## Clinical Problem

- When knees revised for infection become re-infected, salvage is especially difficult.
- When knees fail multiple times due to infection, amputation often is the only alternative.
- This study presents an aggressive regimen for limb salvage that includes bivalve osteotomy for intraosseous debridement, muscle flaps for closure, multiple-stage reconstruction of soft tissues, and cementless fixation of components.
- A consecutive series of re-infected TKA revisions is presented.

## Methods and Treatment

- 18 patients presented with reinfection after previously failed revision for infection. The time from the original total knee arthroplasty until the operation performed in this series was 39±23 months.
- The infecting organism was:
  - methicillin-resistant *Staphylococcus aureus* (11 knees, 11 patients)
  - methicillin-resistant *Staphylococcus epidermidis* (2 knees, 2 patients)
  - methicillin-sensitive *Staphylococcus aureus* (2 knees, 2 patients)
  - mixed *Proteus mirabilis* and *Escherichia coli* (3 knees, 3 patients).

### Antibiotic Management

- All knees then had 6 weeks of direct intraarticular (IA) infusion of vancomycin or gentamycin via Hickman catheter.
- IV vancomycin — 24–72 hours
- IA vancomycin — start p.m. on first day postoperative and continue for 6 weeks via Hickman catheter.
- Dose: 200-500 mg vancomycin in 5-10cc once or twice daily, adjusted as tolerated.

### Surgical Management

- Extensive exposure
- Cementless implants
- Soft-tissue reconstruction

## Results

### Surgical Requirement

- Bivalve osteotomy for debridement was done in 17 knees because of cemented stems.
- Muscle flap was used for closure in 7 knees.
- Multiple stage reconstruction was done in 6 knees.
- 16 of 18 knees were successful and retained their implants.
- 1 knee became re-infected 3 months after implantation. This knee underwent repeat debridement and is now 3 years postoperative with a successful arthroplasty.
- 1 knee failed to achieve adequate soft-tissue coverage and had above-knee amputation.
- Extensor lag >10° was present in 5 knees that required resection of the patella and patellar tendon.

## Conclusions

- Re-infection after revision TKA for infection requires limb-salvage techniques and often multiple stages of reconstruction.
- Cementless fixation of implants was very reliable.
- Direct antibiotic infusion and cementless fixation provides high IA antibiotic concentration and preserves bone stock.
- Good results can be achieved with an aggressive and persistent approach.