

A Rare Case of Septic Arthritis Caused by β -lactamase Producing *Neisseria elongata*

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CASE PRESENTATION

A 60-year-old man with uncontrolled diabetes mellitus presented with two weeks of right knee swelling and pain after twisting his knee. One week prior to admission, the patient received an intra-articular injection of triamcinolone for presumed osteoarthritis. Post-procedure, symptoms persisted. Two days prior to admission, he developed fevers prompting his presentation to the emergency room.

In the ED, the patient was febrile, tachycardic, and hypertensive. Exam revealed a prominent effusion with overlying warmth and erythema. Labs showed a leukocytosis with an elevated ESR and CRP. An arthrocentesis revealed serosanguinous fluid with an initial cell count of 33,000 WBCs and 89% PMNs. Initial gram stain was negative. He was started on intravenous vancomycin and ceftriaxone, however remained febrile with an unchanged exam. An arthroscopic knee washout was performed with improvement in clinical exam and inflammatory markers.

On hospital day #5, initial culture from the ED started to grow gram negative bacilli. On hospital day #14, cultures speciated to *Neisseria elongata* with β -lactamase activity. The patient was eventually discharged on doxycycline and ciprofloxacin for a 4-week course.

| | HOD 1 | HOD 1 | HOD 3 | Sensitivities |
|---------|--------|---------|--------|--|
| RBC | 246,00 | 365,000 | 91,500 | Beta-lactamase positive predicting resistance to Penicillin, Ampicillin, and Amoxicillin |
| WBC | 24,900 | 33,375 | 41,925 | |
| % Seg | 89 | 89 | 95 | |
| % Lymph | 2 | 2 | 5 | MIC (ug/ml) Ceftriaxone = 0.032 Ciprofloxacin = 0.016 TMP/SMX = 0.19 |
| % Mono | 7 | 8 | 0 | |
| % Macro | 2 | 1 | 0 | |
| | | | | Ampicillin/Sulbactam 30 mm (Kirby-Bauer) |

Table 1. Cell counts from serial arthrocentesis and final culture sensitivities.

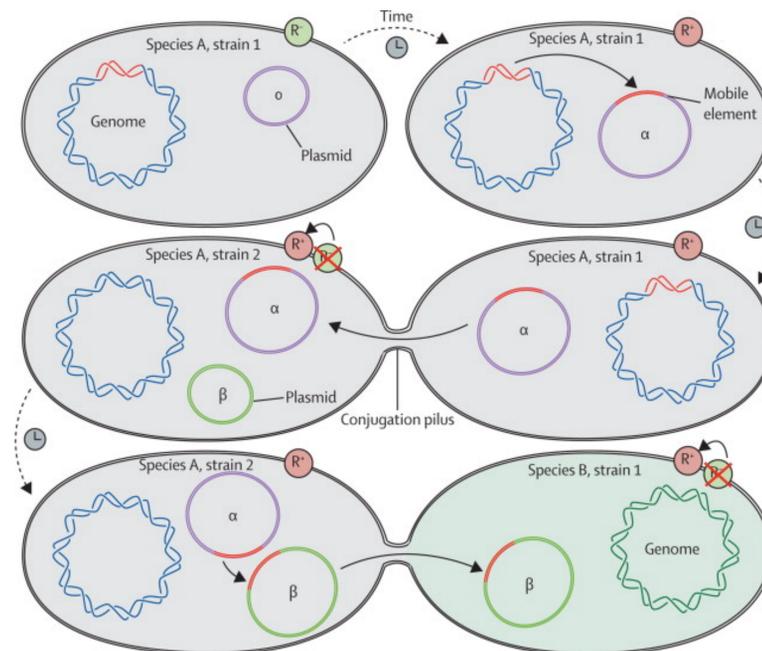


Figure 1. Mechanism of development of antimicrobial resistance - transposition of resistance gene to plasmid, and subsequent transfer between strains and species (image courtesy of Wellington et al., 2013).

DISCUSSION

N. Elongata, generally non-pathogenic, has been associated with cases of septic arthritis and endocarditis. Only two case reports have linked *N. elongata* to septic arthritis; one case occurring after an intra-articular injection. Both cases involved the sternoclavicular joint and neither reported β -lactamase activity. Our case represents the first reported patient to have developed knee septic arthritis from β -lactam resistant *N. elongata*. Additionally, the presence of β -lactamase activity highlights the emergence of antimicrobial resistance in clinical settings.

CONCLUSIONS

Septic arthritis is a potentially morbid condition in patients with acutely painful joints. Unusual pathogens should be considered in patients with a history of recent intra-articular steroid injection, as such injections have been linked to a four-fold increase. These pathogens tend to have fastidious culture growth as seen in our patient.

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