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This 50-year-old man complained of nausea, vomiting, anorexia, and cough for four days and retrosternal chest pain for one day. There was no associated fever, hemoptysis, peripheral edema, or change in weight. Temperature, pulse, respirations, and blood pressure were normal. Dullness to percussion and decreased breath sounds were present over the lower part of the left lung. The heart was normal in size without murmurs, gallop, or friction rub. An electrocardiogram demonstrated low voltage in the standard leads and nonspecific ST and T wave changes in the precordial leads.

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Diagnosis: Coronary Artery Calcification

The roentgenogram (Fig 1) demonstrates extensive coronary artery calcification paralleling the right heart border and below the left pulmonary artery; there is a left pleural effusion. The patient died two weeks later of myocardial failure. Necropsy revealed pulmonary edema, extensive calcification (Fig 2) and occlusive disease of the coronary arteries, but no myocardial infarction.

Coronary artery calcification is the most common type of intracardiac calcification in American adults. Its incidence increases with age and is greater in men and patients with hypertension or evidence of ischemic heart disease.1-4 Image amplification and cinefluorographic techniques reveal coronary calcification in 15 per cent of unselected patients over 40 years of age and in about 50 per cent of patients with clinical signs of coronary artery disease.5,8 The frequency with which plain roentgenograms demonstrate the lesions during life is unknown, but it is low. Post-mortem roentgenograms of the heart, however, show coronary arterial calcification in approximately 80 per cent of patients beyond 40 years of age, usually in the proximal portions.4 Any coronary artery may be involved, but the left main trunk at the origin of the anterior descending branch is affected most commonly.9

Coronary artery calcifications may appear roentgenographically as discrete, punctate densities; as dense, patchy shadows completely outlining the vessel wall; or as a series of parallel flecks resembling a railroad track.9 Cardiac fluoroscopy or plain roentgenograms in oblique projections usually differentiate these lesions from calcified pericardium, atrium, valve leaflets or annulus, and from calcified intracardiac thrombus, myocardial infarction, or ventricular aneurysm.

Coronary artery calcification in adults is confined to the intima and indicates atherosclerosis. It need not be associated with luminal narrowing, however, and its extent may not correlate with the degree of clinically manifest ischemic heart disease.1,8 Nevertheless, its roentgen demonstration may have important diagnostic implications in young persons or anyone with myocardial disease of uncertain cause.

References


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