

Generalized Erythema Multiforme-like Eruption is the Novel Cutaneous Manifestation of *Vibrio Vulnificus* Septicemia

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Cutaneous manifestations of *Vibrio vulnificus* septicemia are bullae, vesicles, necrotic ulcers, localized swelling, cyanosis, and gangrene, which begin to occur mostly on the legs. The characteristic cutaneous lesions associated with pain often give an informative clue for the suspicion of *Vibrio vulnificus* infection in endemic area.

We report a case of *Vibrio vulnificus* septicemia with atypical cutaneous manifestation of generalized erythema multiforme-like eruption in a Korean man, who died within 9 hours following hospitalization in spite of the intensive therapy.

We suggest EM-like eruption of *V. vulnificus* septicemia is the novel cutaneous manifestation and may indicate poor prognosis. (*Ann Dermatol* 15(2) 75~77, 2003).

Key Words : *Vibrio vulnificus* septicemia, Erythema multiforme-like eruption

Vibrio(V.) vulnificus septicemia, mostly acquired by the infection through the gastrointestinal tract from eating raw seafood, shows a variety of cutaneous manifestations. Generally, skin lesions are vesicles and/or bullae, peripheral edema, localized swelling, gangrene, cyanosis, purpura, macules and/or patch, gangrene, and necrotic ulcer, which are present on the legs in most cases¹.

We report a case of *V. vulnificus* septicemia with atypical generalized erythema multiforme (EM)-like eruptions in a 67-year-old man which has not yet been reported to the best of our knowledge.

CASE REPORT

A 67-year-old Korean man, who presented with painful and tender swelling on both legs, and multiple target shaped papules or wheals on the entire

body surface, especially on the trunk, visited the emergency center of our hospital. The skin lesions had abruptly started on the lower extremities 6 hours before the visit, and then extended rapidly onto the whole body including the face and scalp with ascending pattern. He also complained of mild thirst, chest discomfort and dysuria without fever or chills. However, his vital signs were stable. Physical examination revealed generalized eruptions of erythematous pea-to-coin sized wheal-like papules or plaques with central bluish discoloration (Fig 1). He denied ingestion of any raw seafoods except half-cooked octopus about 1 day prior to admission. He also denied any previous underlying diseases, such as liver disease, renal disease, and diabetes mellitus. Laboratory tests revealed the elevated levels of hepatic enzymes (AST 381U/L, normal value; 5-37U/L, ALT 201U/L, normal value; 5-40U/L), blood urea nitrogen (27.0mg/dL, normal value; 8-20mg/dL), creatinine(1.9mg/dL, normal value; 0.5-1.2mg/dL), and serum lactate dehydrogenase (>1,234U/L; normal value:220-470U/L). The following laboratory examinations were abnormal; decreased total protein/albumin (5.3/2.7g/dL, normal value; 6-8.3/3.5-5g/dL), leukopenia (2,200/mm³, normal

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value; 4,800-10,800/mm³) and thrombocytopenia (118 × 10³/mm³, normal value; 130 × 10³-450 × 10³/mm³) in peripheral blood counts, and slightly prolonged clotting time including prothrombin time and partial thromboplastin time, indicating septic condition. HBsAg and anti-HCV antibody were negative and anti-HBs antibody was positive. The chest X-ray findings were nonspecific. We performed aerobic and anaerobic bacterial culture from peripheral blood and lesional skin tissue, and skin biopsy from the EM-like lesion on the trunk. Therapy was started immediately with intravenous third-generation cephalosporin antibiotics injection empirically combined with supportive fluid and electrolyte. Despite the intensive therapy, he developed cyanosis, dyspnea and deepening mental status within 7 hours with decreased blood pressure to 60/40mmHg and increased pulse rate 120/min, and finally died from cardiopulmonary arrest with progressive multi-organ failure within 9 hours. Skin lesions did not evolve into hemorrhagic bullae or ulcers until his death. *V. vulnificus* was isolated from both blood and skin tissue specimens and identified using Vitek GNI+ card (bio-Merieux Vitek, Inc., MO, USA)². Histopathological examination of the skin showed the presence of numerous rod shaped bacteria with a few mixed inflammatory infiltrate without significant changes in blood vessels throughout the dermis (Fig 2A). The infiltrating bacteria in the dermis revealed to be Gram negative bacilli as they show multiple red

DISCUSSION

V. vulnificus septicemia often results in a fatal outcome because of more than 50% of mortality rate in spite of intensive therapy³. Septicemia begins after a short incubation period with rapid onset of symptoms such as fever, chills, nausea, vomiting, diarrhea, hypotension, and mental changes in approximately 16 hours followed by the development of skin lesions^{4,5}.

Cutaneous manifestations of *V. vulnificus* septicemia, which generally appear within 24 to 36 hours of illness onset, are common with a variety of morphology including vesicles and/or bullae (42%), peripheral edema (41%), localized swelling (33%), gangrene (27%), cyanosis (25%), purpura (22%), macules and/or patches (16%), papules, wheals, and pustules¹. Fatal clinical outcomes were associated with cutaneous lesions of early necrotic lesions, cellulitis, papular, maculopapular or

urticarial pictures as well as chronic debilitating illness, iron overload state, and immunosuppression^{3,7,8}.

The pathogenic mechanism to induce EM-like lesions by *V. vulnificus* in this case is unknown, but we speculate that rapid replication of the bacilli with strong virulence results in severe damage in cells, producing targetoid EM-like eruptions by fulminating *V. vulnificus* septicemia. Brown-Brenn bacterial stain supports such hypothesis, in that extremely numerous bacilli can be identified in skin tissue sample (Fig 2B). Interestingly, in a previous report, EM-like skin lesions developed in a patient with fulminating *V. parahemolyticus* septicemia, who died within 10 hours after admission⁹. In this case, the patient died within 15 hours after onset of skin manifestation.

Herein, this case suggests generalized EM-like skin lesion caused by *V. vulnificus* is the novel cutaneous manifestation and may indicate poor prognosis, urging more aggressive therapy to minimize mortality.

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