

Antibiotic Depots: BEADS, SPACERS, GELS, PROSTALAC JOINTS

Until recently, most wounds were left ‘open’ following debridement to either heal spontaneously or undergo a ‘delayed’ closure once the risk for infection was, again, low. In **1983**, wound care in America was greatly facilitated with the introduction locally-implanted, antibiotic depots. First came the use of antibiotic-impregnated, acrylic bone cements in the salvage of infected total joint arthroplasties. Later, these cements were modified for implantation into debrided wounds in the form of hand-made, 7.0mm beads: the high surface-to-volume ratio of the beads favored high, prolonged elution of the antibiotics; local antibiotic concentrations reach 50x to 100x higher than those ever achieved using just systemic therapy.



When used in combination with systemic therapy and a thorough debridement, antibiotic beads could reliably render contaminated wounds clean and ready for reconstruction within weeks of the debridement (see [SCIENTIFIC PAPERS](#); “Infected Tibial Non-Unions”). ***For the first time in medical history, it was safe to close an infected wound right after its was debrided.***



### CASE 1:

OSTEOMYELITIS  
ANTIBIOTIC BEADS  
STAGED TREATMENT

**This young patient had developed osteomyelitis in four long bones and three joints due to a blood-born infection starting in the left hip joint.**

**Procedures: staged hip Fusion, right; staged total hip arthroplasty, left; placement antibiotic beads right femur and right tibia (*white arrows*).**

**The x-ray (at left): antibiotic, acrylic beads are seen within both the right femur and tibia. For control and ease of removal, they were strung on suture or steel wire and positioned inside the marrow cavity to just below the plate and screws used to fix the right hip at the time of the fusion.**

With time, the morbidity of treatment dropped, precipitately and limb salvage became available to many, who, until that time, heard only “amputation” from their care givers. By **1998**, less than 4% of our patients left the surgery suite with an open wound and patients were discharged in days rather than weeks. The duration of systemic antibiotic therapy dropped below 2 weeks in 9 out of 10 protocols and the success rates increased, steadily, with time and experience.