-arthroscopy

prognosis:

-interval relapse between symptoms and start treatment→ bad

prognosis

-immune deficient host→bad

-already have osteomyelitis→ bad

- prosthetic joint→ bad

-age less than 6 months→bad

Tuberculosis :

Tuberculosis is on the increase in number.

treatment: anti TB medication

cause cold abscess, compression on spine and pott's disease

on x-ray: a lot of destruction areas