CASE REPORT

A 61-year-old man with a 40 pack-year smoking history was admitted because of a soft-tissue-density left hilar mass and clinical obstruction of the left main bronchus. His symptoms included a new and persistent dry cough and increasing dyspnea on exertion. He denied chest-wall or back pain and chest trauma until his wife reminded him of his involvement in a high-speed motor vehicle accident 18 months earlier. His medical history was unremarkable. Examination revealed markedly diminished air entry on the left side but no glands, masses or hepatomegaly. A chest radiograph (Figs. 1 and 2) showed a well-defined, homogeneous, lobular left hilar mass, located posteriorly. Bronchoscopy confirmed near-total obstruction of the left main bronchus due to extrinsic compression by a dorsal mass. The bronchial
mucosa was normal, and the bronchus at the site of the obstruction could be gently dilated and bypassed with a bronchoscope to reveal normal lobar orifices beyond. Cervical mediastinoscopy was negative for associated lymphadenopathy, and left hilioscopy showed anterior displacement of normal hilar structures without significant adenopathy. A vague posterior hilar mass was palpable. Thoracic computed tomography showed a contrast-enhancing lesion. Aortography showed a localized pseudoaneurysm of the aorta (Fig. 3) pointing anteromedially (Fig. 4). The pseudoaneurysm was successfully repaired and bronchial patency restored with a silicone rubber stent inserted by rigid bronchoscopy.

DISCUSSION

The normal left hilum contains the superior pulmonary vein anteriorly, the left main pulmonary artery and, posteriorly, the main bronchus. These structures are encompassed anteriorly and above by the aortic arch and posteriorly by the descending thoracic aorta. Lymph-node groups are distributed about these structures.

The normal left hilar contour on radiography demonstrates a smooth aortopulmonary window and a well-defined comma-shaped pulmonary-artery density as that structure leaves the hilum and descends toward the lower lobe. Benign lymph nodes contribute little to the normal hilar appearance on the chest film. Less common lung lesions that involve or overlap the hilum include carcinoid, bronchogenic cyst and hampatoma. Other apparent hilar masses may be due to mediastinal tumours that overlie the hilum or prolapse onto it: thymoma, teratoma and lymphoma. Posteriorly located neurogenic tumours may appear as a hilar enlargement due to shadow impression.¹

Unilateral lymphadenopathy is the most frequent cause of hilar enlargement and offers a distinct differential diagnosis, which includes metastatic lung cancer, lymphoma and granulomatous infections (tuberculosis and histoplasma). Associated pulmonary viral or bacterial infections may cause hilar node enlargement, and giant lymph-node hyperplasia (Castleman’s disease) is a rare but definitive cause of isolated hilar adenopathy.¹ In our patient’s age group, a left hilar mass with
obstruction of the left main bronchus is primarily due to lung cancer. Vascular abnormalities of the hilar structures may present as a mass lesion. Pulmonary artery abnormalities are characteristic on the x-ray film because the structure retains its curving outline, anatomic relationships and ultimate vascular distribution. Enlargement may be due to aneurysm, idiopathic dilatation, localized dissection, post-stenotic dilatation, pulmonary hypertension or pulmonary embolism.

Less common vascular abnormalities of the hilum include: venous varix, of which there are less than 50 published cases; herniation of an aneurysmal left atrial appendage through a pericardial defect, which is rare; and hilar isomerism, which is likewise an uncommon cause of a left hilar mass.

Localized aneurysms or dissections of the thoracic aorta rarely masquerade as a hilar mass. Commonly, thoracic aneurysms are due to arteriosclerosis, and these are readily definable. They are characteristically diffuse, fusiform and associated with enlargement and unfolding of the aortic arch and descending aorta. Thus, they do not present a major diagnostic dilemma. This contrasts with the sharp localization that may be present with saccular aneurysms or pseudoaneurysms of the descending thoracic aorta. They are rare and often asymptomatic and are generally an incidental radiographic finding. Moreover, these aneurysms usually project to the posterolateral aspect of the aorta. Our case is unusual because of the anteromedial pointing of the pseudoaneurysm into the left hilum.

A history of trauma in these patients is particularly helpful in considering aortic rupture as a cause of localized aneurysm formation. Our patient denied chest trauma until his spouse reminded him that he had been involved in a high-speed motor vehicle accident 18 months before admission. Other radiographic features that point to localized aortic aneurysm as a cause of hilar mass include posterior location and the lack of associated mediastinal or contralateral hilar adenopathy.

The early investigation of hilar masses may include tomography and, depending on ready availability, computed tomography with contrast or magnetic resonance imaging. Concurrent investigations include sputum studies and bronchoscopy. If there is the possibility of cancer or lymphoma, then mediastinal lymph-node imaging and biopsy or aspiration should be undertaken.

The successful repair of the post-traumatic aortic pseudoaneurysm and the restoration of left bronchial patency brought a gratifying conclusion to this unusual presentation. Localized pseudoaneurysm of the ascending aorta is a rare but potentially hazardous cause of a hilar mass. Vascular hilar masses are readily defined by computed tomography with contrast.

References

3. Case records of the Massachusetts General Hospital, Case 20

FIG. 3. Computed tomography scan with contrast displays localized pseudoaneurysm of aorta. Note compression of left main bronchus.

FIG. 4. Aortography shows localized aortic retrohilal pseudoaneurysm, which points anteromedially.


