Development of Listeria Meningitis during Vancomycin Therapy: A Case Report

Colleagues—We report an unusual case of meningitis that developed in a hospitalized patient on antibiotic therapy. A 74-year-old man, admitted after a recent hospitalization for a cardiac catheterization, had pseudoaneurysm formation at the left femoral artery that required surgical repair. He had pain, swelling, and purulent drainage from the groin wound. Nafcillin and gentamicin were begun; vancomycin was substituted for nafcillin on day 2, and wound cultures grew Staphylococcus aureus. Vancomycin (750 mg intravenously [iv] every 12 h) and gentamicin (55 mg iv every 8 h) were continued, and the wound improved appropriately.

On day 6, the patient was withdrawn and febrile to 39.4°C, then deteriorated with frank confusion and agitation. There was no nuchal rigidity and the wound was resolving; the rest of the physical examination was unremarkable. Computed tomography of the head was negative, but a lumbar puncture demonstrated 1230 cells/ml (68% neutrophils, 32% lymphocytes), protein of 105 mg/dl, and glucose of 94 mg/dl (serum glucose, 234 mg/dl). Gram’s stain of cerebrospinal fluid (CSF) showed cells but no organisms. Vancomycin was discontinued and nafcillin begun; rifampin and ceftazidime were added the next morning. A random vancomycin level on the day of the lumbar puncture, drawn 6 h after administration, was 25 μg/ml, with gentamicin peak and trough levels of 2.6 and 1.8 μg/ml, respectively. The patient remained confused and febrile over the next 3 days.

References


Cultures of blood and urine were sterile. On day 9, he developed generalized seizures. The CSF culture now grew *Listeria monocytogenes*. Ampicillin was begun, but the patient died on hospital day 10.

It has previously been reported that *Listeria* meningitis can develop despite ongoing treatment with early cephalosporins [1, 2]; this is not surprising, given the poor penetration of these agents into CSF. However, we are unaware of any previous reports of the development of *Listeria* meningitis in a patient on therapy with vancomycin. This is of some concern, as vancomycin is known to have good in vitro activity against this organism, with an MIC of 0.5–1.0 μg/ml [3]. Although clinical experience is limited, vancomycin has been suggested as an alternative agent for *Listeria* bacteremia [4], and there are case reports of vancomycin being used successfully in the treatment of other serious *Listeria* infections [5, 6]. Vancomycin has been used to treat serious staphylococcal infections, including meningitis, and CSF levels approach 4 μg/ml [7]. Gentamicin also has good activity against *Listeria* organisms, and the combination of vancomycin with gentamicin is synergistic and bactericidal [8]. The MIC of vancomycin for our isolate was 0.79 μg/ml (MBC, >50 μg/ml).

Like penicillin and ampicillin, vancomycin is a static agent against *L. monocytogenes* with reasonable MIC values. Despite adequate serum levels, vancomycin did not prevent the development of *Listeria* meningitis in this patient. We believe that although vancomycin may be useful for the treatment of *Listeria* bacteremia, meningitis may occur during such therapy.

**James S. Baldassarre, Mark J. Ingerman, John Nansteel, and Jerome Santoro**

*Mediterranean College of Pennsylvania, Philadelphia, and Lankenau Hospital, Wynnewood, Pennsylvania*

**References**


**Chloroquine Resistance in Plasmodium vivax**

**Colleagues**—Before 1960 all *Plasmodium* species that caused malaria appeared to be susceptible to chloroquine. Over the past 30 years, increasing resistance has developed in *Plasmodium falciparum* to chloroquine [1]. In most areas of the world it can no longer be relied on for the treatment or prophylaxis of *falciparum* malaria.

However, all other *Plasmodium* species are thought to be susceptible to chloroquine, and this drug is recommended for prophylaxis and treatment of *Plasmodium* infections. Recent reports have indicated that resistance in *Plasmodium vivax* may be occurring for the first time [1, 2]. Here I report apparent chloroquine resistance in *P. vivax* malaria. The infection developed despite adequate blood chloroquine levels.

An Australian botanist went to the Madang/Lae area of Papua New Guinea to collect orchids between 8 March and 9 May 1990. He commenced daily prophylaxis with doxycycline (100 mg) in Australia and continued it until the day he returned to Australia. During his last day in Papua New Guinea he developed a flu-like illness with aches and pains. Two days later his symptoms became worse, with fevers and increasing aches and pains. These symptoms persisted for 2 weeks. He sought medical help, and blood smears were collected for malaria testing. However, these were negative on two occasions. On 29 May he was noted to have an enlarged spleen but otherwise no abnormalities on physical examination. A clinical diagnosis of malaria was made and repeat smears collected. These were positive for *P. vivax*. He was given a standard course of chloroquine as therapy (i.e., 4 + 2 + 2 + 2 tablets of 300 mg chloroquine base over 3 days). His symptoms improved, and on repeat blood smear 2 days later, parasites were not detected. His glucose-6-phosphate dehydrogenase (G6PD) level was measured and was low; therefore, he was not given a course of primaquine.

On 14 June he again had a recurrence of aches, pains, and fever. A repeat blood smear was collected on 16 June, and this again showed malaria parasites (all *P. vivax*). He was again treated with a standard course of chloroquine, and his symptoms resolved. He was started on two tablets of chloroquine base weekly to attempt to suppress any further infection (as he could not be given primaquine). He remained well for the next few weeks, but on 27 July similar symptoms recurred, and a repeat blood smear showed *P. vivax* to be present (parasite density, 0.4% of red blood cells). He received mefloquine (6 tablets over 48 h). His symptoms resolved and his smears became negative. However, he developed an extensive urticarial-like rash that lasted for a few hours after taking these medications on two separate mornings.