

# VAC!!!



## Haematogenous and late Infections (more than 2 months ....after surgery)

- Aspiration: microbiological analysis
  - no antibiotic treatment before ponction
  - leucocytes in synovial fluid (leucoyte estérase strip test)
  - blood culture bottles
- Don't use swabs
- Identify the Ennemy!!!!!!

# Delayed and late Infections

## No retention of the implant

### Indications:

- Subacute infection  
Chronic infection
- Instable ligament situation  
Radiological evidence of loosening
- Soft tissue damaged  
(abcess, ...)
- Difficulties to treat microorganisms  
(multiresistant, ...)



# No retention of the implant: two stages exchange

- Excision of the infected tissues
- Component removal
- **The key: complete removal of Biofilm**
- AB spacer
  - Monobloc or articulating
  - Home made
  - Cuckler technique: temporary arthroplasty (recycled knee components) – *Arthroplasty, Vol. 20, 2005*  
*Medico-legal limits!!!!*
- IV ABtherapy ± 6 weeks (per os as soon as possible)
- 2 weeks without AB before reimplantation



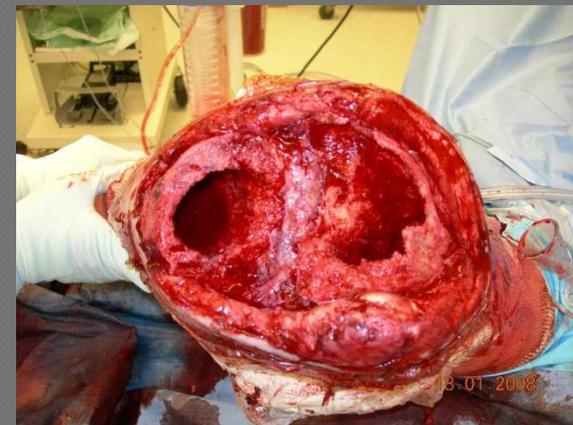
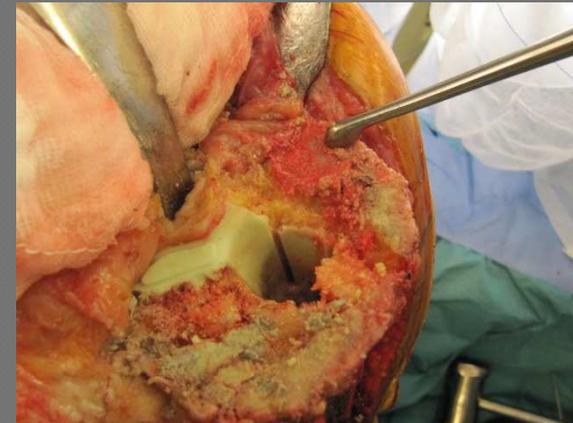
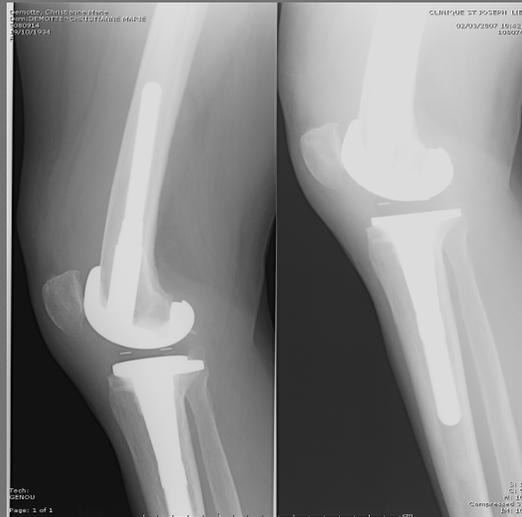
# No retention of the implant: two stages exchange

- AB spacer complications:
  - Mechanical complications
    - Fracture of the spacer
    - Periprosthetic fracture (malalignment varus valgus, loose spacer, ...)
    - Overstuffing TF and PF joints
    - Anterior extrusion of the spacer (erosion of the extensive mechanism)
    - Q shortening (surgical exposure)
  - Inconvenient articulating spacer
    - Ligamentous instability
    - Multioperated knee



# No retention of the implant: two stages exchange

- Choice between a massive prosthesis or bone reconstruction depends on the age and the amount of bone loss



