

Osteomyelitis

Osteomyelitis

- Acute
 - Haematogenous
 - Direct spread

- Chronic

Osteomyelitis

- Chronic
 - Brodie's abscess
 - Garre's OM
- Post-traumatic
- Peri-prosthetic



Waldvogel Classification

Hematogenous osteomyelitis

Osteomyelitis secondary to contiguous focus of infection

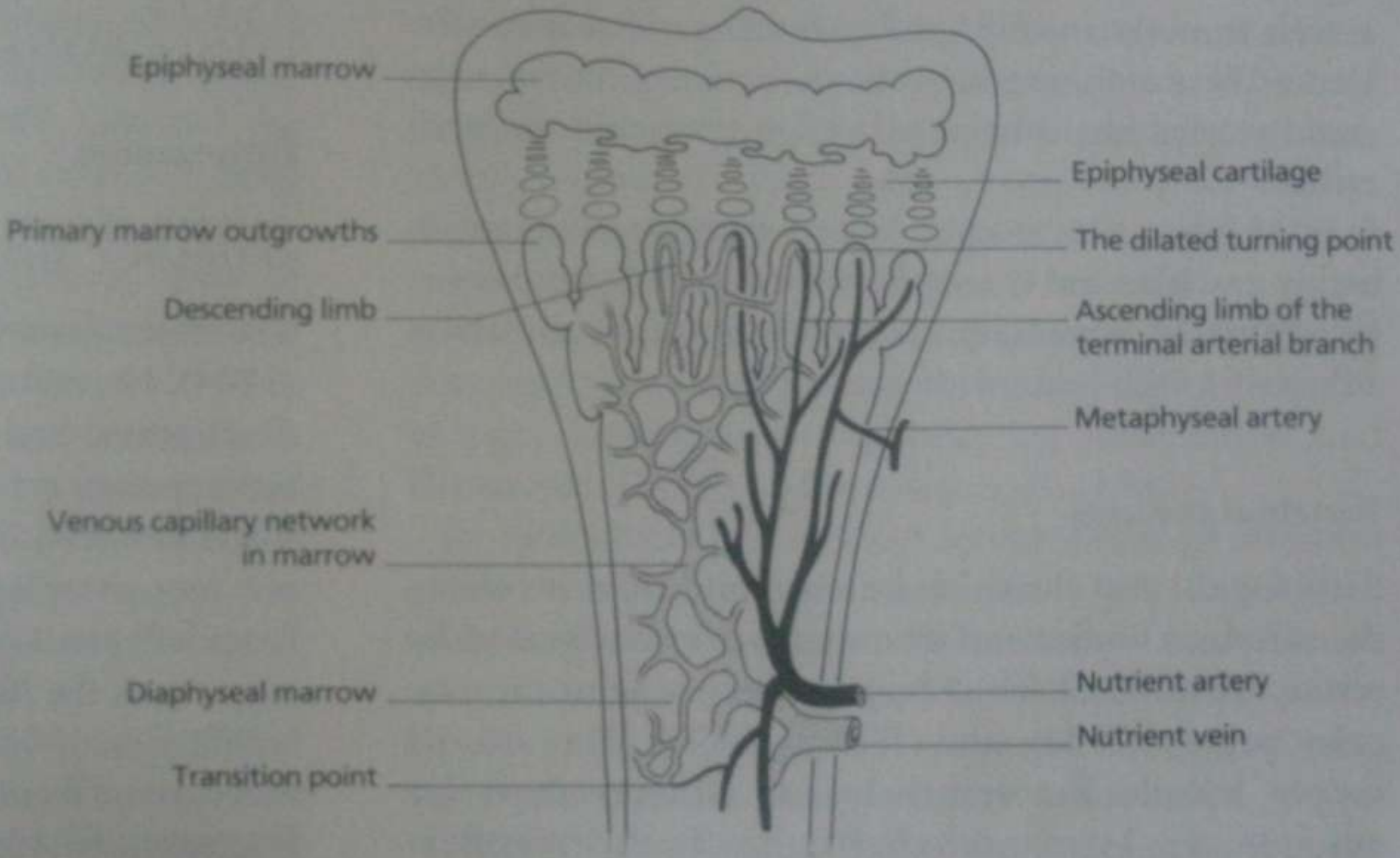
 No generalized vascular disease

 Generalized vascular disease

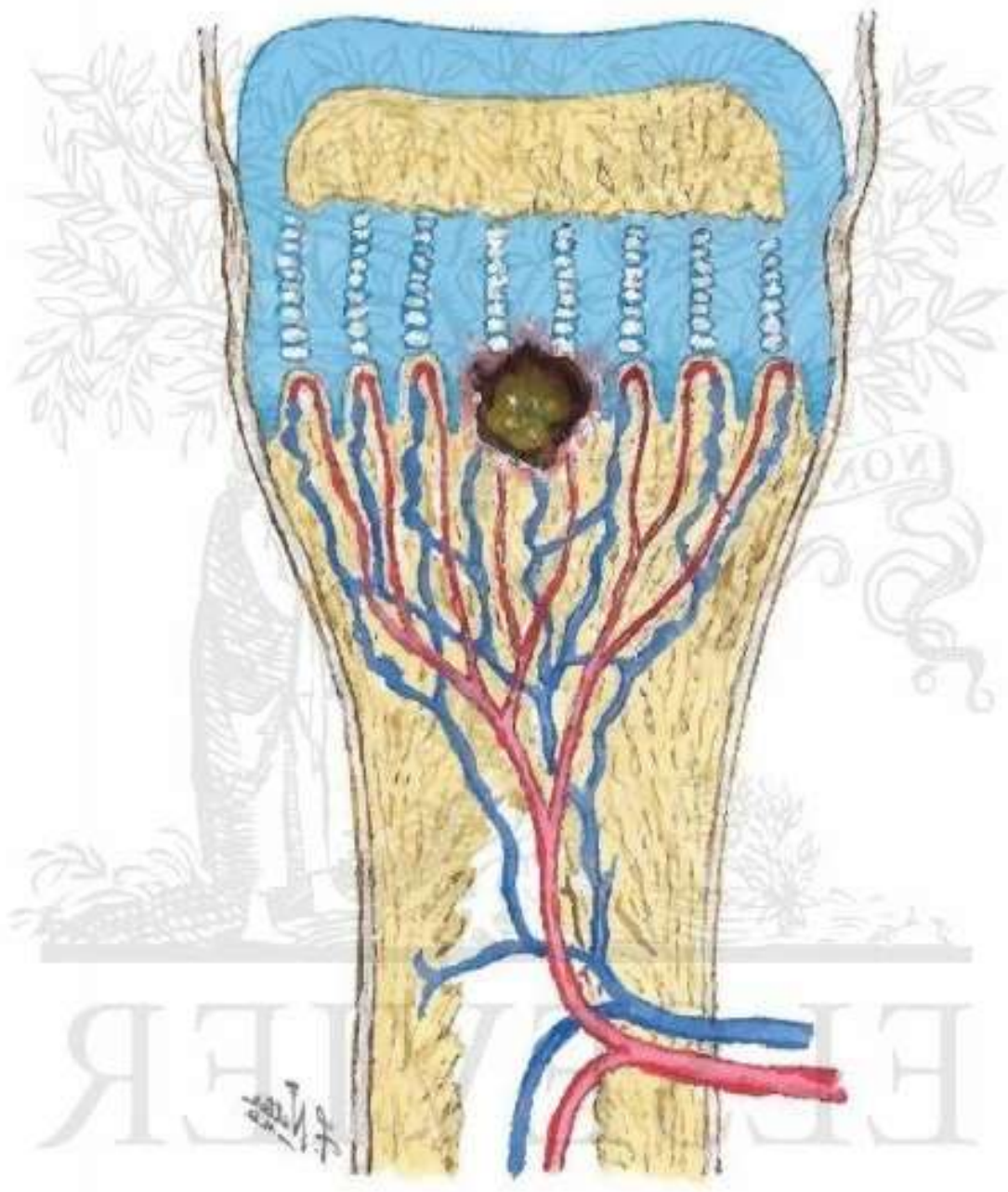
Chronic osteomyelitis (necrotic bone)

OM

- Acute haematogenous
 - children-much more affected than adults
 - adults- usually have a predisposing cause-
DM,chemo,leuk, AIDS.
Sickle cell anaemia (assoc with salmonella)



Circus articuli vasculosi - HUNTER



Sequence of events

- Bacteraemia → bacteria lodge in the metaphysis
- Inflammation → increased intra-osseous pressure. Obstructed venous return. Thrombosis
- Death of bone due to bacterial toxins and vascular impairment
- Suppuration and bone absorption
- Pus breaks through to form sub-periosteal abscess

Sequence of events -ctd

- Periosteum is stripped
- New bone forms underneath (involucrum)
- Very rapid and marked in infants

