TRAUMATIC WOUND INFECTION DUE TO AEROMONAS SCHUBERTII

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Abstract

In coastal areas of southern Taiwan, strains of Aeromonas species are prevalent bacteria. The most common clinical manifestation caused by Aeromonas infections is acute gastroenteritis, followed by wound infection. Several species of Aeromonas including A. hydrophila, A. sobria, A. caviae, A. trota, A. jandaei and A. veronii, have been reported to cause traumatic wound infection. Herein, we describe a healthy person who got traumatic wound infection caused by a rare aeromonas - A. schubertii. The clinical outcome was favorable after appropriate antibiotic treatment and prompt surgical debridement.

Key Words: Trauma, Wound infection, Aeromonas schubertii

Introduction

Aeromonas species can cause human infection through exposure to contaminated water and their associated clinical presentations are protean.\(^1\) Acute gastroenteritis is the most common clinical manifestation of Aeromonas infection, but the extra-intestinal involvement, including bacteremia, necrotizing fasciitis, cholangitis, meningitis, pneumonia, skin and soft tissue infection, has also been reported.\(^1\) Among them, wound infection was the second most common type of infection and it usually occurred after a penetrating or abrasion injury in an aquatic environment.\(^1\) Despite A. hydrophila was the most common pathogen causing aeromonas-related wound infection, some other species, including A. sobria, A. caviae, A. trota, A. jandaei and A. veronii were also reported to be possible pathogens.\(^2\)\(^-\)\(^5\) Herein, we describe a healthy person who got traumatic wound infection caused by a rare aeromonas - A. schubertii.

Case report

A 35-year-old healthy man presented to the hospital with progressive painful swelling of right foot. He had a cutting wound by a stone of his right foot which developed while he walked along the river one day before admission. Additionally, he had fever and chills. On arrival, his body temperature was 37.9°C, his pulse rate was 77/min, his respiratory rate was 18/min, and his blood pressure was 141/81 mm Hg. Physical examinations were unremarkable except the erythematous change and tenderness of the right foot. Laboratory examinations revealed the following: white
blood cell count, 11,700/mm$^3$ (78.8% neutrophils); creatinine, 1.2 mg/dL; and C-reactive protein, 109.8 mg/L (normal reference range <6 mg/l). Surgical debridement was performed and empiric antibiotic with ciprofloxacin was prescribed after collect of wound and blood specimens for bacterial culture. Three days later, gram-negative rods grew from the infected tissue, but not blood. The isolate was further identified as 

A. schubertii by conventional identification methods and two commercial systems, including the Phoenix system (Becton Dickinson, Sparks, MD). The isolate was resistant to ampicillin, and cefazolin, but susceptible to amikacin, cefazidine, ciprofloxacin, flomoxef, cefpirome using the Phoenix system. We kept antibiotic with ciprofloxacin and wound management, and finally, he was discharged uneventfully, one week later.

Discussion

Although A. schubertii was first identified by Hickman-Brenner et al$^6$ since 1988, the clinical significance of this pathogen remains unclear, since there is limited case reports.$^7$ The strain of A. schubertii has been isolated from the clinical specimens of wound, abscess, skin, pleural fluid, and blood.$^6$ Despite Aeromonas spp are usually found in temperate or subtropical countries, such as Taiwan,$^11$ A. schebertii associated infection was not as common as other Aeromonas species. There was only one report that described a fatal case of A. schubertii associated necrotizing fasciitis after penetrating injury in Taiwan.$^8$ Our case was different from the previous report$^8$ in that the clinical outcome of our patient was favorable after prompt surgical management and antibiotic treatment. Despite this clinical entity is rare, physicians should keep a high level of clinical suspicion in patients with typical dermatological findings and the contact history of contaminated water.$^1$ There is no exception for our patient, that the possible portal of entry is the traumatic wound with exposure to the aquatic environment where Aeromonas species are ubiquitous. In the previous report in France,$^{12}$ most (88%) of the patients with Aeromonas wound infections occurred in previously healthy patient with no known underlying condition. The present case is the same that A. schubertii infection developed a healthy adult without any immunocompromised condition.

Like the previous reports of other aeromonas,$^6$ the antibiotic susceptibility pattern of clinical isolate of A. schubertii show in vitro resistance to ampicillin and first-generation cephalosporin, but is susceptible to 3rd generation cephalosporin, aminoglycosides, and quinolones.$^6$ In addition, Aeromonas were found to be able to produce various β-lactamases and make themselves resistance to a broad spectrum of β-lactam.$^{13}$ Although the in vitro activity does not definitely indicate the in vivo response, the fluoroquinolones, at least 3rd generation cephalosporin, or aminoglycosides seems to be the choices of antibiotic treatment A. schubertii infection based on the current findings.$^6$ 

In conclusion, although A. schubertii infection is not common, it should be kept as one of the differential diagnosis of traumatic wound infection in patients with characteristic exposure history. Early diagnosis and prompt medical and surgical management are associated with successful outcome in this clinical setting.

CONFLICT OF INTEREST

The author declare no conflict of interest

References


創傷性傷口感染產氣單孢桿菌

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摘要

在南臺灣沿海區域染是產氣單胞桿菌盛行地區。常見的產氣單胞桿菌感染為急性腸胃炎和傷口感染。在創傷性傷口感染產氣單胞桿菌的文獻報告包括 A. hydrophila, A. sobria, A. caviae, A. trota, A. jandaei and A. veronii。

此次我們提出一個健康成年人因創傷性傷口感染罕見的產氣單胞桿菌 -- A. schubertii。經過清創手術以及適當的抗生素治療進而康復的病例報告。

關鍵詞：創傷，傷口感染，產氣單胞桿菌