A Diabetic Man with a Palpable Abdominal Wall Mass

(See pages 1157–8 for the Photo Quiz)

Figure 1. An oblique sagittal maximum-intensity projection of an abdominal CT scan showing an infiltrative mass at the anterior abdominal wall and a linear radiopaque foreign body (arrow) below the mass. Inset, an axial image revealing the lower tip of a foreign body in the peritoneal cavity (arrow).

Diagnosis: Botryomycosis (bacterial pseudomyocosis) of the abdominal wall associated with a foreign body.

The abdominal CT scan shows an infiltrative mass at the anterior abdominal wall with a linear radiopaque foreign body (figure 1) beneath the mass. Pathological examination of the biopsy specimen revealed an abscess surrounded by abundant neutrophils, histiocytes, granulation tissues, and fibrous scarring (figure 2). Numerous sulfur-like granules were noted and
Figure 2. Hematoxylin-eosin stain of the biopsy specimen reveals a sulfur-like granule (arrow) surrounded by abundant neutrophils, histiocytes, granulation tissues, and fibrous scarring (original magnification, ×100).

contained gram-positive, nonfilamentous cocci. The pathological features of the biopsy specimen led to a diagnosis of botryomycosis. Cultures of the biopsy specimen yielded *Klebsiella pneumoniae* and *Streptococcus viridans*. The patient was treated with antibiotic therapy as indicated by the results of susceptibility tests and made an uneventful recovery.

Botryomycosis is an uncommon, chronic bacterial infection that presents as a cutaneous lesion or, rarely, with visceral involvement [1]. Definite pathogenesis of botryomycosis remains controversial, but the patients are commonly associated with underlying immunosuppressive status, such as diabetes mellitus, cystic fibrosis, AIDS, and chronic granulomatous disease [2].

Diagnosis is based on the findings of histopathological examinations of bacteria-containing granules (i.e., Bollinger granules). The granules are embedded in an eosinophilic matrix, which shows a unique radiating pattern known as the Splendore-Hoeppli phenomenon [3]. The eosinophilic granules resemble the sulfur granules seen in actinomycosis infection. Because of this resemblance, Rivolta [4] coined the name of botryomycosis, combining the Greek words botryo (bunch of grapes) and mycosis (fungus). Many species of bacteria have been implicated in botryomycosis, most commonly *Staphylococcus aureus*, but also *Pseudomonas aeruginosa*, *Escherichia coli*, *Proteus vulgaris*, and *Streptococcus* species [2].

Botryomycosis of visceral involvement has been reported in the lung, liver, kidney, brain, prostate, cecum, and the peritoneal space. Foreign body–related botryomycosis in the lung has been reported [5]. To our knowledge, foreign body–related botryomycosis in the abdominal wall has not been reported in the English literature.

Clinically, botryomycosis can mimic a malignancy as a result of its indolent clinical course and its local invasiveness on imaging studies [6, 7]. Differential diagnosis among botryomycosis, true sarcoma, fungal infection, and tuberculoma is crucial, so that effective treatment can be prescribed. Definite diagnosis relies on histological and microbiological assessment of a tissue specimen. In reported cases of botryomycosis, responses to antibiotic therapy were usually excellent, and some required surgical excision. Our case illustrates that botryomycosis should be considered in evaluating an abdominal tumor associated with a foreign body, even without overt clinical symptoms or signs of infection.

Acknowledgments

Potential conflicts of interest. All authors: no conflicts.

Kao-Lang Liu,1 Tsung-Chun Lee,2 Wei-Chou Lin,2 and I-Rue Lai2
Departments of 1Medical Imaging, 2Pathology, and 3Surgery, National Taiwan University Hospital and College of Medicine, National Taiwan University, Taipei, and 4Department of Internal Medicine, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan
References