Mediastinal Lipomatosis in Simple Obesity*

Won J. Lee, M.D.** and C. Fattal, M.D.†

A case of superior mediastinal widening due to unusual amounts of fat accumulation is reported in a patient with simple obesity, not associated with iatrogenic or primary Cushing's syndrome. The radiographic features included a smooth bilateral widening of the superior mediastinum, relative lucency, no definable mass in the lateral view, and no pressure effects on the trachea. Such mediastinal lipomatosis is a benign condition and may be related to general obesity. Although rare, it should be considered in the differential diagnosis of mediastinal masses, particularly in obese individuals.

Mediastinal lipomatosis is a benign condition characterized by symmetric unencapsulated accumulation of fat within the mediastinum, which distorts the mediastinal silhouette to varying degrees. It is a distinct clinical entity, currently receiving more attention in the literature because its radiographic appearance may simulate a space-occupying lesion of the superior mediastinum.1

To our knowledge the radiologic description of mediastinal lipomatosis not associated with corticosteroid therapy or Cushing's syndrome has not been reported in the English literature. The purpose of this paper is to report one such case, in order to call attention to the condition and to emphasize its distinctive radiographic appearances.

CASE REPORT

A 36-year-old white man entered the hospital because of chest discomfort of three months' duration. There had been some recent occasional chest pain radiating towards the left arm. There were no complaints of dysphagia or dyspnea. The patient, who had never received any systemic steroid therapy, began to gain weight during the preceding three years. His past history was noncontributory. Physical examination revealed a well-developed, well-nourished obese man in no acute distress. Physical findings on admission revealed nothing pertinent. There was no peripheral lymphadenopathy. Findings from an automated study of blood chemistry (SMA-12), urinalysis, and a complete blood count with differential count were essentially normal. The results of biochemical tests, including levels of plasma cortisol, corticotropin (ACTH), urinary 17-hydroxycorticosteroids, urinary 17-keto-steroids, and free cortisol, were all within the normal range.

*From Departments of Radiology and Pathology, Binghamton General Hospital, Binghamton, NY.
**Associate Radiologist. Dr. Lee is presently with the Department of Radiology, Long Island Jewish-Hillside Medical Center, New Hyde Park, NY.
†Director of Pathology.

Figure 1. PA Bucky film shows moderate bilateral widening of the superior mediastinum (arrows). The contour is smooth, the aortic knob shadow is distorted. Arrowheads outline the thoracic aorta (but is not well reproduced). The pericardial fat pad is prominent.

The electrocardiogram was normal.

On admission, a chest roentgenogram revealed moderate bilateral widening of the superior mediastinal silhouette. The lateral view showed no definable mass. Chest radiographs made in 1970 were normal. A posteroanterior Bucky film (Fig 1) and a tomogram (Fig 2) confirmed the plain-film findings. The contour was smooth and did not suggest enlargement of lymph nodes. There was no tracheal narrowing or compression. No adrenal mass or enlargement was noted on an intravenous pyelogram. The patient was further investigated by mediastinoscopy and scalene nodal biopsy, both of which yielded normal findings, except for a widened carina. Exploratory thoracotomy was, therefore, undertaken but revealed no discrete mass enlargement of lymph nodes in the mediastinum. Instead, an unusually excessive amount of unencapsulated fatty tissue was observed to be occupying the anterior mediastinum, extending subpleurally and around the pericardium. Multiple biopsies were taken; microscopically, the material consisted of simple adipose tissue.

Figure 2. Frontal tomogram confirmed Bucky film findings. Note relative radiolucency, suggesting fatty nature. The lucent zone (arrows) is homogeneous. There is no sign of tracheal compression or narrowing.
DISCUSSION

Koerner and Sun\textsuperscript{2} reported three cases of mediastinal lipomatosis following large doses of systemic corticosteroid therapy. Thereafter, several authors\textsuperscript{1,3-6} reported a number of similar cases. All reported cases had in common some evidence of clinical Cushing's syndrome (either primary or iatrogenic).

In simple obesity, excessive fat is generally stored at various body sites, notably in the subcutaneous tissue, omentum, mesentery, and perirenal tissue. Although more fatty tissue may be present within the mediastinum in obese persons, an amount of fat sufficient to produce significant mediastinal widening on the chest roentgenogram is rare.

In mediastinal lipomatosis the mediastinal widening is bilateral. The contour is smooth and sharply defined. The density of the abnormal shadow is not as pronounced as other masses or surrounding structures. Although fatty tissue is radiolucent, its lucency is lost to a certain degree because of adjacent, more lucent pulmonary tissue.\textsuperscript{4} The absence of tracheal compression or narrowing is significant, since firm or encapsulated lesions may cause a pressure effect on the trachea.

The absence of a definable mass in the lateral view is a significant finding, suggestive of lipomatosis. The presence of a pericardial fat pad is another helpful sign of the fatty nature of the mediastinal widening. The radiologic features described herein are identical to mediastinal lipomatosis secondary to systemic steroid therapy or primary Cushing's syndrome.

The differential diagnosis of symmetric widening of the superior mediastinum in adults is limited. In acute mediastinitis, mediastinal hemorrhage, and dissecting aneurysm, the diagnosis is generally made without much difficulty on the basis of a correlation of radiographic findings with the clinical history.

REFERENCES

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