Multiple Pulmonary Nodules in a Young Man*

Patrick K. C. Chun, MAJ, MC, USA**

A healthy 19-year-old man developed a diffuse maculopapular rash associated with coryza. At that time, he had normal findings on chest roentgenogram. His symptoms resolved in three days. Two weeks later, however, he had recurrence of coryza associated with a temperature of 38.9° C (102° F), chills, a nonproductive cough, but no rash. There was no prior history of respiratory disease or any unusual exposure history.

Physical examination was essentially normal. A variety of laboratory tests were negative, including skin tests for tuberculosis and fungal diseases and serologic tests for fungal diseases, influenza, toxoplasmosis, cytomegalovirus, rubella, adenovirus, Varicella, mumps and Mycoplasma. Urine electrophoresis revealed a normal pattern. The PA chest radiograph is shown in Figure 1. Figure 2 is a magnified view of the right mid-lung field.

*From the Department of Medicine, Fitzsimons Army Medical Center, Denver.
**Presently at Rockville, Maryland.

The opinion or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

Reprint requests: Dr. Chun, 1201 Princeton Place, Rockville, Maryland 20850
Diagnosis: Atypical measles pneumonia

The PA chest roentgenogram (Fig 1 and 2) shows several shaggy confluent pulmonary nodules scattered throughout the lung field and mild blunting of the right costophrenic angle. After three days in the hospital without any form of treatment, the patient's symptoms resolved and he was ambulatory. His chest film gradually returned to normal within a two-week period. Serologic tests for rubeola, drawn from the time of his first abnormal chest to convalescence showed a four-fold rise in titer. The CF titer rose from 160 to 640 and the HI titer from 160 to 640.* The diagnosis of atypical measles pneumonia in an adult was made.

Transbronchial biopsies to corroborate measles pneumonia and to exclude other etiologies also were obtained in this patient. A chronic inflammatory exudate was evident in the alveolar septa adjacent to the bronchi and bronchioles. The cellular infiltration consisted largely of lymphocytes and plasma cells and only occasional polymorphonuclear leukocytes. No giant cells or granulomas were seen. Giant cells were not identified on smears from the throat or the urinary sediment. Electron microscopic study** of the transbronchial biopsies was performed without detection of the measles virus. Viral cultures of the patient's blood, throat washings, and urine on Rhesus monkey kidney cells tagged with fluorescent antibodies were also negative for measles virus.†

Cases of sporadic measles raise diagnostic and therapeutic problems. Without laboratory aid, the diagnosis is dependent on the signs and symptoms and on the available epidemiologic information.

The chest roentgenogram is rarely specific. Pulmonary changes may vary from normal to slight pleural reaction to acute consolidation with or without atelectasis involving any lobe, but usually a lower lobe.¹ Fawcitt and Perry² divided the radiologic lung changes into atelectasis, consolidation, hilar enlargement, bronchopneumonia, and infiltration. Atelectasis was present in 28.4 percent of their cases. Bronchopneumonia was present less frequently (15.8 percent). Measles pneumonia is usually associated with superimposed bacterial infection.

On the other hand, pneumonia is a more common finding in atypical measles illness.³⁻⁵ Nodular pulmonary residua with ill-defined confluent, fuzzy borders, 1.5-4 cm in diameter are observed, suggesting alveolar infiltrates.⁶ Our case is unique in that the patient was vaccinated with killed measles virus vaccine at three years of age and manifested the lesions 16 years later.

Pathologically, the characteristic feature of measles pneumonia is the development of multinucleated giant cells. Extensive involvement of the epithelial lining of the tracheobronchial tree is the rule. How often the virus causes disease of the parenchyma of the lung is less certain. The more severe and fatal form of measles pneumonia is more often seen in patients with underlying diseases, such as leukemia and lymphoma, especially in immunosuppressed hosts.

Serious consideration should be given to including atypical measles pneumonia in the differential diagnosis of multiple pulmonary nodules. Other conditions to be considered include metastatic cancer, Varicella pneumonia, drug reactions, pneumoniases, and pseudotumors.

ACKNOWLEDGMENTS: My appreciation to Dr. J. J. Bergin, Director of Medical Education, Bethany Medical Center, Kansas City, Kansas and Dr. Roald A. Nelson, Chief, Pulmonary Disease Service, Fitzsimons Army Medical Center, for their critical review of this paper.

REFERENCES