EMERGENCY CASEBOOK

Atypical manifestation of *Vibrio vulnificus* septicaemia

L-W Lin, S-W Hung, C-S Lin, C-L Liu, C-F Chong

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Vibrio vulnificus is a Gram-negative marine bacterium that may cause local wound infection, gastroenteritis, or septicaemia. Fatal septicaemia usually presents with fever, shock, and large haemorrhagic bullae on the legs. This report is about a man who had severe *V. vulnificus* septicaemia but presented with atypical features of leg pain and diffuse purpuric skin lesions. *V. vulnificus* septicaemia should be suspected if the following are present: septic shock, leg pains associated with diffuse purpuric skin lesions, recent consumption of raw seafood, and a past medical history of liver cirrhosis.

Vibrio vulnificus is a Gram-negative marine bacterium that may cause local wound infection, gastroenteritis, or septicaemia. Fatal septicaemia usually presents with fever, shock, and typical skin lesions over the lower extremities: large haemorrhagic bullae, which are due to a necrotising fasciitis.¹⁻³ We report a patient with severe *V. vulnificus* septicaemia who presented atypically.

CASE REPORT

A 70 year old oriental man came to our emergency department with shortness of breath, fever, chills, and bilateral leg pain of 12 hours' duration. He had had watery diarrhoea without vomiting or abdominal pain before the fever. Medical history revealed that he had hepatic cirrhosis (Child's A) related to a hepatitis B virus infection. He denied alcohol or intravenous drug abuse and had no history of trauma. The initial physical examination revealed an ill-looking old man who had severe dyspnoea and was in distress from lower leg pain. He was alert and oriented with normal neurologic examination. His blood pressure was 74/55 mm Hg, pulse rate 112/min, temperature 40 °C, respiratory rate 32/min, and pulse O₂ saturation 97% (room air). His conjunctivae were not pale and there was no jaundice. Cardiac examination revealed tachycardia without murmur, and the lungs were clear on auscultation. Abdominal examination revealed no tenderness and no signs of hepatosplenomegaly or ascites. Rectal examination was normal, and the stool tested negative for occult blood. His extremities were freely movable, and there was no oedema. Initially, his legs were markedly tender to palpation and exhibited multiple papular erythematous skin lesions (fig 1A).

Laboratory tests revealed a low white blood cell count of 1860/mm³ (55% neutrophils, 38% lymphocytes), thrombocytopenia with platelet count 49 000/mm³, and abnormal coagulation profile (prothrombin time (PT) 17.7 s (normal: 10–13 s); international normalised ratio 2.48 (normal: 0.7–1.3); activated partial thromboplastin time (aPTT) 42.3 s (normal: 25–38 s); fibrin degradation products (FDP) >40 µg/ml (normal: <10 µg/ml). Other laboratory results were: haemoglobin 13.5 gm/dl, glucose 184 mg/dl, aspartate transaminase (AST) 180 U/l (normal: 15–37 U/l), blood urea

nitrogen (BUN) 16 mg/dl, creatinine 1.8 mg/dl, serum bicarbonate 8 mEq/l, C-reactive protein 4.2 mg/dl (normal, <0.5 mg/dl), creatine phosphokinase (CK) 4665 U/l (normal: 39–308 U/l), and lactate >300 mg/dl (normal: 4.5–19.8 mg/dl). The arterial blood gases under room air were pH 7.349, Pao₂ 14.4 mm Hg, and Pao₂ 96.9 mm Hg. Chest x ray revealed normal findings.

The patient was intubated and mechanically ventilated three hours after admission. He was then transferred to the medical intensive care unit and given ceftizoxime for presumed Gram-negative septicaemia. Over the next few hours, the lesions on his legs transformed into purpuric macules, which rapidly increased in size, number, and distribution, involving his whole body (fig 1B–D). There were no bullous skin lesions and no other sites of overt bleeding. The patient died of multiple organ failure 20 hours after admission. His wife later recalled that he had eaten some poorly cooked clams the day before admission. Two of his blood cultures were subsequently reported to yield *V. vulnificus*.

DISCUSSION

V. vulnificus is a halophilic, lactose fermenting bacillus found in coastal waters. It has been found in multiple types of fish as well as filter feeders such as oysters, crabs, clams, and mussels.⁴ Primary septicaemia due to *V. vulnificus* infection can be rapidly fatal,^{3,5} and is seen most commonly in immunocompromised hosts and in patients with hepatic cirrhosis or haemochromatosis. Case fatality of *V. vulnificus* septicaemia has been reported to be related to the following factors: circulatory shock, continued high CK levels, generalised skin lesions, low white blood cell count of <4000/mm³,⁶ and delays in antibiotic treatment.

Figure 1(A) Skin lesions (right leg) on admission. (B–D) Skin lesions 10 hours after admission (left leg, face, and trunk, respectively). Photograph reproduced with consent.

In summary, our case report highlights that *V. vulnificus* septicemia should be suspected if the following features are present: septic shock, leg pains associated with diffuse purpuric skin lesions, recent consumption of raw seafood, and a past medical history of liver cirrhosis.

Authors' affiliations

L-W Lin, S-W Hung, C-L Liu, C-F Chong, Emergency Department, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan
C-S Lin, School of Medicine, Fu Jen Catholic University, Taipei, Taiwan

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Written consent from the patient's legal guardian was obtained for publication of these images in print and online.

Correspondence to: Dr C-F Chong, School of Medicine, Fu Jen Catholic University, No.510 Chung-Cheng Road, Hsin-Chuang Hsih, Taipei

Hsien, Taipei 24205, Taiwan; m002202@ms.skh.org.tw

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