BREVUNDIMONAS VESICULARIS BACTEREMIA IN THE CONTEXT OF LOWER EXTREMITY WOUND AND SEPSIS

Saisaketh Javvaji, DO, PGY-1
Department of Internal Medicine, UPMC Lititz

UPMC

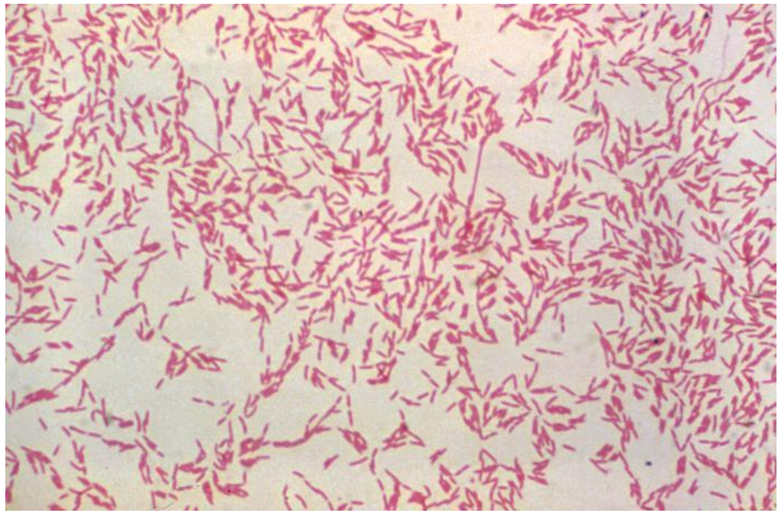
LIFE CHANGING MEDICINE

INTRODUCTION

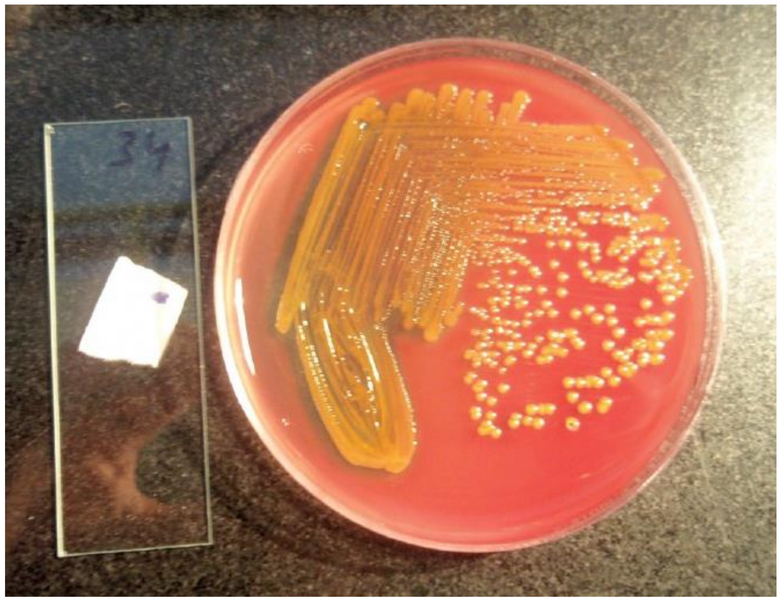
- Soft tissue infections are a common cause of sepsis, often leading to hospital admission.
- Common risk factors include local trauma/disruption of skin barrier, obesity, edema, diabetes, and immunosuppression.
- Volume resuscitation, blood cultures, and broad spectrum antibiotics should be initiated. Coverage for MRSA or *Pseudomonas* should be considered.
- Imaging modalities and physical examination may be used to evaluate the extent of infection and to rule out abscess or osteomyelitis.
- Identifying areas of involvement and evaluating for possible intervention like incision and drainage or debridement is an important adjunct to antibiotic coverage.

CASE DESCRIPTION

- An 86-year-old woman with a history of paroxysmal AFib, SVT, chronic lower extremity wounds, malnutrition, and steroid-dependent rheumatoid arthritis presented with sepsis from a right lower extremity laceration suffered 3 weeks prior while transporting books.
- The patient had a history of multiple wounds over the past few years requiring hospital admission, debridement, and skin substitutes.
- She was fluid resuscitated, started on broad spectrum antibiotics including metronidazole, vancomycin, and cefepime, and admitted to the ICU.
- Wound cultures, blood cultures, CBC, BMP, and MRI of the right lower extremity was ordered.
- Cardiology, Wound Care, and Plastic Surgery were consulted.



A gram stained specimen depicting *Brevundimonas vesicularis*, a gram-negative, aerobic bacteria previously classified as *Pseudomonas*.



Brevundimonas vesicularis on blood agar. Orange pigmented hemolytic colonies with oxidase positive reaction noted.

RESULTS

- MRI of the right lower extremity did not demonstrate abscess or osteomyelitis.
- Laceration was debrided and skin substitute was applied.
- Wound cultures initially grew Citrobacter koseri and antibiotics were switched to only ceftriaxone.
- Upon making the change, leukocytosis worsened and patient was transitioned to meropenem for 10 days.
- All sets of initial blood cultures grew *Brevundimonas vesicularis*, a gram-negative, aerobic bacteria previously classified as *Pseudomonas*.
- Repeat blood cultures were negative after treatment.

CONCLUSION

While uncommon, *Brevundimonas* species infections are increasing in incidence and should be considered in the differential of potential pathogens in immunocompromised patients presenting with wounds. Empiric antibiotic therapy should include typical coverage for *Pseudomonas* with close monitoring for resistance. Common therapies include monobactams, carbapenems, fluoroquinolones, cephalosporins, and penicillins with beta-lactamase inhibitors.

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