The Superior Vena Cava: Conventional Projections

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As already noted, anomalies of the SVC are fairly common and are nicely demonstrated on CT. I have illustrated them here in conventional frontal projection so that you can suspect or recognize them from the plain films. Figure 1 illustrates double SVC and Fig 2 shows a left SVC entering the left coronary sinus. A left SVC can be recognized on the plain PA tele-}

roentgenogram as a subtle vertical interface extending caudally from the left clavicle to the heart overlapping or lying just lateral to the aortic knob. This interface vanishes as it approaches the clavicle because of its location in the anterior mediastinum (the cervicothoracic sign).2

Another variant of the SVC is idiopathic dilatation (Fig 3).2 The enlarged vessel may mimic a mediastinal mass and lead to additional studies and even unnecessary surgery. In my own experi-

![Fig 1. Two cases of double SVC. (A) Subtraction bilateral venous angiogram. Note the interconnecting vein. (B) Another patient. Venous catheterization of heart via the right arm. The catheter has entered the coronary sinus from the right atrium and passes retrograde into the left SVC. (C) Same patient as (B). Contrast injection into the left innominate vein via the catheter fills the left SVC and coronary sinus.](image-url)

ABBREVIATIONS

PA, posteroanterior
RUL, right upper lobe
SVC, superior vena cava
Fig 1. (Cont’d).

Fig 2. Left SVC en route to the coronary sinus. (A) PA telerentgenogram. Note the vertical interface (white arrow) lateral to the aortic knob (black arrow). The shadow disappears as it approaches the clavicle (cervicothoracic sign). (B) Venous phase of an angiocardiogram shows contrast filling of the anomalous left cava and its entry into the dilated coronary sinus and right atrium.
Fig 3. Idiopathic dilatation of the SVC in a young woman. (A) Teleröntgenogram. A right superior mediastinal mass is simulated. The shadow, which disappears at the clavicle, decreased with the Valsalva maneuver. (B) Contrast medium injection shows the dilated right SVC.

Fig 4. Jugular lymph sac. This rare anomalous vessel lies at the junction of the thoracic duct and left internal jugular vein. (A) Plain film. A soft tissue mass (arrow) bulges from the left supraclavicular region. It was easily compressible. (B) Brachial venogram. Retrograde filling of the sac is shown (arrow).
Another congenital aberration you should be aware of, not of the SVC but rather of the innominate venous system, is the jugular lymph sac. This rare anomaly occurs at the junction of the internal jugular vein and subclavian vein, at the site of entry of the thoracic duct.

Its derivation is interesting. The lymphatic vessels embryologically stem from the venous system. Well-formed lymphatic valves prevent reflux of blood into the lymphatics. The only major connection between the two systems retained at birth is the site of entry of the thoracic duct adjacent to the origin of the innominate vein. With incompetence or absence of valves at this site, the connection may be wide-open and dilated.

This is called the jugular lymph sac and may be apparent clinically. It is usually found in the left supraclavicular fossa but may be present on the right side instead. It enlarges on Valsalva maneuver. The diagnosis is readily confirmed by either angiography or lymphography (Fig 4).4,5 Jugular lymph sac is usually mistaken for a venous aneurysm and surgically removed, an unnecessary intrusion.6,7

As stated elsewhere in this Seminar, SVC obstruction has many causes. Table 1 is a Gamut listing them.9 I have been surprised at how often patients with complete SVC obstruction show no clinical evidence of the condition. Even with head lowered, the dilated veins and other signs of superior caval obstruction may be lacking. The reason I can make this statement so emphatically is that for many years whenever I have noted a
right superior mediastinal or RUL mass I begin my study with a barium swallow, seeking evidence of downhill varices. I have demonstrated them in about half the cases of SVC obstruction. If the varices involve the upper esophagus, I insist on venous angiography, which to date has never failed to demonstrate the SVC obstruction. Rib notching from intercostal venous collaterals, though rare, is also an indication of SVC obstruction (Fig 5).1

REFERENCES