- Once sequestra and involucrum have formed the disease is chronic



Acute OM- diagnosis



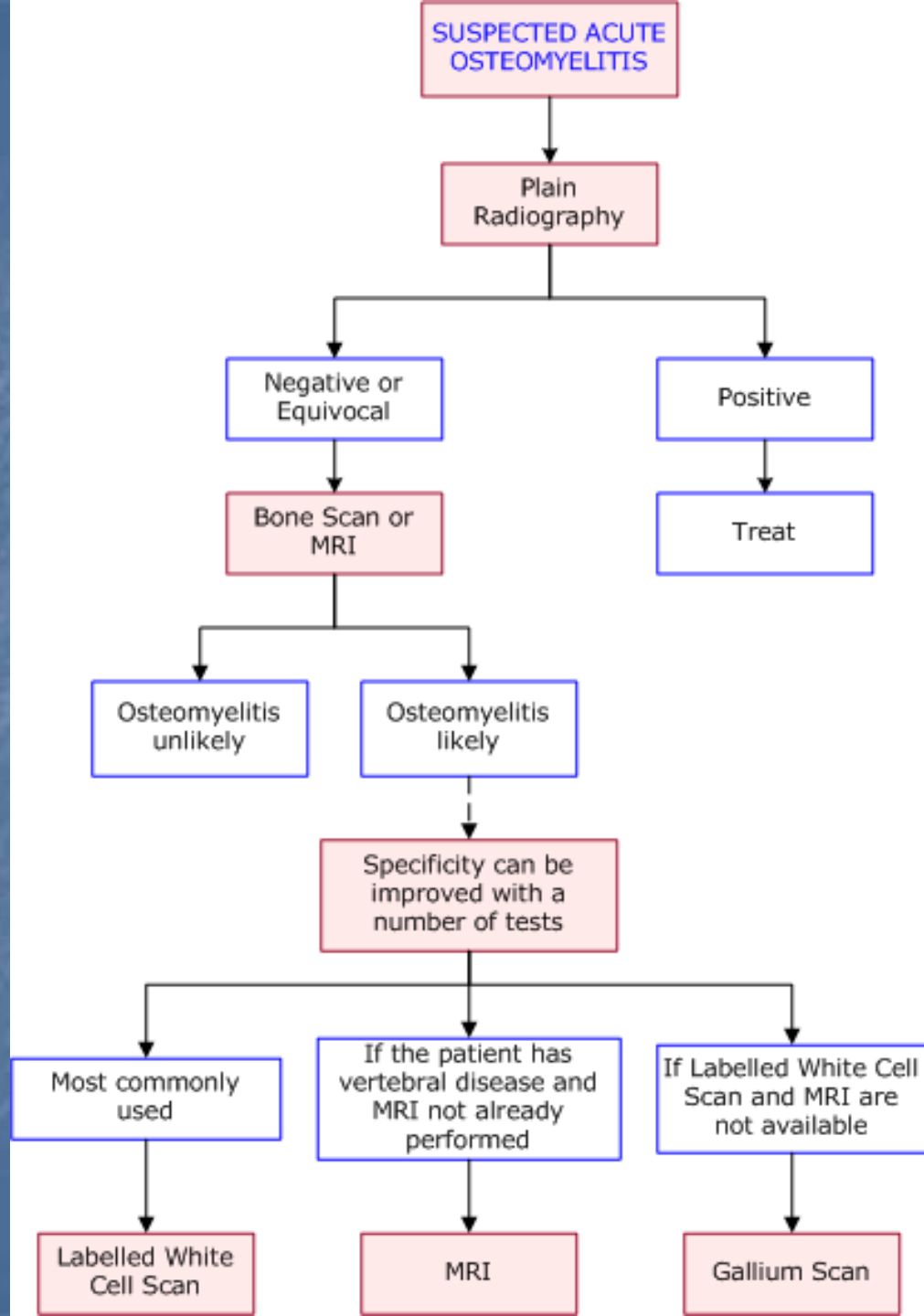
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Acute OM- diagnosis

- History
- Examination
- ESR, CRP, WBCC
- Blood culture

- Imaging?

Acute OM- Imaging



Organisms Commonly Isolated in Osteomyelitis Based on Patient Age

- **Infants (<1 year)**
Group B streptococci
Staphylococcus aureus
Escherichia coli
- **Children (1 to 16 years)**
S. aureus
Streptococcus pyogenes
Haemophilus influenzae
- **Adults (>16 years)**
Staphylococcus epidermidis
S. aureus
Pseudomonas aeruginosa
Serratia marcescens
E. coli

Acute OM- treatment

- Supportive
- Antibiotics – IV till after temperature settles. Oral to a total of 4 weeks

Acute OM- treatment

- Surgery –
 - Drain the abscess
 - Incise the periosteum.
 - Decompress and drain the bone.
 - Drill holes in the bone

