Aeromonas veronii biovar veronii septicaemia and acute suppurative cholangitis in a patient with hepatitis B

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Introduction
Members of the genus *Aeromonas* have been associated with a wide spectrum of enteric and non-enteric diseases, in both immunocompromised and immunocompetent patients (Janda & Abbott, 1996, 1998). *Aeromonas veronii* was originally described by Hickman-Brenner et al. (1987) as a novel species in the genus *Aeromonas* that had previously been referred to by the Centers for Disease Control as Enteric Group 77. Genetic studies have indicated that this species consists of two biovars, *A. veronii* biovar sobria, negative for aesculin hydrolysá and ornithine decarboxylase, and *A. veronii* biovar veronii, positive for these reactions (Altwegg et al., 1990; Carnahan & Altwegg, 1996).

*A. veronii* biovar veronii has rarely been isolated from humans and little information is available regarding its occurrence in clinical specimens and its ability to cause infections. In the original study (Hickman-Brenner et al., 1987), it was isolated from various non-sterile sites, such as wounds, faeces, sputum, maxillary sinus and endotracheal tube, in which its clinical significance remains unclear. Abbott et al. (1994) reported the first case of *A. veronii* biovar veronii bacteraemia, in a 77-year-old man suffering from multiple underlying diseases, including sigmoid colon cancer. In a subsequent report (Hsueh et al., 1998), this species was responsible for bacteraemia and necrotizing fasciitis in a diabetic patient also affected by *A. veronii* biovar sobria urinary tract infection. To our knowledge, no other human bacteraemias caused by this micro-organism have been described.

Here, we report a case of *A. veronii* biovar veronii septicaemia and acute suppurative cholangitis in a patient with chronic hepatitis B.

Case report
A 76-year-old male who had been complaining of thoracic and abdominal pain for several days was admitted to the hospital after the onset of fever. He had a past history of cholecystectomy, due to gallstones 5 years earlier, diabetes and hepatitis B virus-related cirrhosis.

On examination, he had a temperature of 39·8°C with shivers, abdominal pain with right-upper-quadrant discom- fort and positive Murphy’s sign. Laboratory investigation revealed a white blood cell count of 30 240 cells µl⁻¹ (96% neutrophils), erythrocyte sedimentation rate of 25 mm h⁻¹, 182 mU glutamic-oxaloacetic transaminase ml⁻¹, 212 mU glutamic-pyruvic transaminase ml⁻¹, 193 mU alkaline phosphatase ml⁻¹, 2·42 mg bilirubin dl⁻¹, 359 mU γ-glutamyl transpeptidase ml⁻¹, 2·17 mg creatinine dl⁻¹ and 71 mg blood urea nitrogen dl⁻¹. Abdominal echography showed enlarged and thickened liver, absence of gall bladder, ectasia of intrahepatic and common bile ducts, multiple stones and sludge inside the common bile duct. Endoscopic retrograde cholangiopancreatography (ERCP), 6 days after admission, suggested infection of the biliary tract with purulent exudate at the level of the sphincter of Oddi, stenosis of the common bile duct in the third middle tract and marked ectasia upward. Moreover, there were multiple, possibly infected, stones inside the common bile duct.

Blood samples were collected immediately after the fever spikes on admission and 3 days later (temperature 38·4°C) in BACTEC Standard 10 Aerobic and Lytic/10 Anaerobic bottles (Becton Dickinson). Bile was collected by a nasobili- ary device, placed during ERCP, 6 days after admission. Blood and bile specimens yielded motile, Gram-negative,
Aeromonas species, few have been related unquestionably to human extraintestinal infections, by virtue of their isolation in pure culture from sterile sites. Little is known about the exact role played by the newly described species in human infections, as underlined by the limited number of reports available in the literature (Janda & Abbott, 1998).

Septicaemia is perhaps the most relevant Aeromonas infection for severity and frequency and is associated predominately with several underlying diseases, such as malignancy, hepatic disorders and diabetes (Janda & Abbott, 1998). Aeromonas hydrophila, Aeromonas caviae and A. veronii biovar sobria are the most frequently involved species (Hanninen & Sittonen, 1995; Janda et al., 1994; Janda & Abbott, 1998; Ko & Chuang, 1995). Conversely, the role of A. veronii biovar veronii in human septicemia has been described very rarely. In the first report (Abbott et al., 1994), A. veronii biovar veronii was isolated from blood together with Enterobacter aerogenes and Staphylococcus lugdunensis, while, in the second case (Hsueh et al., 1998), it caused monomicrobial bacteraemia in a patient with urinary tract infection by A. veronii biovar sobria.

In the present case, A. veronii biovar veronii was responsible for monomicrobial polycyonal bacteraemia, secondary to infection of the common bile duct and biliary tract, which could represent the primary infectious foci. In fact, the two isolates from blood showed limited differences in antimicrobial susceptibility patterns, supporting the hypothesis of a common origin.
crocal susceptibility and PFGE patterns, the second being identical to the bile isolate, possibly selected by the initial empirical antibiotic treatment. Indeed, a case of acute cholecystitis due to this species has been reported (Abbott et al., 1998), but this was not followed by septicaemia, possibly because the patient underwent immediate cholecystectomy. Thus, it seems logical to speculate that the correlation between Aeromonas septicaemia and hepatic disorders (Janda et al., 1994; Janda & Abbott, 1998) may be related in part to primary, undiagnosed, biliary infections. It has been reported that four of 30 patients with Aeromonas acute suppurative cholangitis developed septicaemia (Chan et al., 2000). Moreover, the notion that hepatic lysisis, as in the case described here, and biliary tract instrumentation are risk factors for Aeromonas septicaemia (Janda & Abbott, 1996; Ko & Chuang, 1995) suggests that the role of biliary tract infections in this pathology has been underestimated. Hepatic lysisis and the presence of sludge in the bile could facilitate bacterial colonization and biofilm formation (Sung et al., 1993), while biliary tract instrumentation could allow intestinal bacteria to cause ascending infections (Sung et al., 1992).

The antimicrobial susceptibility patterns of recently recognized Aeromonas species are not completely known because of the small number of single-isolate cases reported, although a comprehensive susceptibility pattern of 12 A. veronii biovar veronii isolates has been described (Overman & Janda, 1999). In agreement with the above study, the Aeromonas isolates described here were susceptible to aminoglycosides, quinolones, co-trimoxazole and aztreonam but resistant to first-lactamics (Rossolini et al., 1996; Walsh et al., 1997). In addition, the pattern of antimicrobial susceptibility of infectious agents can be related to their different geograph-ical distribution, especially for those of environmental origin. Aeromonas strains from Taiwan have been shown to be more resistant to several antimicrobials than strains from the USA and Australia (Ko et al., 1996); high resistance in environmental Aeromonas species has also been described in Europe (Goiti-Urriza et al., 2000). This report confirms that the occurrence of drug resistance in Aeromonas species could be of clinical concern, also involving species generally thought to be susceptible.

In conclusion, this report describes a case of monomicrobic, polyclonal A. veronii biovar veronii septicaemia, secondary to acute suppurative cholangitis in a patient with liver disorders and lysisis. Importantly, the clinical isolates were found to be resistant to different classes of antimicrobial agents, suggesting increased antibiotic resistance in this species and emphasizing that all clinical isolates may require antibiotic susceptibility testing.

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References


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