Roentgenogram of the Month

Right Paratracheal Shadow in an Asymptomatic Young Man

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A 23-year-old man was referred for evaluation of an abnormal chest roentgenogram (Fig 1) obtained as a school entrance requirement. History and physical examination were unremarkable except for the complaint of recent mild fatigue. Laboratory data including hematocrit, white blood cell count, electrolytes, blood urea nitrogen, and liver enzymes gave results within normal limits. Electrocardiogram showed normal findings.

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**Diagnosis: Azygos vein continuation**

The PA chest roentgenogram (Fig 1) shows a right paratracheal density at the expected position of the azygos vein arch and a questionable vertical right paravertebral shadow. Inferior venacavography in the lateral projection revealed a large azygos vein, continuous with the inferior vena cava (Fig 2).

Vascular abnormalities must be included in the differential diagnosis of paratracheal or hilar shadow. A right paratracheal density may be due to an enlarged azygos vein.

The azygos arch normally measures no more than 7 mm in diameter on an upright chest film.\(^1\) Dilatation may occur with elevated right or left cardiac pressure or, rarely, from increased azygos blood flow alone. The latter can often be distinguished from enlargement due to elevated pressure if the ascending portion of the azygos vein is identified. Enlargement of the ascending portion does not occur with elevated pressure alone.\(^1\)

Inferior vena cava (IVC) interruption with azygos vein continuation is the most common congenital abnormality producing increased flow in the azygos system.\(^2\) It is benign in nature, and consists of an interruption of the IVC above the renal veins with continuation of flow via the azygos or hemi-azygos system to the superior vena cava. The suprahepatic segment of the IVC consists only of the hepatic veins, which enter the inferior portion of the right atrium.\(^2\) While the anomaly is seen in only 0.6 percent of patients with congenital heart disease and may be associated with situs abnormalities, it is a common component of the polysplenia or asplenia syndromes.\(^3\) The incidence of azygos vein continuation as a single congenital abnormality has not been defined, although Adachi\(^4\) found no case in 1,055 autopsies.

Roentgenographic signs of azygos vein continuation include a dilated ascending azygos vein and arch and absence of the IVC shadow on the lateral chest film.

Observing variation in size of the density with Müller and Valsalva maneuvers performed under fluoroscopy may separate vascular from nonvascular abnormalities. Inferior venacavography is diagnostic.

**REFERENCES**