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A M E R I C A N C O L L E G E O F



P H Y S I C I A N S[®]

Roentgenogram of the Month

Intrathoracic Mass with Air Bronchogram*

Julius Garvey, M.D., and Leo Parmer, M.D.

This 20-year-old white man was admitted to the Long Island Jewish Hospital for the first time for treatment of sharp substernal chest pain that had started one week prior to admission. The pain was temporarily relieved by analgesics, but was otherwise persistent. He was previously healthy and athletic, and had had no other symptoms. Laboratory work up was entirely unremarkable. The PA and lateral chest films and a tomographic cut are shown in Figures 1, 2, and 3.

*From the Cardiothoracic Service, Division of Surgery, Long Island Jewish Hospital, New Hyde Park, New York.
Reprint requests: Dr. Garvey, Long Island Jewish-Hillside Medical Center, New Hyde Park, New York 11040

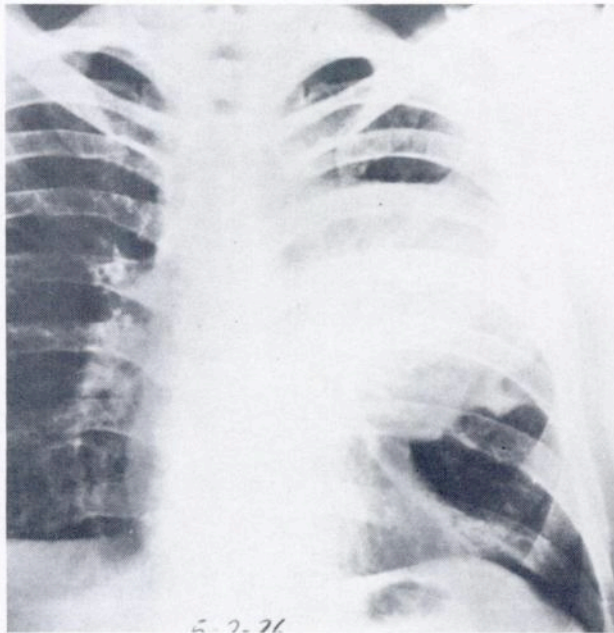


FIGURE 1

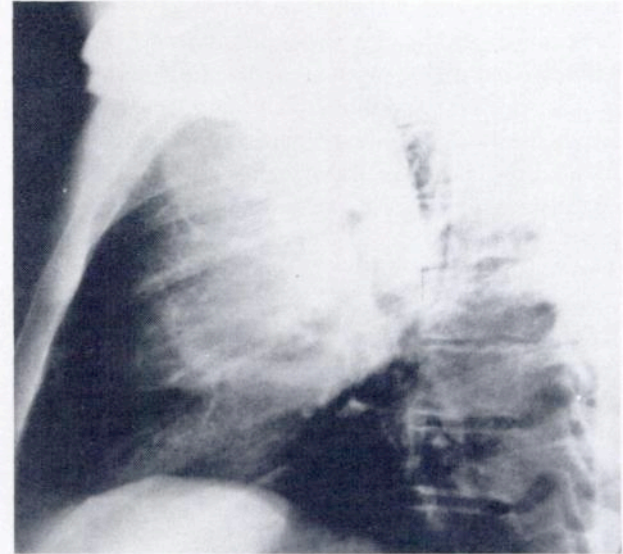


FIGURE 2

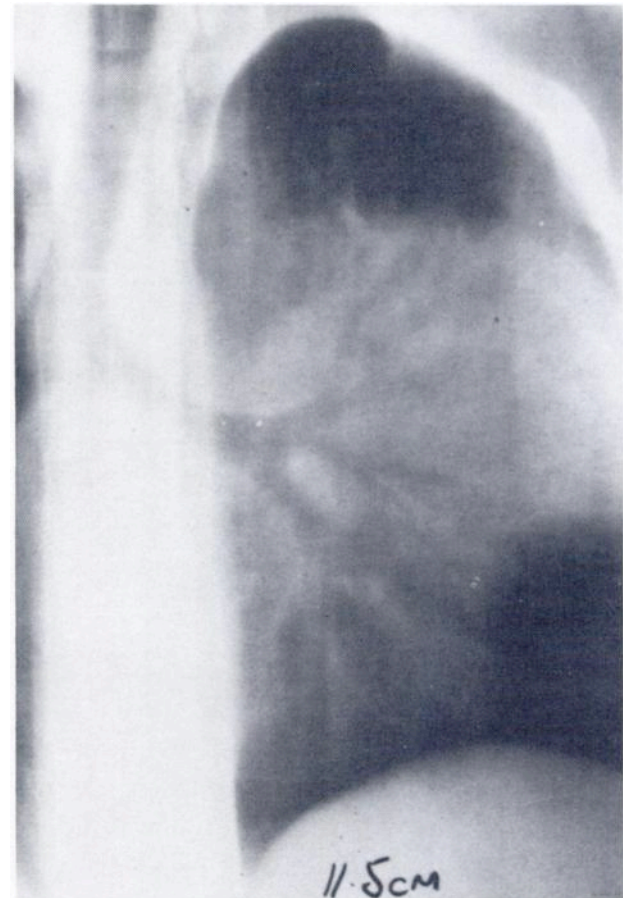


FIGURE 3

Diagnosis: Mediastinal teratocarcinoma compressing the left upper lobe

The PA and lateral roentgenograms (Fig 1 and 2) show a large mass that obliterates the upper left heart border and left hilum. The lesion is located in the anterior half of the chest. The tomogram shows most of the large bronchi of the left lung; these appear to be within the lesion.

Because of the air bronchogram, a pulmonary infiltrative process with a mediastinal component, was suspected. The most likely diagnosis seemed to be mediastinal lymphoma with pulmonary involvement. Bronchoscopy showed no mucosal lesion, but extrinsic compression had narrowed the left main-stem bronchus to a slit. Mediastinoscopy was negative.

Through a median sternotomy incision a large, irregular, lobulated, firm 20 × 15 cm mass was growing from the left inferior pole of the thymus gland anterior to the left hilum, situated on the pericardium and compressing the left upper lobe. There was no apparent gross infiltration of the left upper lobe, but areas of the anterior segment and lingula were atelectatic. All gross tumor was removed. The final

pathologic diagnosis was teratocarcinoma. The tumor was composed mostly of embryonal elements, with some areas of choriocarcinoma.

Fleischner¹ and Felson² stated clearly the physical principles on which the air bronchogram is based. Felson² states, "Visibility of the bronchi within an intrathoracic density indicates that the lesion is intrapulmonary." He further states, "An air bronchogram excludes a pleural or mediastinal lesion simply because there are no bronchi traversing these regions."

Our case indicates that rarely a large mediastinal tumor can cause pulmonary compression, producing an air bronchogram which may be misinterpreted as indicating primary pulmonary parenchymal pathology. The physical principles enunciated by Fleischner and Felson are, of course, valid, and in no way are challenged by the present observations.

REFERENCES

- 1 Fleischner FG: The visible bronchial tree: a roentgen sign in penumonic and other pulmonary consolidations. *Radiology* 50:184, 1948
- 2 Felson B: *Chest Roentgenology*. Philadelphia, W. B. Saunders, 1973, pp 60-70

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