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Correspondence

Two fatal cases of *Aeromonas dhakensis* bacteremia and necrotizing fasciitis in severe dengue patients



Dear Editor,

In 2014–2015, it has experienced the largest epidemic of dengue in southern Taiwan. Superimposed bacteremia has been reported as an important risk factor for mortality among dengue patients,^{1,2} and *Aeromonas dhakensis* bacteremia and related necrotizing fasciitis were never reported. We reported the experience and notified clinicians for this complication while dengue epidemic.

Case 1

A 75-year-old female with hypertension admitted due to persistent fever for 2 days, chills, bone pain, dizziness, nausea, mild cough and thrombocytopenia (platelet: 139,000/ μ L). Dengue was confirmed by NS1 antigenemia and PCR-proven viremia via CDC, Taiwan. Sudden onset of high fever again and accompanied with shortness of breath, decreased urine amount, disorientation, left leg painful swelling and ecchymosis were noted on day 7. Ceftazidime was administered immediately for the suspicious of superimposed urinary tract infection and septic shock. Hemorrhagic bullae were developing over her left leg. Necrotizing fasciitis with gas gangrene was confirmed by computed tomography (Fig. 1) and emergent fasciectomy was performed immediately. She was still passed out owing to profound shock and metabolic acidosis 2 days later. Blood and pus culture yielded *Aeromonas hydrophila* identified by automated ID/AST system (VITEK 2, bioMérieux) and Matrix-Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometry (MALDI-TOF MS, Bruker) and were re-identified as *A. dhakensis* strain LMG 19562 (accession No. KC601656.1) by *rpoD* gene PCR-sequencing.

Case 2

A 65-year-old healthy male admitted due to bloody stools for 3 days with fever, chills, myalgia, arthralgia and thrombocytopenia (platelets: 15,000/ μ L). Endoscopy showed gastric ulcer, duodenal ulcer, reflux esophagitis and twice endoscopic hemostasis were performed. Dengue was confirmed by serology (SD Dengue NS1 + Ab Combo™), and viremia by TIB LightMix Realtime PCR. Blood cultures yielded *Aeromonas hydrophila*, identified by MALDI-TOF MS (BioMérieux) and were re-identified as *A. dhakensis* strain CECT5744 (accession No. EF465510.1) by *rpoD* sequencing. Ecchymosis and hemorrhagic bullae appeared over bilateral knees and thighs on day 9 but surgical debridement deferred. He died of multiorgan failure on day 10.

Aeromonas dhakensis is a gram-negative bacillus and often isolated from aquatic environments, foods, fishes and animals in tropical and subtropical areas. *A. dhakensis* cause wide range of illness from mild gastroenteritis to fatal septicemia and necrotizing skin and soft tissue infection, especially in immunocompromised, cancer, cirrhotic or traumatic patients.^{3,4} *A. dhakensis* is often misidentified as *A. hydrophila* by the phenotype-based identification system or MALDI-TOF MS. *Aeromonas* species could be acquired from oral consumption of or direct mucocutaneous contact with contaminated water or food. In dengue patients, extensive pro-inflammatory cytokines activation was associated with microbial translocation⁵ and gastrointestinal bleeding due to thrombocytopenia also caused gut integrity disruption. *Klebsiella pneumoniae* is the most common concurrent bacteremia reported in dengue patients.^{1,2} The possible risk of *Aeromonas* bacteremia might be under-cooked fish soup or contaminated tap water. *Aeromonas* species is one of the midgut

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Figure 1. (A) Right lower leg necrotizing fasciitis with multiple hemorrhagic bullae. (B) Computed tomography showed abnormal infiltrates and air in right lower leg with soft tissue swelling.

microbiota of dengue vector, *Aedes aegypti* is also one of the sources of *Aeromonas* bacteremia.⁶

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