INTRODUCTION

Aeromonas hydrophila is a motile Gram-negative rod-shaped bacterium found in water sources that is typically pathogenic for fish. Although human beings are atypical hosts, A. hydrophila has been reported to cause a broad spectrum of disease syndromes (acute gastroenteritis, soft tissue infections, meningitis, peritonitis, sepsis) [1]. While initially believed to be an opportunistic organism only capable of infecting immunocompromised individuals, a body of evidence now indicates that A. hydrophila causes a range of extraintestinal illness in immunocompetent hosts [2-7]. In the literature A. hydrophila wound infections reports are increasing and are represented by three types in order of increasing severity: cellulitis, myonecrosis and ecthyma gangrenosum [8-10]. Ecthyma gangrenosum is a cutaneous necrotic or gangrenous pustule that occurs secondary to sepsis known to be caused by Pseudomonas aeruginosa sepsis usually in immunocompromised people [11, 12]. Lesions have an erythematous border surrounding a vesicle which can progress to necrosis of the soft tissue within 24 hours. This type of infection is usually fatal [13]. Early diagnosis and suitable antibiotic therapy are important for the management of ecthyma gangrenosum. In this report we present a case of A. hydrophila ecthyma gangrenosum without bacteraemia in a diabetic male.

CASE REPORT

A previously healthy 63-year-old with a chief complaint of ulcer, painful swelling of the lower left leg was admitted at the Emergency Department of S. Maria degli Angeli Regional Hospital in Pordenone, Italy. On admission he was febrile (temperature of 39.4°C), with BP 160/90, CR 107 for atrial fibrillation. The patient was obese, with a BMI of 30. His anamnesis was positive for diabetes mellitus and hypertensive cardiopathy. Examined dermatologically he was treated for leg lesions with local (sulfadiazine argentic cream) and systemic (amoxicillin/clavulanic acid 1 g x 2) antibiotics. The following day the pain became unbearable, and the patient had two lipothyamic episodes; he received liquid infusion and the antibiotic therapy started the previous day before was changed to amoxicillin/clavulanic acid 4g x 4 and clindamycin 600 mg x 3. After 24 hours the leg lesions became worse, appearing like...
necrotic-haemorrhagic bullae (Figure 1), assuming the appearance of pseudomonal ecthyma gangrenosum lesions. The patient’s haemodynamic parameters remained normal despite a temperature rise to 38.8°C. Chest X-rays were normal but a blood test showed a mild increase in WBC (12,800 µl) and CRP (27.7 mg/dl); indexes of hepatic and renal function were normal. Given suspected pseudomonal ecthyma gangrenosum, and in the presence of negative blood culture, a bloody exudate was collected by aspiration from the necrotic bullae for culture, and the antibiotic therapy was adjusted to meropenem 3 g/die plus tigecycline 100 mg x 2 on first day, then 50 mg/die. The day after, the response of the microbiological culture showed evidence of *Aeromonas hydrophila*, only resistant to ampicillin, compatible with ecthyma gangrenosum. The patient, questioned once again, then revealed that a few days prior to admission he had worked in a well near his house without taking due precautions. He was then transferred to another hospital for hyperbaric oxygen chamber therapy. Two months later he was healthy and waiting for admission to another hospital for skin grafting surgery.

**DISCUSSION**

Ecthyma gangrenosum is a well-recognised manifestation of pseudomonal sepsis in immunocompromised hosts. It occurs in only 1-6% of patients with pseudomonal sepsis [14]. It had been considered to be pathognomonic of pseudomonas sepsis until it was described in cases of infections by *Group A Streptococcus*, *Aeromonas hydrophila*, *Staphylococcus aureus*, *Serratia marcescens*, *Citrobacter freundii* and *Escherichia coli* (15). Ecthyma gangrenosum lesions characteristically begin as painless red macules that evolve into papules and later into haemorrhagic bullae (Figure 1). These ruptures produce gangrenous ulcers with a grey-black eschar. In classical bacteraemic ecthyma gangrenosum, the lesions are a blood-borne metastatic seeding of the pathogens to the skin. However, there are several reports that describe ecthyma gangrenosum unaccompanied by bacteraemia or systemic infection [16-18]. The absence of bacteraemia is associated with the best outcome [19]. Negative blood culture suggests that ecthyma gangrenosum occurred as a primary lesion at the site of prior skin trauma. In our report, impairment of local cutaneous mechanisms due to diabetes associated with exposure to contaminated water is likely to explain the rapid worsening of the infection, and the delayed response to antibiotics, albeit in a patient with non-compromised immune systems and in the absence of bacteraemia. Early diagnosis and adequate antibiotic therapy are important for the management of ecthyma gangrenosum.

In case of lesions where neither Gram-positive nor anaerobic are detected, *A. hydrophila* should be suspected and considered when selecting antibiotics, since *Aeromonas* strains are mostly penicillinase-producers, hence resistant to penicillin, ampicillin, carbenicillin and piperacillin. More than half are resistant to cephalothin [20]. Moreover, the typical presentation of *A. hydrophila* soft tissue infection may well mimic a Gram-positive infection, which may result in delay in administration of appropriate antibiotics. Therefore it is important to stress the need to deliver prompt and appropriate empiric antibiotic therapy, to consider the presence of multidrug-resistant organisms, and to use the shortest duration of antibiotic therapy possible through antibiotic therapy de-escalation that is driven both by available culture and sensitivity data and by the clinical status of the patient.

**Key words**: *Aeromonas hydrophila*, ecthyma gangrenosum, bacteraemia.
Ecthyma gangrenosum is a well recognized cutaneous manifestation of severe, invasive infection by \textit{Pseudomonas aeruginosa} usually in immunocompromised and critically ill patients. This type of infection is usually fatal. \textit{Aeromonas} infection is infrequently reported as the cause of ecthyma gangrenosum. Here we show the first case described in Italy of \textit{Aeromonas hydrophila} ecthyma gangrenosum in the lower extremities in an immunocompetent diabetic without bacteremia. A 63-year-old obese diabetic male was admitted with an ulcer on his left leg, oedema, pain and fever. Throughout his hospitalization blood cultures remained sterile, but a culture of \textit{A. hydrophila} was isolated following punctures from typical leg pseudomonal-ecthyma gangrenosum lesions developed after admission. The patient, questioned again, stated that a few days before he had worked in a well near his house without taking precautions. We concluded that early diagnosis and suitable antibiotic therapy are important for the management of ecthyma gangrenosum. The typical presentation of soft tissue infection of \textit{A. hydrophila} should mimic a Gram-positive infection, which may result in a delay in administration of appropriate antibiotics. Moreover, \textit{A. hydrophila} should be considered a possible agent for non-pseudomonal ecthyma gangrenosum in a diabetic man with negative blood cultures, in presence of anamnestical risk factors.

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\textbf{SUMMARY}
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