A 40-year-old man with history of closed mitral valvotomy performed for rheumatic mitral stenosis 10 years prior was admitted to our hospital with atrial fibrillation and dyspnea on exertion. Posteroanterior (Figure 1) and lateral (Figure 2) chest radiographs exhibited the following classic findings of chronic mitral stenosis.

Because of chronic pressure and volume overload, the left atrium enlarges, its altered shape evident as straightening of the left heart border (1 in Figure 1) and loss of the aortic window (2 in Figure 1). With progressive left atrial enlargement toward the right side, the right heart border shows a double density (3 in Figure 1), comprising a radio-denser right atrial shadow superimposed within a fainter left atrial shadow that touches the diaphragm. Superiorly, the enlarged left atrium elevates the left main stem bronchus, splaying the carinal angle (4 in Figure 1); posteriorly, it causes esophageal displacement (5 in Figure 2). The enlarged left atrium pushes the heart anteriorly, with eventual dilatation of the right ventricle and obliteration of the retrosternal space (6 in Figure 2).

Decreased forward flow results in a small aortic knuckle (7 in Figure 1). Back pressure changes result in pulmonary arterial hypertension with increased convexity of the main pulmonary artery (8 in Figure 1) and prominence of its distal branches (9 in Figure 2) in end-on view. Consequent enlargement of the right ventricle lifts the cardiac apex away from the diaphragm (10 in Figure 1), causing a 3-chamber cardiomegaly excluding the left ventricle. Other findings secondary to pulmonary congestion and changes in pulmonary blood flow include prominent hilar vascular markings (11 in Figure 1), cephalization of pulmonary vasculature (12 in Figure 1), Kerley B lines (13 in Figure 1), and a basal reticular pattern (14 in Figure 1) secondary to interlobular and septal thickening.

Disclosures

None.
Chronic Mitral Stenosis
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