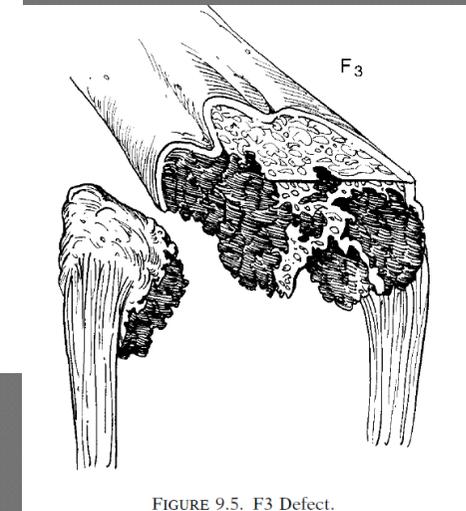
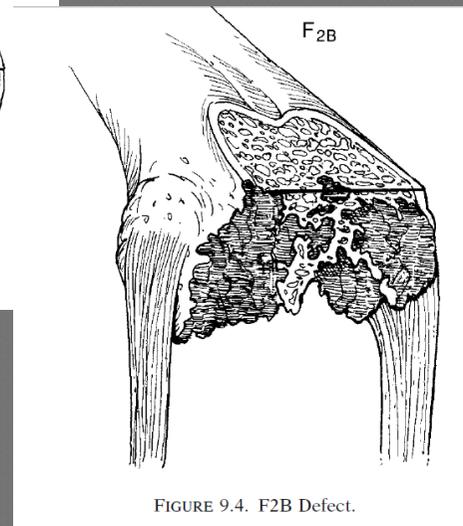
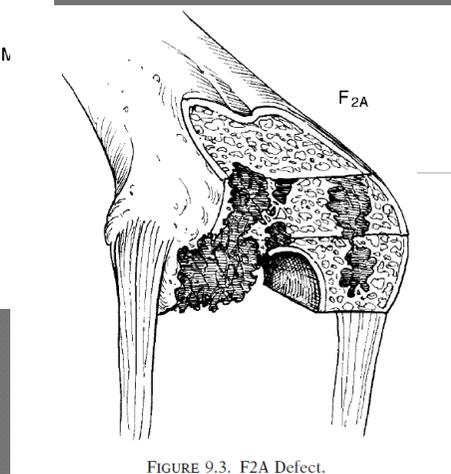
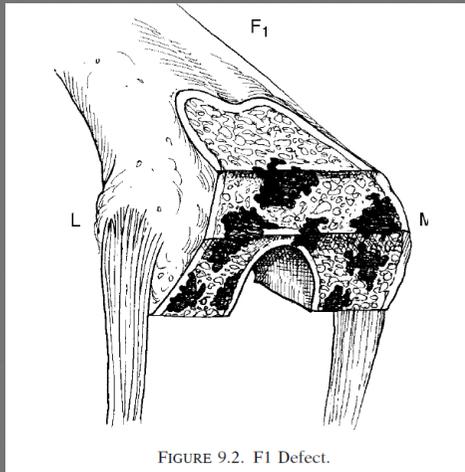
- If a flap is necessary, it will be introduced during the first step

# Reconstruction: different Options



# Classification of Bone Defects

## G.A.Engh 2006 Femur



# Classification of Bone Defects

## G.A. Engh 2006 Tibia

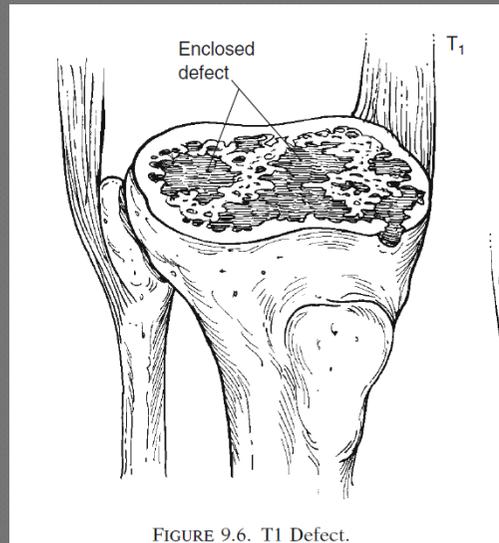


FIGURE 9.6. T1 Defect.

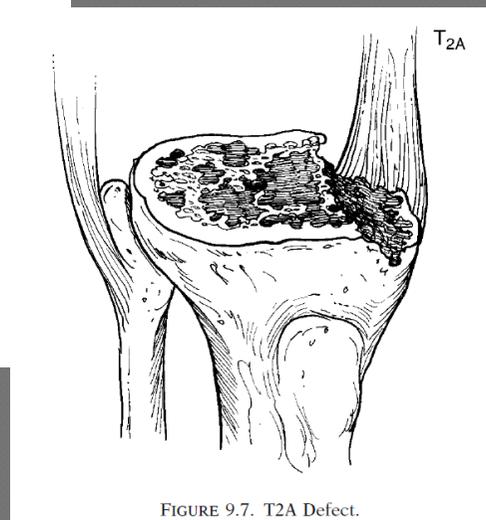


FIGURE 9.7. T2A Defect.

