A Rare Case of Empedobacter Brevis Cutaneous Infection Treated Successfully with Oral Sarecycline

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INTRODUCTION

**Empedobacter brevis**, as a part of the Flavobacteriaceae family, is a non-motile, strictly aerobic, gram negative, yellow colony-forming bacterium that typically resides in soil, plants, water sources, and hospital environments.1,2

The first reported case of a human infection was in 2002 when 11 out of 12 patients were diagnosed with endophthalmitis from an E. brevis infection post cataract surgery.3

More cases of E. brevis infections have since been reported ranging from meningitis to cellulitis.4,5,6 Treatment can be complicated by the bacteria’s beta lactamase gene, which results in resistance to extended cephalosporins and carbapenems.5 There have been a few dermatologic manifestations of E. Brevis infections reported in the literature that warrant further evaluation.6,7

We present a case of an E. brevis infection in a 61-year-old male who presented with a persistent right mid-thigh lesion.

CASE PRESENTATION

A 61-year-old male with a past medical history of hypertension, actinic keratoses, history of valve replacement (chronically on Warfarin) and prior knee replacement surgery presented with a lesion that persisted for 6 weeks after doing yard work. He reported using hydrogen peroxide and antibiotic bandages with no improvement.

**Physical Exam**

A non-painful right mid-thigh red, crustated linear erosion with honey-yellow crusting.

**Culture**

- **Empedobacter brevis** was identified by DNA sequencing.
- Resistant to meropenem and tobramycin

**Treatment**

Patient was initially treated with mupirocin with no improvement. 15-day course of 150mg once-daily. Sarecycline was added after the results returned and the lesion healed well over the upcoming weeks.

DISCUSSION

Thought to be an environmental pathogen, increasing cases of human E. brevis infections are now being reported as portrayed in Table 1. There have been cases ranging from neonates to the elderly, namely those who are immunocompromised. Exposure of E. Brevis can be from hospital facilities to soils, water sources, and plants--as also depicted in some of the reported cases.

While human E. brevis infections increase, its dermatologic manifestations are also emerging. E. brevis is not found on normal skin flora, so skin infections tend to stem from environmental exposure from breaks in the skin such as the knee lacerration with cellulitis and foot lesion with anaphylactoid purpura and blisters.

Treatment of infections due to E. brevis is by antibiotics that have activity against gram-negatives. However, this is only complicated by resistance to certain beta-lactams due to E. Brevis’ beta-lactamase gene, conferring resistance to extended cephalosporins and carbapenems, as demonstrated by the sensitivities from our patient.

<table>
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<tr>
<th>Patient Information</th>
<th>Case Details</th>
<th>Sensitivity Results/Treatment</th>
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<tr>
<td>65 YO female with PMH of COPD, Brown Sequard Syndrome</td>
<td>Right knee cellulitis &amp; bacteremia due to E. brevis 6 weeks post right knee replacement &amp; subsequent fall with knee laceration</td>
<td>- Sensitive to most antibiotics - Treated with Levaquin for 10 days</td>
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<tr>
<td>83 YO female</td>
<td>Presented with anaphylactoid purpura, erythema, blisters, and erosion of the right foot. E. Brevis was cultured from the lesion. Biopsy showed leukocytoclastic vasculitis.</td>
<td>- Sensitive Sarecycline HCl - Treated with minocycline HCl</td>
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Table 1: Reported cases of skin infections due to E. Brevis

REFERENCES


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We would like to thank the patient for providing permission to report his case.