Clinical Information

A 57 year-old Negro male first seen in this hospital for a mild steering wheel injury to the chest, gave a past history of shortness of breath, exertional dyspnea, and occasional left chest pain for several years. He had been treated for syphilis 20 years earlier. Physical examination revealed cardiomegaly, auricular fibrillation, a grade III pulmonic systolic murmur and a grade II apical systolic murmur. Blood pressure was 150/90.

Answer: ANEURYSM OF SINUS OF VALSALVA, PROBABLY SYPHILITIC

The roentgenograms reveal cardiomegaly and a large mass at the base of the heart, outlined by calcification. Angiography revealed filling of the mass with contrast material. At operation an aneurysm originating from the right coronary sinus was found.

Aneurysm of the sinus of Valsalva may be congenital or acquired. Congenital aneurysms originate from either the right coronary or non-coronary sinus. They are usually small finger-like projections arising from the lower part of the sinus, seldom causing bulging of the external surface of the heart. They may be associated with bicuspid aortic valve or high ventricular septal defect. They are intracardiac in location. Because of their very thin walls, rupture into the heart is common, especially into the right atrium or ventricle.

Dilatation of the aortic sinuses is sometimes seen in Marfan's syndrome and in coarctation of the aorta. In coarctation the aneurysmal dilatation is probably related to hypertension and, when found, imparts a more serious prognosis, since aortic rupture or dissection may occur.

*Resident, Department of Radiology, University of Cincinnati College of Medicine, and Cincinnati General Hospital.
at this site. Similar complications are encountered in Marfan’s syndrome.

Acquired aneurysm may be the result of syphilis, bacterial endocardi-
ditis, arteriosclerosis, or dissection of the aorta. Syphilis is the most
common cause. Acquired aneurysm may originate from any one or more
of the sinuses of Valsalva and is considerably larger than the congenital
type. It often also involves the proximal ascending aorta.

Rupture of the aneurysm may occur into the right atrium, right ven-
tricle, superior vena cava, pulmonary artery, or pericardium. Rupture
into the lesser circulation is manifested by the abrupt onset of cardio-
megaly, progressive dyspnea, wide pulse pressure and continuous murmurs and thrills. It usually signals a rapidly fatal course.

The roentgen diagnosis of unruptured congenital aneurysm is difficult
or impossible without angiography. Acquired aneurysm is more readily
recognized by the localized bulge or mass on the right or left side of the
heart in all degrees of rotation. Syphilitic etiology should be suspected
when linear calcification is seen in the ascending aorta or in the wall of
the mass, especially if aortic insufficiency is present. The diagnosis can
be made with more certainty if the calcification extends inferiorly into
the heart and has the configuration of an aortic sinus. Abnormal pul-
monary arterial pulsation indicates rupture into the lesser circulation.

SELECTED REFERENCES
1 Dubilier, W., Jr., Taylor, T. L., and Steinberg, I.: “Aortic Sinus Aneurysm Associated
2 Harris, E. J.: “Aneurysms of the Sinus of Valsalva,” Am. J. Roentgenol., 76:767,
1956.
3 Merten, C. W., Finby, N., and Steinberg, I.: “Antemortem Diagnosis of Syphilitic
4 Steinberg, I.: “Dilatation of the Aortic Sinuses in the Marfan Syndrome: Roentgen
5 Tausig, H. B.: Congenital Malformations of the Heart, The Commonwealth Fund,