**ACUTE HAEMATOGENOUS OSTEOMYELITIS.**

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**AETIOLOGY AND PATHOGENESIS.**

* **This is an infection of the bone by pyogenic microorganisms of sudden onset through blood spread and usually is between 24-72 hours on average.**
* **A disease of children but can affect adults due to lowered resistance. Trauma may determine the site of infection, possibly by causing a small haematoma or fluid collection in a bone, in patients with concurrent bacteraemia. It is common in less affluent populations.**
* **The causative organism in both adults and children is usually STAPHYLOCOCUS AUREUS (70% of cases). Others include streptococcus pyogens A and B and haemolytic diplococcus S pneumonia.**
* **Other gram negative organisms e.g. Escherichia coli, pseudomonas aeruginosa, proteus mirabilis and the anaerobic Bacteroides flagilis occasionally cause acute bone infection.**
* **Patients with sickle cell disease are prone to infection by salmonella typhi.**
* **The blood stream is invaded, perhaps from a minor skin abrasion, treading on a sharp object, an injection point, a boil. A septic tooth or in the newborn from an infected umbilical cord.**
* **In adults the source of infection may be a urethral catheter, an indwelling arteria line or dirty needle and syringe.**
* **In children the infection usually starts in the vascular metaphysis of a long bone, most often in the proximal tibia or in the distal or proximal femur.**
* **In adults Haematogenous infection accounts for only 20% of cases mostly affecting the vertebrae.**
* **Staphylococcus aureus is the commonest organism, but pseudomonas aeruginosa often appears in patients using intravenous drugs.**
* **Adults with diabetes who are prone to soft tissue infections of the foot may develop contiguous bone infection involving variety of organisms.**

**PATHOLOGY:**

**Characteristic progression marked by inflammation, suppuration, bone necrosis, reactive new bone formation and ultimately resolution and healing leading to chronic osteomyelitis if not treated well. Pieces of dead bone may separate as SEQUESTRA varying in size from mere spicules to large necrotic segments of the cortex in neglected cases. With time this new bone thickens to form a casement or INVOLUCRUM, enclosing the Sequestrum and infected tissue. If the infection persists pus and tiny sequestrated spicules of bone may discharge through perforations(CLOACAE) in the Involucrum and track by sinuses of the skin surface. Thickening of the bone is caused by periosteal reaction which leaves it permanently deformed.**

**CLINICAL FEATURES:**

**Children.**

**The patient is usually a child over 4 years presents with severe pain, malaise and fever. Toxaemia may be marked.**

**Refusal to use the affected limb or even touch.**

**There may be recent history of infection>septic toe, a boil, a sore throat or discharge from the ear.**

**EXAMINATION.**

* **Limb held still.**
* **Acute tenderness.**
* **Child looks ill and feverish.**
* **Pulse rate likely to over 100 beats per minute.**
* **Temperature is raised >38 degrees centigrade.**
* **Joint movement is restricted (Pseudo paralysis).**
* **Local redness, swelling, warmth, and oedema.**
* **Lymphadenopathy is common but non-specific.**

**It is important to remember that all these features may be attenuated if antibiotics have been administered.**

**Infants.**

**Child under one year and especially in the newborn, baby fails to thrive and is drowsy but irritable.**

**Joint tenderness and resistant to movement.**

**Adults.**

**History of urological procedure, diabetes, malnutrition, Leukemia or drug addiction.**

**Mild fever.**

**Headache**

**Local tenderness.**

**Backache.**

**In the very elderly and in those with immune deficiency, systematic features are mild and the diagnosis is easily missed.**

**INVESTIGATIONS.**

**Plain x-ray.**

**First week >normal.**

**Second week>faint extra cortical outline due to periosteal new bone formation.**

**UTRASONOGRAPHY**

**CT SCAN**

**MRI-----Magnetic Resonance Imaging.**

**LABORATORY INVESTIGATIONS.**

**Pus aspiration for culture and sensitivity, Gram stain**

**Blood cultures.**

**Blood for full haemogram ESR.**

**CARDINAL FEATURES OF AOM IN CHILDREN.**

* **Pain.**
* **Fever.**
* **Refusal to bear weight.**
* **Elevated white cell count,**
* **Elevated ESR**

**DIFFERENTIAL DIAGNOSIS.**

**1.Cellutis**

**2.Acute suppurative Arthritis**

**3.Streptococcal necrotizing myositis**

**4.Acute Rheumatism**

**5.Sickle cell crisis**

**6.Gauchers disease.**

**TREATMENT.**

**4 Important aspects to the management of the patient.**

**1.Supportive treatment for pain and dehydration.**

**2.Splintage of the affected part.**

**3.Approprate antimicrobial therapy.**

**4.Surgical drainage.**

**BROAD SPECTRUM ANTIBIOTICS.**

* **FLUCLOXACILLIN**
* **CEFAXAXIME**
* **CEPHALOSPORINS**
* **CHLORAMPHENICOL**
* **LINCOMYCIN**
* **DALACIN C and many others.**

**COMPLICATIONS:**

**With early diagnosis and treatment patients improve.**

**Mortality is common especially if treatment is delayed or the organism is insensitive to the chosen antibiotics.**

**Some of the complications that can occur.**

**1.Chronic osteomyelitis**

**2.Epiphyseal damage and altered bone growth**

**3.Suppurative arthritis**

**4.Metastatic infection**

**5.Parthological fractures.**