

Something fishy

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CASE REPORT

A 57-year-old Caucasian male presented to our emergency department with hypothermia and circulatory failure. He had been well until the previous day; since then he felt lethargic and had noticed a painful discoloration on his right ankle. On examination purpura and blistering were identified (*figure 1*). Three days prior to admission, he visited the beach and walked barefoot along the shoreline; for dinner he had a ready-made tuna salad. The patient used alcohol excessively and smoked marihuana regularly. A putative diagnosis of severe septic shock due to cellulitis was made and he was admitted to the intensive care unit. Broad-spectrum antibiotics were prescribed, crystalloids were used for resuscitation and he was started on vasopressors. Surgical exploration was performed and necrotising fasciitis was excluded.

WHAT IS YOUR DIAGNOSIS?

See page 376 for the answer to this photo quiz.

Figure 1. *Purpura and bullae over the lower extremities*



DIAGNOSIS

Within 24 hours blood cultures and cultures of bullae contents grew *Vibrio spp.* Further testing resulted in the identification of *V. cholerae* and agglutination of the isolate showed that the serotype was neither O1 nor O139. On the 10th day of admission the patient died due to overwhelming sepsis with multi-organ failure and systemic candidiasis. Autopsy supported the clinical diagnosis along with cirrhosis of the liver.

V. cholerae is a comma-shaped, Gram negative, motile bacterium. Through agglutination, several morphologically and biochemically indistinguishable serotypes can be identified. Sources of *V. cholerae* are fresh, brackish or salt water and raw fish and crustaceans. *V. cholerae* O1 and O139 serotypes produce enterotoxins and cause mild to severe diarrhoea. In contrast *V. cholerae* non-O1, non-O139 (VCN) causes sporadic diarrhoeal illness but can result in septicaemia, wound infections, spontaneous bacterial peritonitis and cellulitis or necrotising fasciitis, usually in patients with cirrhosis or immunocompromised conditions.¹ Infection occurs due to ingestion of (raw/undercooked) seafood or water or direct contact with wounds or skin abrasions. The mortality rate is high (24-61%).^{2,3} A possible mechanism underlying the observed virulence in cirrhotic patients is a higher bio-availability of iron which *Vibrio spp.* require for their reproduction.^{1,4} We cultured the packaging of the ready-made tuna salad (recovered from the trash can), which was negative for *Vibrio spp.* *Vibrio spp.* tend to be found in warmer water (> 17-20 °C) and VCN infections display a seasonal change with a peak in the warmer months.^{1,5} The summer of 2013 was exceptionally warm

with reported temperatures up to 36.9 °C; the temperature of the seawater on the day of his visit to the beach reached 22.1 °C. We speculate that he contracted the infection while visiting the beach, either wading through the water or by abrasion from a seashell. With reports indicating a rising sea surface temperature with changing microbiome in temperate regions it is possible that in the future this will be encountered more frequently.⁶ Empirical coverage of *Vibrio spp.* in a patient with a history of liver disease presenting with cellulitis and contact with (sea)water or raw seafood should be considered. For empirical treatment we recommend a third-generation cephalosporin, an *in vitro* synergistic effect with addition of a fluoroquinolone has been described.

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