Chronic OM

- When sequestrum and/or involucrum is present
- Classification
 - Four main considerations
 - condition of the host
 - functional impairment caused by the disease
 - site of involvement
 - extent of bony necrosis

Chronic OM- classification

Clerny-Mader Staging System

	Description
Anatomic type	
Stage 1	Medullary osteomyelitis
Stage 2	Superficial osteomyelitis
Stage 3	Localized osteomyelitis
Stage 4	Diffuse osteomyelitis
Physiologic class	
A host	Normal
B host	
Bs	Systemic compromise
Bl	Local compromise
Bls	Systemic and local compromise
C host	Treatment worse than the disease

Chronic OM- principles of treatment

- Remove dead bone
- Irrigate
- Vascularize
- Local and systemic antibiotics
- Bone graft
- Stabilize

Brodies abscess

- Walled off infection
- Can give trouble
- De-roof – rest similar

AN ACCOUNT
OF
SOME CASES
OF
CHRONIC ABSCESS OF THE TIBIA.
BY B. C. BRODIE, F.R.S.,
AND SURGEON TO ST. GEORGE'S HOSPITAL.
READ MARCH 27TH, 1832.

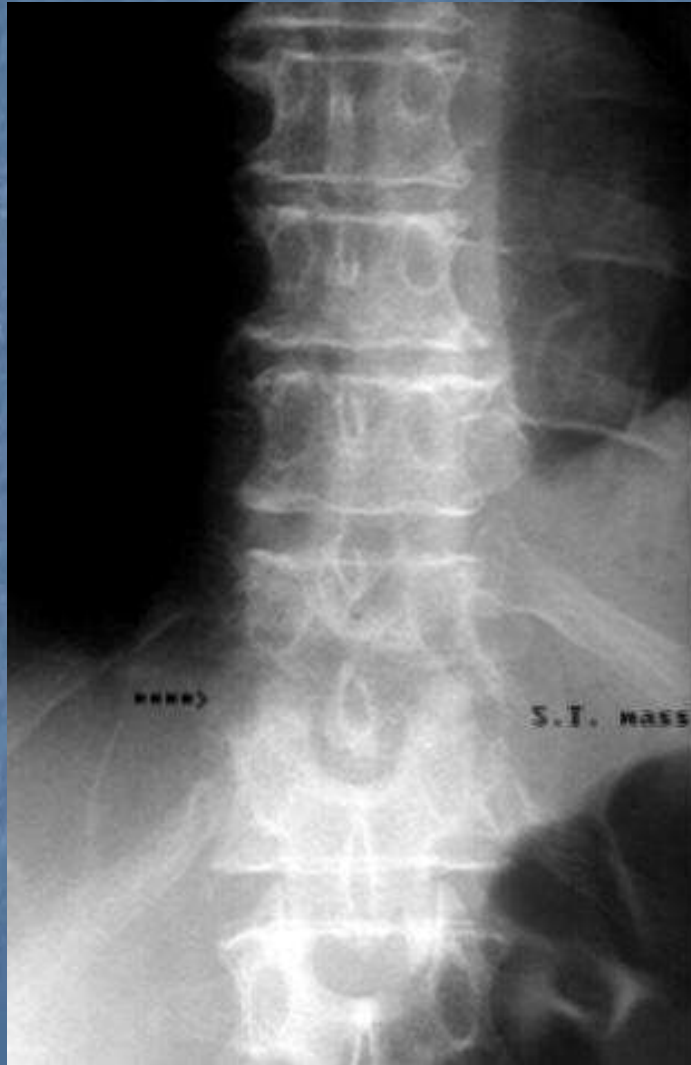


Vertebral OM

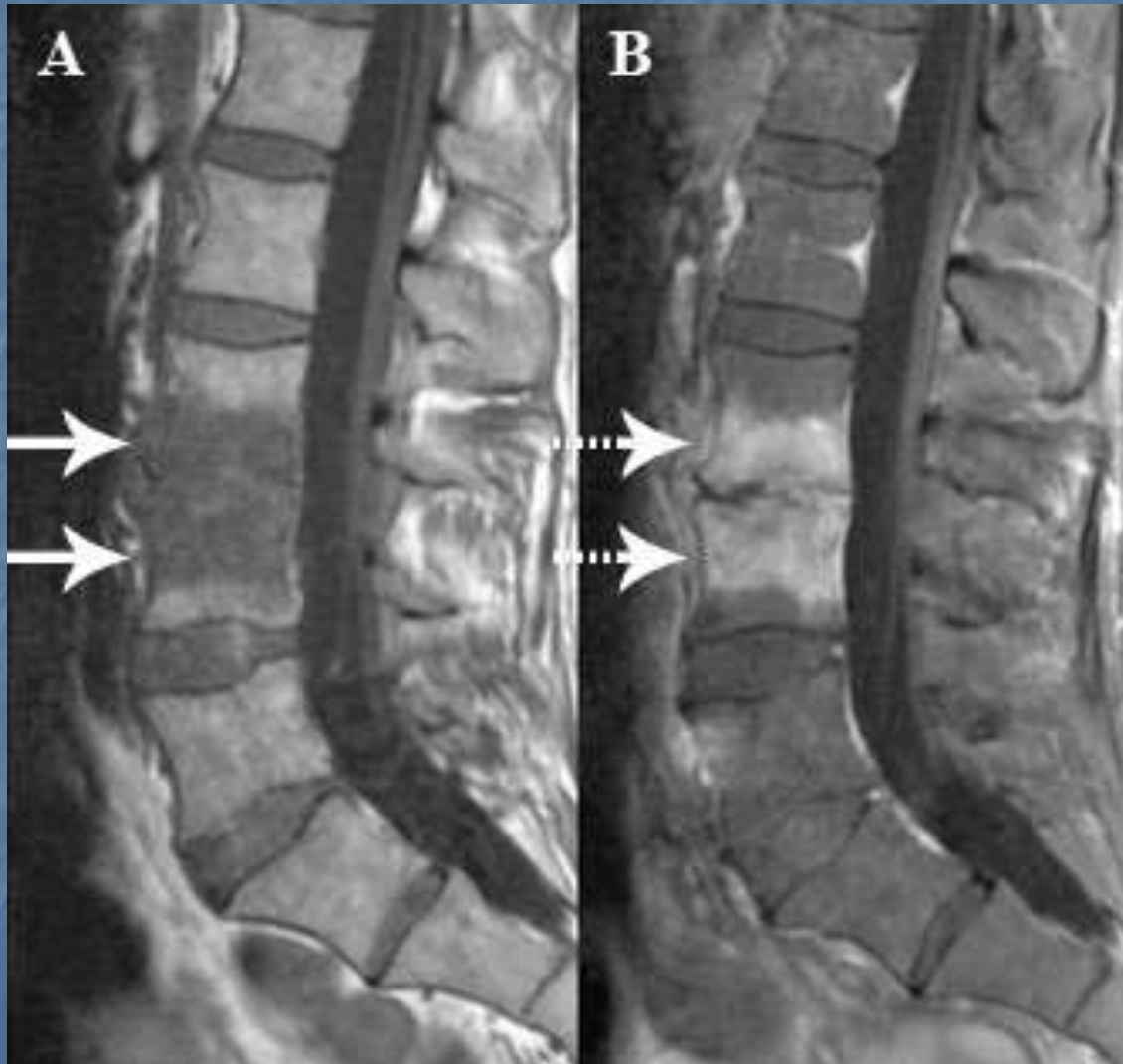
- Can present with vague back pain
- Serology, X-rays, MRI, scans
- Bacterial –new bone formation. Paradiscal



Vertebral OM



Vertebral OM



Vertebral OM- treatment

- Mainly antibiotics
- May require decompression, drainage

