An Elderly Man Receiving Hemodialysis Who Had Diarrhea, Weight Loss, and Liver Mass

(See pages 269–71 for the Photo Quiz)

Figure 1. CT of the abdomen demonstrating a large hypodense mass in the right lobe of the liver

Diagnosis: Primary hepatic actinomycosis with *Bacteroides* coinfection.

Actinomycosis is a chronic, suppurative granulomatous infection. *Actinomyces* species are gram-positive, anaerobic, filamentous rods that colonize the mouth, colon, and vagina. Disruption of a mucosal barrier—caused by surgical and dental procedures, trauma, or head and neck radiotherapy—is frequently implicated in the pathogenesis. A chronic and progressive infection ensues, with local extension and sinus tract formation [1].

*Actinomyces* infections are most commonly found in the cervicofacial area, a condition also known as “lumpy jaw.” Infection in the thoracic, abdominal, or genitourinary region is much less common [2]. Primary hepatic actinomycosis has been described in several case reports and often represents a diagnostic challenge. It is primarily seen in immunocompetent patients with risk factors, including a history of abdominal or pelvic surgery, alcoholism, dental disease, or cholelithiasis. The clinical presentation is generally subacute and is characterized by fever, abdominal pain, and weight loss over several months [3].
The diagnosis of actinomycosis can be problematic and is often made by macroscopic or microscopic visualization of “sulfur granules” in a tissue specimen, which are formed from packed collections of bacteria, with the specimen having been obtained by fine-needle aspiration [4]. Most infections with actinomycosis are polymicrobial, as was the case in our patient, who had *Bacteroides* bacteremia [5]. Diagnosis is usually made on the basis of microscopic examination of surgical specimens; less frequently, the organism is recovered from culture [3]. Given the radiographic appearance of the liver lesion and the not infrequent failure to isolate the organism from culture, the hepatic lesion may be thought to be malignant. It is often after histologic examination, and sometimes only following surgical resection of the tissue or organ involved, that the diagnosis of primary hepatic actinomycosis is made [6].

In our patient, the diagnosis of hepatic actinomycosis was
established after aspiration of the hepatic mass (figures 1–3). Although treatment with intravenous ampicillin was promptly initiated, this severely debilitated individual did not survive. At autopsy, multiple circumscribed masses that measured 1–6.5 cm in diameter, as well as smaller purulent collections, were evident (figure 4). A large paracholedichal abscess was also present. On microscopic examination, filamentous gram-positive bacteria were present in the abscess tissue, consistent with *Actinomyces* infection. Potential risk factors for acquisition of this infection include the patient’s prior pancreatic surgery, advanced periodontal disease, alcohol abuse, and chronic renal disease.

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Christopher M. Cirino,1,3 Edina Paal,2 and Cynthia L. Gibert,1,3
Divisions of 1Infectious Diseases and 2Pathology, The George Washington University Medical Center, and 3Section of Infectious Diseases, Veterans Affairs Medical Center, Washington, D.C.

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Figure 4. Pathological examination of liver revealing multiple circumscribed masses with scattered, pus-filled cavities


Reprints or correspondence: Dr. Christopher M. Cirino, 4577 MacArthur Blvd. NW, Apt. 201, Washington, DC 20007, 202-415-0112 (Ccirino710@aol.com).

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