Asymptomatic Thoracic Mass Nine Years After Operation for Aortic Coarctation

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This 37-year-old man had surgical correction of a coarctation of the aorta nine years previously. He has no complaints and there are no abnormal physical findings. The lesion did not pulsate at fluoroscopy. Bronchoscopy was normal.

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Diagnosis: Aneurysm of an Intercostal Artery

At right thoracotomy, the lesion proved to be an aneurysm of the third right intercostal artery, measuring 4 cm in diameter. At least three-quarters of the lumen of the aneurysm was occluded by old, laminated thrombus. The aneurysm was totally excised.

The PA chest film (Fig 1) demonstrates bilateral rib notching from the third to the eighth ribs, except for the resected left fourth rib. There is a smooth rounded mass in the medial portion of the right apex which measures 5 cm in diameter. The tomogram (Fig 2) was made at the 6 cm level from the posterior chest wall and reveals a well-defined border to the mass and its proximity to the third rib posteriorly. There is no calcification or rib erosion and the medial margin of the lesion is not defined as it lies in close contact with the mediastinum.

The incidence of regional aneurysm associated with coarctation of the aorta is reported to be approximately 10 percent.1 These aneurysms are rare in children, but are increased in frequency in older individuals. Aneurysm is particularly common in an intercostal artery as it enters the aorta, but four cases of intercostal aneurysm at some distance from the aorta have been described.2 An aneurysm is an unusual cause for a "coin" shadow in the lung and the late appearance of the aneurysm after operation in the present case is of interest. Several chest roentgenograms taken during the nine-year interval had been interpreted as normal. It was probably fortunate that diagnostic needle biopsy was not attempted in this patient.

Aneurysm of an intercostal artery occurs in coarctation of the aorta due to increased pulsatile blood flow and pressure. The resulting tortuosity creates areas of nonlaminar blood flow. In our patient, a small aneurysm might have been present at the time of operation. Due to natural degenerative processes and the presence of thrombus, the arterial wall was unable to maintain the luminal radius against the same blood pressure (Laplace's law).3 An alternative explanation might be that the coarctation had recurred, as has been described,4 but in this case there were no clinical findings to corroborate this theory.

Death due to rupture of an intercostal artery aneurysm has been reported.5

REFERENCES

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The relationship between cigarette smoking and lung cancer provides a most interesting and important demonstration of a controllable environmental factor. There are now overwhelming data which relate cigarette smoking to epidermoid carcinoma of the lung. It is true that the incidence of this type of cancer is greater among urban than rural populations, an observation which illustrates that multiple factors may operate in carcinogenesis. The critical fact remains however that epidermoid carcinoma of the lung is almost nonexistent among noncigarette smokers. The relationship also illustrates that a carcinogenic influence is not necessarily the same for all types of tissue, since smoking is unrelated to the development of adenocarcinoma of the lung.


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