

A Rare Cause of Cellulitis: *Photobacterium damsela*

Kamal Kant Sahu, Akil Adrian Sherif, Raul Davaro¹

Department of Internal Medicine, ¹Infectious Disease, Saint Vincent Hospital, 123 Summer Street, Worcester, MA, 01608, United States

Abstract

Photobacterium damsela, a marine bacterium from *Vibrionaceae* family, is a well-known primary pathogen for fish, mollusks, crustaceans, etc. Humans may also get infected accidentally during exposure to marine animals or seawater. In addition to economic concern for aquaculture and fish industry, it is also a microbe of concern for human beings, as it has potential to cause lethal infections. Necrotic fasciitis is the most fulminant form.

Keywords: Cellulitis, fish, *Photobacterium damsela*, *Vibrionaceae*

INTRODUCTION

Vibrio species are free-living microorganisms of marine and aquatic environments. *Photobacterium* is a Gram-negative bacterium known to be pathogenic to aquatic organisms. Recently, by virtue of increasing exposure to natural waters, *photobacterium damsela* has emerged as a potential hazard to humans by causing life threatening septicemia.

CASE REPORT

A 74-year-old female with a medical history of controlled hypertension presented to the emergency department for fever and worsening right foot swelling of three days duration. A week ago, she fell at a beach and sustained superficial abrasions over her right foot. Since then, she noted worsening redness, pain, and swelling of the injured foot. At initial presentation, she was hypotensive (75/43 mmHg) and tachycardic (110/min). The right foot inspection showed multiple superficial abrasions and edema without any local crepitations on palpation [Figure 1]. She received bolus of 2 liters 0.9% normal saline. Laboratory workup suggested leukocytosis ($16.2 \times 10^9/L$) with normal hepatic and renal functions. She was started on injection vancomycin and cefepime after drawing blood cultures. She underwent venous duplex and right lower extremity computed tomography to rule out deep vein thrombosis and necrotizing fasciitis, respectively. Blood culture grew Gram-negative bacilli-*Photobacterium damsela*, sensitive to fluoroquinolones. Antibiotics were

changed to levofloxacin to complete a total duration of 10 days. Complete resolution of cellulitis was noted on follow-up.

DISCUSSION

P. damsela is recently considered an emerging pathogen for fish and also known as “fish pasteurellosis.” It is Gram-negative rod and belongs to *Vibrionaceae* species, with natural habitat being sea water. With increasing trend of human engagement in aquatic and nautical sports, *P. damsela* and related infections are on rise and topic of public health importance. Other commonly well-established human pathogens from *Vibrionaceae* species are *Vibrio cholerae* (watery diarrhea), *Vibrio parahaemolyticus* (gastroenteritis), and *Vibrio vulnificus* (wound infections, acute and fatal septicemia). A recent literature review by Hundenborn *et al.* showed that skin breach resulting from fish hook injury, stingray injury, etc., increases the risk of acquiring *P. damsela* infections.^[1] They reported that, of the six cases, five died secondary to septicemia. Treatment depends on the severity of infection and includes medical and/or surgical intervention. Milder forms generally respond well to oral antibiotics prescribed based on antibiotic sensitivity pattern (usually fluoroquinolones, doxycycline, or

Address for correspondence: Dr. Kamal Kant Sahu,
Department of Internal Medicine, Saint Vincent Hospital,
Worcester, Massachusetts, United States.
E-mail: drkksahu85@gmail.com

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Figure 1: Right foot edema with multiple petechial spots noted on the dorsal aspect

macrolides). Severe form requires urgent wound debridement in addition to antibiotics. Considering the high mortality rates, increasing public awareness about the marine-related diseases is of extreme importance to prevent fatalities. Hence, it is very important to be aware of the rare microbes and their atypical clinical presentations to ensure timely diagnosis and prompt treatment.^[2-4] Complications like Necrotizing Fasciitis are fatal and needs immediate attention.^[5]

Take-home message

1. Appropriate precautions should be taken while engaging in marine activities, especially in case of preexisting skin breach

2. *Vibrio*-related infections should be considered in any case of wound infection/cellulitis with a history of exposure to aquatic animals or sea water.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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