Atraumatic Polyarticular joint infection from gas-forming Methicillin-sensitive Staphylococcus aureus

Sonia Im, D.O.; Dale Lent, D.O
Department of Medicine, University of Pittsburgh Medical Center Lititz, PA

Introduction

- Septic joint arthritis is an orthopedic emergency
- Incidence of 2-10 per 100,000
- Leads to irreversible cartilage destruction
- Usually monoarticular, rarely polyarticular
- Risk factors - active infection, prior surgery, prosthetic implants (20% increased risk), immunosuppression, smoking, diabetes
- Hematogenous seeding from bacteremia, direct inoculation, or contiguous spread
- Most commonly *Staphylococcus aureus* (SA)

Case Presentation

55-year-old female with a history of recent revision of lumbar fusion with surgical instrumentation, insulin-dependent diabetes mellitus, tobacco use and schizophrenia presents with altered mental status.

- Post-op 1 month from revision lumbar fusion with surgical instrumentation secondary to loosening of lumbar hardwardware
- Vitals

T 100.4F	HR 122	RR 30	BP 86/48

- Labs

WBC 13.5	CRP 17.8	ESR 129	Lactic Acid 7.8

- Blood cultures positive with pan-sensitive Staphylococcus aureus
- Physical exam demonstrates lower lumbar midline incision wound dehiscence with erythema, gross purulence, 100cc drained from site via bedside aspiration
- Septic shock from staphylococcal bacteremia secondary to lumbar periprosthetic infection
- Secondary exam demonstrated subsequent native left glenohumeral and right dorsal wrist septic arthritis. No crepitus
- Consulted orthopedic & neurosurgery for surgical intervention

Imaging

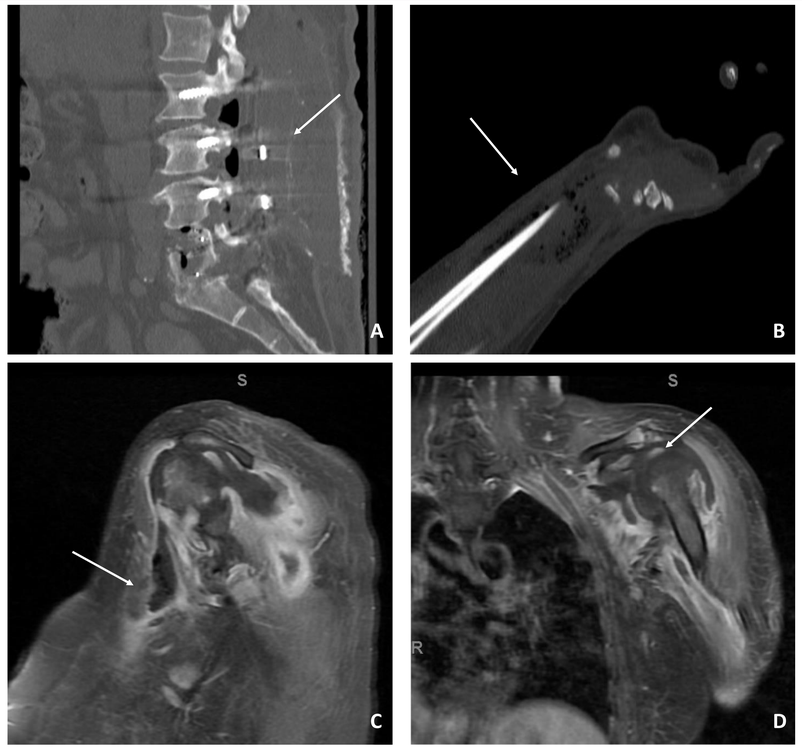

Figure A. CT Lumbar spine, sagittal view demonstrating postsurgical changes with seroma, gas adjacent to vertebral bodies; **Figure B. CT right upper extremity, sagittal view** demonstrating gas adjacent to distal radius and ulna; **Figure C. MRI left shoulder, sagittal view demonstrates** large effusion with gas underlying pectoralis, deltoid, and biceps muscles; Figure D. **MRI left shoulder, coronal view demonstrates** osteomyelitis of AC joint.

Case Resolution

- Resolution of bacteremia after complex IV antibiotic course requiring multiple adjustments
- Multiple irrigation and debridements
  - 7x - Lumbar spine with revision of instrumentation and wound VAC placement
  - 3x - Right wrist
  - 1x - Left shoulder
- Mental status returned to baseline
- Discharged to long-term acute care hospital with plan for IV antibiotics for 6 weeks

Discussion

- Immunocompetent adult female
- Persistent MSSA bacteremia while on broad spectrum antibiotics. Possibly leading to subsequent hematogenous seeding to multiple joints
- Delirium postoperatively due to prolonged stay in intensive care and exacerbation of underlying psychiatric disorder complicated proper examination of joints distant to original site causing delayed assessment
- Required replacement of instrumentation and multiple irrigations and debridements. Likely due to multiple comorbidity including diabetes (hA1c 7.7), tobacco use (2 ppd x 30yrs), and malnutrition (albumin 2.2)
- Imaging showed gas in deep tissue fascia, concern for diabetic myonecrosis, though low suspicion for necrotizing fasciitis. LRINEC score 7.
- However, there was no crepitus on physical exam.
- Hematogenous seeding to multiple joints despite treatment - osteomyelitis to left acromioclavicular joint, septic left glenohumeral, and right wrist joint
- Requires surgical intervention for resolution
- Must have strong suspicion for recurrent or distant site infections in setting of atraumatic pain despite clinical improvement

References

- Miller, Annelise, Fahad Abduljabbar, and Peter Jarzem. "Polyarticular septic arthritis in an immunocompetent adult: a case report and review of the literature." Case reports in orthopedics 2015 (2015).
- Heggeness, Michael H., et al. "Late infection of spinal instrumentation by hematogenous seeding." Spine 18.4 (1993): 492-496.
- Mathews, Catherine J., et al. "Bacterial septic arthritis in adults." The Lancet 375.9717 (2010): 846-855.
- Clements, J., A. Dinneen, and G. Heilpern. "Polyarticular septic arthritis in an immunocompetent patient." The Annals of The Royal College of Surgeons of England 95.2 (2013): e10-e11.