Asymptomatic Branching Shadow in the Lung*

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A 24-year-old truck driver was admitted for evaluation of an abnormal shadow in the lung found on a routine chest roentgenogram. There were no complaints referable to his chest. Past history revealed that a diagnosis of left-sided pulmonary tuberculosis had been made when he was 13 years of age.

Physical examination revealed a well nourished, well developed young man. The chest cage was symmetrical. Respiratory sounds were diminished over the left upper chest anteriorly. No rales were audible.

Results of blood counts and blood chemistry examinations were normal. Lung function tests revealed normal vital capacity and normal maximal voluntary ventilation, 112 percent and 105 percent of predicted values respectively, and slight decrease of FEV₁/FVC of 79 percent. There were no abnormal values of DLCO and lung mechanics.

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Diagnosis: Bronchial atresia of anterior segment of left upper lobe with mucoid impaction

The plain chest roentgenogram (Fig 1) reveals a round, dense shadow in the left midlung field from which fork-like cylindric shadows radiate into the surrounding lung field. The abnormal shadows are delineated more clearly on a lateral tomogram (Fig 2) which also shows the lung markings decreased in the left upper lung field. A left bronchogram (Fig 3) reveals that the apicoposterior segment is pressed posteriorly and the lingula inferiorly by the lung containing the abnormal shadows, indicating overinflation of the anterior segment. The anterior segment bronchus is missing. There is no communication of any bronchi with the abnormal shadows.

The patient refused surgery. Most of the abnormal shadows had disappeared on a chest film made 1½ years later. Several rounded shadows in the left midlung field persisted. The patient denied expectoration of plugs.

Bronchial atresia is a developmental anomaly of the bronchi of unknown origin.1 Sometime during fetal life, a bronchial septum is formed and impairs drainage of bronchial secretion. Mucus is impacted distal to the bronchial septum forming a bronchial mucocele. There is an impediment of bronchial airflow by the bronchial septum. The involved lung parenchyma becomes emphysematous due to collateral ventilation through Kohn’s pores.2 Although bronchial atresia is a congenital anomaly, diagnosis is often made in adult life.3,4 There is lack of complaints by the patient.3,4

The impacted mucus generally persists. The mechanism of disappearance of the impacted mucus in this patient is probably explained by one of the following: 1) extrusion through the pores of Kohn or through a disrupted bronchial wall; 2) absorption via the bronchial mucosa.

ACKNOWLEDGMENT: We are indebted to Dr. B. Felson for his suggestion concerning the explanation of the peculiar course of this patient.

REFERENCES