Congenital Aneurysm of the Superior Vena Cava

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Primary aneurysms of venous structures are much less common than arterial lesions, with a congenital aneurysm of the superior vena cava previously reported only four times in the English medical literature. This benign lesion is an additional diagnostic possibility to be considered in a patient with a superior mediastinal mass, as illustrated by the following report.

CASE REPORT

A 17-year-old caucasian girl was evaluated after onset of sharp left anterior chest pain which subsequently cleared spontaneously in 18 hours and has not recurred.

The patient has been observed since the was three years of age after discovery of an asymptomatic mediastinal mass, which was originally thought to be thymic in origin. The chest x-ray film depicted in Figure 1 was taken at the age of three years and demonstrates the presence of the mass. X-ray film evidence of this abnormality since infancy is unique as compared to the other cases in the literature, supporting the congenital nature of this anomaly.

The patient remained asymptomatic and was observed with serial chest films, with no significant change in the size of the mass.

There was no history of chest trauma or pulmonary disease. Her medical history and family history were noncontributory. On physical examination the patient was 185 cm in

REFERENCES


We have reviewed four reported cases of aneurysmal dilatation of the superior vena cava and added a fifth case report. We wish to emphasize: (1) inclusion of this rare lesion in the differential diagnosis of superior mediastinal mass; (2) the value of venous angiography in delineating the true nature of this lesion; and (3) the benign nature of this congenital malformation, which does not require specific therapy.
height, and weighed 53 kg, with a blood pressure of 106/72 mm Hg in both arms and 116/74 mm Hg in the legs. Results of examination were completely within normal limits as was the electrocardiogram. The present chest x-ray film is shown in Figure 2.

Right heart catheterization was performed which revealed normal pressures and oxygen saturations with normal hydrogen indicator curves. There was no pressure gradient across the inflow to the right atrium from the superior vena cava. A cineangiogram of the superior vena cava demonstrated a smooth dilatation, with active contraction of the proximal portion (Fig 3).

**DISCUSSION**

In 1949 Abbott reported a 19-year-old man who was admitted to the hospital for evaluation of a right superior mediastinal mass. The mass had been present on a chest x-ray film taken two years previously but the mass was now smaller in size.

The patient subsequently underwent exploratory thoracotomy with demonstration of multiple grape-sized aneurysms on the anterior surface of a large aneurysmal dilatation of the superior vena cava. The patient was treated by wrapping of the superior vena cava and the right and left innominate veins in a double sheet of polyethylene cellophane, and he has been asymptomatic for years. Repeated angiography and x-ray film studies at age 20 documented a reduction in the size of the aneurysm.

In 1955 Lawrence and Burford reported another case of superior vena cava aneurysm in a 52-year-old housewife who complained of pain along the thoracic spine. Angiography was not performed and the patient underwent exploratory thoracotomy, with resection of a 5-cm cystic mass which was attached by a 2-mm stalk to the junction of the azygos vein and the superior vena cava. The patient felt well after operation, with no recurrence of the aneurysm.

Gallucci reported a third case of superior vena cava aneurysm in 1967. A 28-year-old woman had a mediastinal mass, the nature of which lacked diagnosis. Angiography was not performed, and exploratory thoracotomy was undertaken with visualization of aneurysmal dilatation of the superior vena cava. It was believed that this was a harmless anatomic malformation, and no angioplastic procedure was required. The patient felt well, and angiography four years after surgery revealed no significant change.

The fourth case report was by Bell et al in 1970. A 20-year-old caucasian man was admitted to the hospital with rubella. A routine chest x-ray film demonstrated an anterior superior mediastinal mass. The patient had a history of chest trauma sustained in an automobile accident but an aortic arteriogram revealed a normal aorta.

Superior vena cavography was performed, revealing a fusiform dilatation of the superior vena cava very similar to the case we presented. The patient was asymptomatic and no further therapy was believed to be necessary.

We concur with the recommendation of observing these patients with serial chest x-ray films and docu-
Aortic Sinus of Valsalva-Pulmonary Artery Fistula; Diagnosis and Management

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Aneurysm localized to the aortic sinus of Valsalva is an uncommon congenital cardiac malformation, which is seldom diagnosed prior to rupture. Following rupture, an aortocardiac fistula is produced which results in sudden, progressive congestive heart failure, widened pulse pressure, a continuous murmur, and hemodynamic evidence of left-to-right shunt. The fistula most often arises from an aneurysm of the right aortic sinus and, due to its normal anatomic relationship, usually communicates with the right atrium or right ventricle.

Recently, we encountered a patient with an aneurysm arising from the right aortic sinus with a fistula into the pulmonary artery. Rupture of such an aneurysm into the pulmonary artery is an extremely rare occurrence. This unusual cardiac lesion was successfully corrected at surgery. The clinical and hemodynamic findings and diagnostic considerations form the basis of this report. To our knowledge, this is the first such patient reported to have been successfully treated.

**Case Report**

This 60-year-old white man was admitted to the Louisville VA Hospital on October 19, 1972, with progressive exertional dyspnea, orthopnea, and peripheral edema of a few weeks' duration. He had mild diabetes mellitus, which was controlled by diet alone. He smoked two packs of cigarettes daily for 44 years.

In January, 1971, he had been treated at the same hospital for right lower lobe pneumonia with temperature up to 105°F. The blood pressure then was 110/60 mm Hg with no cardiomegaly and normal electrocardiogram. Penicillin in dosages of 10-12 million units daily produced dramatic improvement, and the antibiotic was discontinued after four days with gradual improvement thereafter.

Physical examination on his second admission, 21 months later, revealed a markedly orthopneic patient with blood pressure of 170/50 mm Hg, pulse 140 per minute, bounding and regular, and respirations of 32 per minute. Jugular veins were markedly distended. A diffuse, hyperdynamic apical impulse was maximal in the fifth intercostal space at the anterior axillary line. Pulmonic closure sound was very accentuated. A coarse, grade 3-4/6 continuous murmur, medium to high pitched, with late systolic accentuation, was loudest in the third interspace near the left sternal border and radiated widely to the neck and precordium. Marked pulmonary congestion, hepatomegaly, and 3+ bilateral pedal edema were present.

Careful review of the previous hospitalization resulted in finding a blood culture positive for *Streptococcus viridans* at the time of the previous pneumonia. Serology (VDRL) was negative on that admission, as well as on the second admission.

Electrocardiogram revealed no signs of right or left ventricular hypertrophy, but the frontal QRS axis had shifted

![Figure 1: Chest x-ray film showing generalized cardiomegaly and pulmonary venous congestion.](http://journal.publications.chestnet.org/pdffile.ashx?url=/data/journals/chest/20951/ on 04/01/2017)