PERI-PROSTHETIC INFECTIONS:

Infection following an artificial joint replacement is a very serious compli-ation with an incidence of 1 or 2 in every 100 procedures. Some of these infections show up shortly after you leave the hospital (early), months after the operation (delayed) or are acquired years later (late) due to blood-born bacteria shed from some other site. Treatment and outcomes are based on "timing"—the time it took to diagnose infection after the total joint procedure: early, < 1mos; delayed, 1-12 months; late, >1 year. Other factors affecting treatment include the health of the patient and the responsiveness of the organism(s) to antimicrobial therapy (see *TREATMENT PROTOCOL*).

Following a total joint arthroplasty, most surgical site infections occur in the skin or soft tissues and respond to antibiotic treatment, alone. Surgical debridement will be necessary, if the infection involves deep tissues and the joint, itself. If the infection is early or late, 50% - 80% can be successfully treated, shy of removing the prosthesis. However, surgical debridement must take place within 5 days following the onset of symptoms (pain, swelling, fever, and/or drainage).

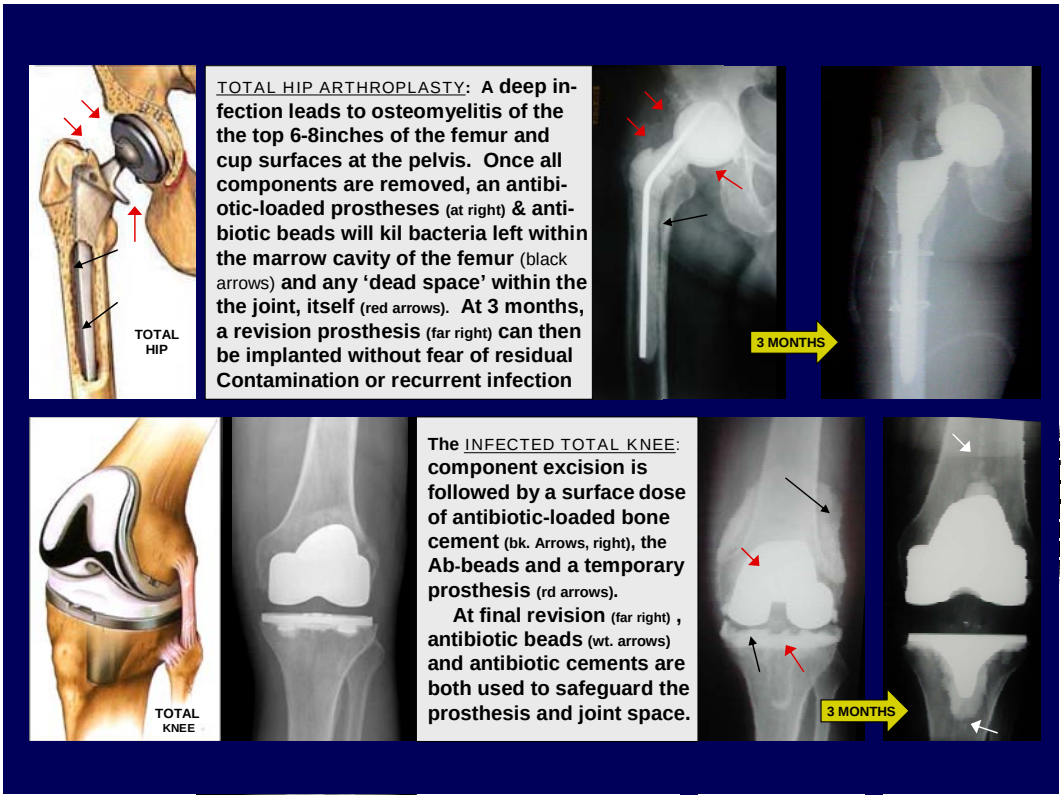

figure 8

LATE INFECTIONS: Once bacteria adhere to the prosthesis, colonize and mature to form their complex biofilms (see *OSTEOMYELITIS*), the debridement must include the removal

of all prosthetic components, bone cements and suture materials to affect cure (see *"articles"*, Cierny G, DiPasquale D:"Peri-prosthetic Total Joint Infections"). The infected total joint replacement must be considered a special case of chronic osteomyelitis for which there are clear, established principles of management utilizing both surgery and antimicrobial agents (see *TREATMENT PROTOCOL*). The most commonly used and most successful method is a staged protocol, where in the patient undergoes two separate operations to exchange their prosthesis for a new one: in the first stage, infected tissue and all prosthetic components are removed; in the second stage, weeks or months after the first, a new prosthesis is implanted. Between stages the joint can be 1) left loose and protected with a brace; 2) held stiff and motionless in a temporary fusion; 3) left free to move, using a temporary, prosthetic composite (figure 8) of over-sized prosthetic components, "high dose" antibiotic cements and adjunctive antibiotic beads (see infected non-union, treatment. As with other cases of osteomyelitis, the wound is protected with a course of systemic antibiotic therapy designed specifically to the sensitivities of the bacteria present.

The outcomes for delayed, peri-prosthetic infections treated with two-stage protocols match those we have published for the stage treatment of infected non-unions in long bones: A-host 96%, B-Host 88%.

OVERALL SUCCESS RATE = 94%

Cierny, III, G., Infected Tibial Nonunions (1981-1995): The Evolution of Change, Clinical Orthopaedics and Related Research: Number 360, March, 1999, pp. 97-105.