Empyema Necessitans: An Unexpected Infectious Presentation of Multiple Myeloma

Sir,

Empyema necessitans (EN) is a rare clinical entity in which a suppurative infection in the soft tissue forms due to a sinus tract between an empyema and the thoracic wall, usually in the setting of smoldering pneumonia or osteomyelitis.\[1\] With the advent of antibiotics, *Streptococcus pneumoniae* is uncommon unless there is underlying immunosuppression.\[2\] Multiple myeloma, a neoplastic proliferation of plasma cells, causes immunosuppression and can present with atypical infections due to encapsulated bacteria such as *S. pneumoniae*. However, EN has never been reported in the setting of multiple myeloma. We describe the first case of *S. pneumoniae* EN in multiple myeloma.

A 41-year-old male with no significant medical history came to the emergency department with worsening right-sided chest swelling associated with fever, chills, night sweats, and weight loss, following sudden-onset rib pain 7–8 months prior. He denied recent travel, trauma, or infections. On presentation, he was febrile with erythema, tenderness, and induration over the right lateral chest and decreased air entry in the right lung base. Laboratories are notable for leukocytosis with normocytic anemia and thrombocytosis.

Computed tomography chest demonstrated destructive changes involving the right ribcage associated with a soft tissue mass extending to the right costophrenic angle and the right lower lobe pleuroparenchymal tissue consistent with empyema [Figure 1]. Aspiration of the soft tissue mass revealed *S. pneumoniae*. The bone survey demonstrated multiple lytic lesions. Biopsy of the seventh right rib revealed sheets of small-to-intermediate bi- and multi-nucleated plasma cells staining positive for CD 138, with lambda light chain monotypia. Immunoglobulin G (IgG) level was elevated; IgA and IgE levels were decreased. Bone marrow biopsy confirmed the diagnosis of multiple myeloma.

The abscess resolved following 4 weeks of outpatient intravenous antibiotics through the peripherally inserted vascular catheter. The patient underwent induction therapy with bortezomib, thalidomide, and dexamethasone for multiple myeloma and was lost to subsequent follow-up.

*S. pneumoniae* is the most common organism associated with multiple myeloma, a neoplastic proliferation of plasma cells producing a monoclonal gammapathy with related organ or tissue impairment (lytic bone lesions, hypercalcemia, normocytic anemia, or renal failure).\[3,4\] Paraproteinemia may cause suppression of other IgG isotypes (such as IgA and IgM in our patient), decreased granulocyte adhesion, impaired leukocyte migration, and complement defect, all of which contribute to fulminant infections from encapsulated bacteria.\[5\] This patient developed *S. pneumoniae* EN from immunosuppression due to underlying multiple myeloma. Physicians should consider multiple myeloma in the differential for older patients with rare encapsulated bacterial infections, who also have symptoms of anemia, renal failure,
hypercalcemia, or bone pain. Our case stresses the importance of pneumococcal vaccination in immunocompromised patients to prevent infection and reduce morbidity and mortality.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

Aaysha Kapila, Christine Ann Moore, Guha Krishnaswamy, Kailash Bajaj
Department of Internal Medicine, East Tennessee State University James H. Quillen College of Medicine, Johnson City, TN, USA

Address for correspondence: Dr. Christine Ann Moore, 1185 West Mountain View Road, Apartment 1509, Johnson City, TN 37604, USA. E-mail: mooreca2@etsu.edu

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