Peri-prosthetic infection

- Specialized area
- Basically, remove implant and rest of treatment of chronic OM
- Problem - joints



Osteomyelitis

- Early diagnosis
 - Prompt treatment
 - Open when necessary
-
- Antibiotics may modify clinical picture

Appendix

Chronic OM- principles of treatment

- - **type I:**
 - medullary osteomyelitis w/o endosteal nidus;
 - does not necessarily require bone grafting;

Chronic OM- principles of treatment

Type II:

- superficial osteomyelitis, affecting outer surface of bone;
- (infected plate in a healed frx, bone exposure 2nd to soft-tissue loss, or an adjacent soft-tissue abscess abutting cortex;
- usually soft tissue compromise is common

Treatment

- stabilization is not required by definition (type III or IV):
- hardware removal and
- debridement of avascular outer cortex (bleeding bone - "paprika sign");
- antibiotic beads
- coverage
- bone grafting

Chronic OM- principles of treatment

- **type III:**

- well marginated sequestration of cortical bone;
- can be excised w/o creating instability;
- treatment involves:
 - stabilization;
 - debridement
 - antibiotic beads
 - coverage
 - bone grafting

Chronic OM- principles of treatment

- an infected non union requires
- débridement,
- soft-tissue coverage,
- bone stabilization
- bone-grafting;