

Detection and Management of Beryllium-Induced Disease

Today, the Penn Lung Center is one of six institutions nationwide and the only center in the Mid-Atlantic and Northeast Region offering diagnosis and treatment for beryllium-induced disease. An occupational granulomatous lung disorder caused by inhalation of beryllium dust or fumes, beryllium-induced disease has both acute and chronic pathologies. The acute form is now extremely rare. Chronic beryllium disease (CBD), by contrast, may affect as many as 16,000 individuals in the United States. Indolent and insidious, CBD is virtually identical pathophysiologically to chronic pulmonary sarcoidosis. Differential diagnosis in patients with sarcoid symptoms is among the specialties of the Penn Lung Center, where early detection and treatment of CBD are paramount concerns.



High-resolution CT lung scan displaying scarring typical of beryllium-induced disease.

“A suspicion of beryllium exposure must be considered in all patients with histological evidence of pulmonary granulomata given the 50 year history of beryllium manufacturing in the US and the increasing use of the metal in a variety of industries worldwide.”

*– Milton Rossman, MD
Director, Interstitial Lung Disease Program
The Penn Lung Center*

Case Study

Mr. W, a 56-year-old man, worked for five years in the early-1980s as a machinist in a factory manufacturing beryllium copper alloy pipe. His health was good until late 2001, when he began to experience occasional dyspnea and cough. An X-ray at this time was negative for lesions or opacifications. When a high-resolution CT in 2005 revealed confluent apical infiltrates in both lungs and evidence of mid-zone granularity, Mr. W's pulmonologist diagnosed pulmonary sarcoidosis and referred him to the Penn Lung Center for treatment. At Penn, pulmonary function tests confirmed marked reduction of total lung capacity, vital capacity and diffusion capacity. A cardiopulmonary exercise test revealed exercise induced oxygen desaturation. Suspecting CBD from Mr. W's work history, Penn pulmonologists performed a fiberoptic bronchoscopy and transbronchial biopsy, revealing non-caseating granuloma. Beryllium lymphocyte proliferation testing (BeLPT) was performed on blood and bronchoalveolar lavage cells. These tests proved sensitization to beryllium and Mr. W was diagnosed with chronic beryllium disease. He began prednisone, 40 mg, on alternate days, with almost immediate improvement of his dyspnea. The prednisone was titrated over 6 months to a maintenance dose.

Our Team of Faculty

The Penn Lung Center enjoys an international reputation as a referral center for the evaluation, diagnosis and treatment of patients with chronic beryllium disease. In addition to treatment and diagnosis, the Center's faculty is available to assist industry in the development of cost-effective screening programs for beryllium disease, as well as programs for the evaluation and treatment of symptomatic workers.

Maryl Kreider, MD, MS

Assistant Professor of Medicine

Leslie A. Litzky, MD

Associate Professor of Pathology and Laboratory Medicine

Wally Miller, Jr., MD

Associate Professor of Radiology

Milton Rossman, MD

Professor of Medicine

Access

Hospital of the
University of Pennsylvania
3 Ravdin, Suite F
3400 Spruce Street
Philadelphia, PA 19104

To refer a patient and/or consult
with a doctor:

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