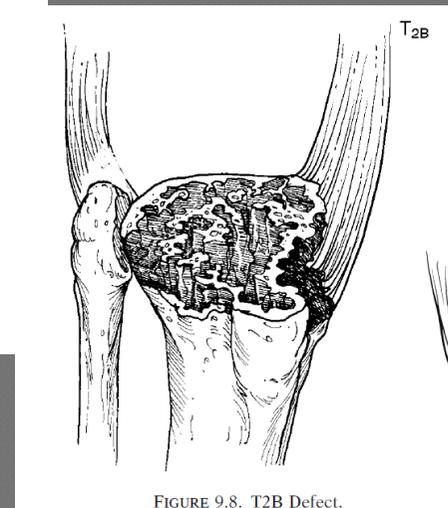


FIGURE 9.8. T2B Defect.

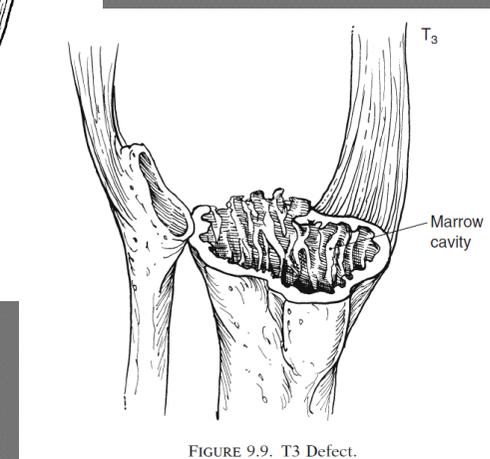
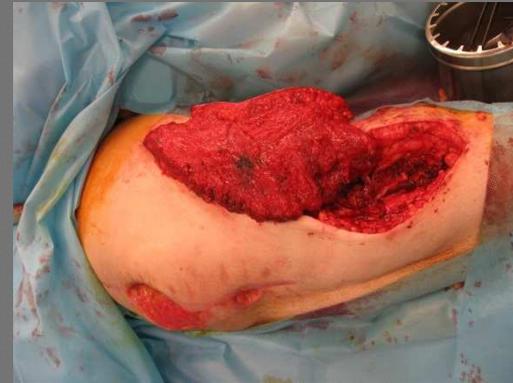
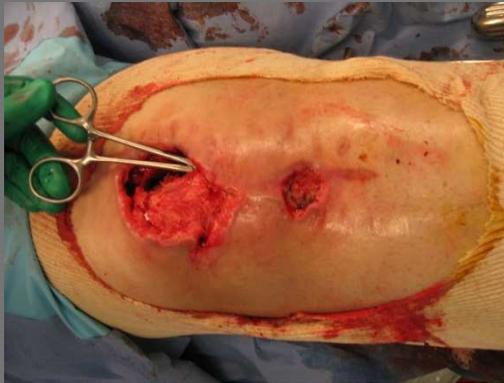


FIGURE 9.9. T3 Defect.

If a flap is necessary, it will be introduced during the first step



# Other options to discuss

- Arthrodesis : insufficient extension mechanism (difficult to achieve: secondary bone autograft often needed)
- Repeat two stages revision!! (bone loss and above knee amputation)
- Amputation: salvage procedure  
After exclusion of all other treatment options
- Life long suppressive AB treatment: elderly and fragile patients – surgical risks – immunosuppressive patient - radiotherapy

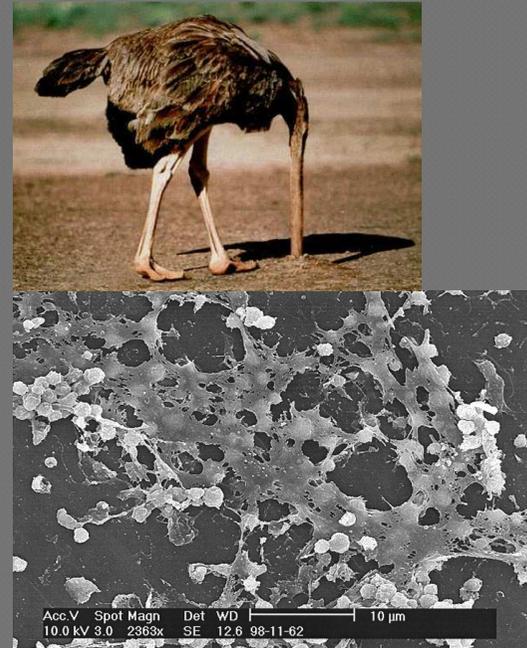


# No retention of the implant:one Stage(more cost effective....)

- !!Preoperative identification
- Removal of all infected tissue (hard and soft,from outside to inside)
- All avascular structures are excised
- Change gloves and instruments before réimplantation
- Antibiothérapie.How long??

# If you have some difficulties to diagnose the infection....

- Microbiological methods  
False negative results:  
previous antibiotherapy,  
small inoculum,  
prolonged transport time,  
**biofilm**, ...



- Molecular analysis  
False positive results: exogenous bacterial DNA (CNS !)
  - Advantage: unaffected by the antibiotics
  - Disadvantage: cost