A 68-Year-Old Type 2 Diabetic Man of Korean Ethnicity With Fever, Abdominal Pain, and Right Eye Visual Disturbance

(See page 611 for the Photo Quiz.)

Diagnosis: K1 hypermucoid _Klebsiella pneumoniae_ metastatic bacteremia with multiple liver abscesses and endophthalmitis.

The gram-negative rods in blood cultures identified on day 2 were subsequently identified as a hypermucoid strain of _Klebsiella pneumoniae_. A presumptive diagnosis of multiple hypermucoid _K. pneumoniae_ liver abscesses with metastatic endophthalmitis was made. Given the clinical presentation of hepatic abscesses (Figure 1) and right eye hypopyon (Figure 3), ethnic background of the patient, and initial colony appearance (Figure 2), a K1 or K2 capsular serotype _K. pneumoniae_ strain was suspected. The patient underwent emergent vitrectomy, and intravitreal ceftazidime was injected. On day 11, repeat funduscopy revealed early changes of left eye endophthalmitis; intravitreal ceftazidime was administered. He eventually deferred after repeated percutaneous drainage of the larger liver lesions. While his left eye vision remains satisfactory, vision in the right eye did not recover. The _K. pneumoniae_ strain was confirmed as a K1 capsular serotype by the Quellung reaction and multiplex polymerase chain reaction targeting the capsular polysaccharide synthesis (cps) gene cluster.

Invasive liver abscess syndrome caused by K1 or K2 capsular serotypes of _K. pneumoniae_ hypermucoid strains can present with bacteremia and extrahepatic metastasis to the lung, eye,

Figure 1. Computed tomography scan of abdomen revealing multiple hepatic abscesses.

Figure 2. Hypermucoid colonies observed on blood agar following incubation for 24 hours.

Figure 3. Beside examination of the right eye revealing a hypopyon.
and central nervous system [1]. Although initially reported in patients from Southeast Asia and in those with Asian descent, including Taiwan and Korea [1], cases are increasingly recognized in patients from other ethnic backgrounds, including those with no travel history to Asia [2, 3]. Host risk factors also include type 2 diabetes and alcoholic liver disease [1, 4].

In addition to appropriate therapy for hepatic abscesses, early and regular ophthalmology review is critical in all patients with suspected or confirmed invasive liver abscess syndrome, as prompt therapy may prevent severe visual deficits. Intravitreal and intravenous therapy with antibiotics that penetrate into the vitreous humor (third-generation cephalosporins and fluoroquinolones) should be used, although prognosis for complete visual recovery remains poor [1, 5]. Recent increases in gram-negative antimicrobial resistance in Asian K. pneumoniae clones may complicate therapy and underscore the importance of prompt in vitro susceptibility testing to guide therapy [4].

**Note**

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