

## **The Painful Knee: A Case of Prosthetic Joint Infection in Hospitalized Patient with ESBL-producing *Klebsiella* UTI**

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### **Introduction**

Prosthetic joint infections (PJI) are most commonly seen within the first 2 years after joint replacement and are usually bacterial in etiology. Incidence ranges from 2-10%, with higher incidence in knee replacements (0.5-2%) than in hip replacements (0.5-1%). Early and delayed onset PJI typically occur due to implantation or sinus tract formation with *Staphylococcus aureus* being predominant, while late onset PJI (>12 months after surgery) is more commonly from hematogenous seeding with gram negative rods predominant. PJI can present as acutely and destructively as septic arthritis, requiring increased awareness.

### **Case Description**

A 86-year-old male with pertinent history of bilateral knee replacements (> 10 years ago) and 2-stage revision for right hip prosthetic MRSA infection presented for sepsis secondary to complicated UTI and hematuria in the setting of non-obstructive right-sided nephrolithiasis. Initially, he was started on Cefepime and Vancomycin given prior culture sensitivities. Urine cultures and sensitivities returned on day 2 of hospitalization revealing ESBL-producing *Klebsiella pneumoniae* with blood cultures negative, requiring initiation of meropenem and discontinuation of cefepime and vancomycin. On day 4 of hospitalization, he developed acute left knee pain, swelling, warmth, inability to bear weight and decreased range of motion. X-ray of the left knee was obtained revealing an effusion. Orthopedic surgery was consulted for arthrocentesis, which was completed that day, revealing cloudy synovial fluid with total nucleated cells 15,040 (normal: 0-20 cells/uL), 78% segmented cells (normal: 0-50%) and negative gram stain. Given concern for PJI and re-developing sepsis due to tachycardia, vancomycin was restarted, and blood cultures were obtained. The synovial cultures initially grew gram negative rods, later speciating to ESBL-producing *Klebsiella pneumoniae* with positive blood cultures 4 days later confirming hematogenous spread. The patient underwent total knee revision with antibiotic spacer placement. Infectious disease recommended a 6-week course of meropenem from negative blood cultures.

### **Discussion**

Acute monoarticular pain and edema of a prosthetic joint in a patient with concomitant infection elsewhere should heighten your suspicion for PJI despite negative blood cultures initially. This should prompt urgent consideration of arthrocentesis, broadened antibiotic regimen and evaluation by the surgical team.

**Keywords (5 maximum):** Prosthetic, joint, infection, klebsiella, bacteremia