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Case Report

A Rare Case Report on Isolated SVC

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Abstract: A persistent left superior vena cava is found in 0.3- 0.5% of the general population and in 4-7% of patients with congenital heart disease. Approximately 50% to 70% of these patients are at risk of paradoxical embolism because of accompanying lesions (e.g., interatrial septal defect, unroofed coronary sinus, or direct communication of the vein to the left atrium).

Keywords: Isolated SVC, heart disease, left atrium.

CASE HISTORY

A 72-year-old man with H/O chronic obstructive pulmonary disease (COPD) and coronary artery disease (CAD) presented with worsening dyspnea even at rest and hypotension, requiring a central line placement.

IMAGING FINDINGS

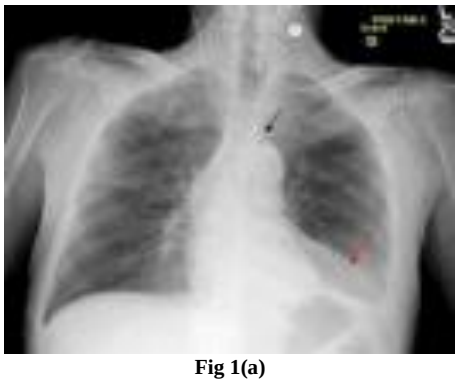

Fig 1(a)

Fig 1(a): chest radiograph (black arrow) demonstrates a right internal jugular central venous catheter crossing the midline coursing into the left-sided superior vena cava (SVC). There is also left lower lung atelectasis (red arrow) causing volume loss with a small left pleural effusion.

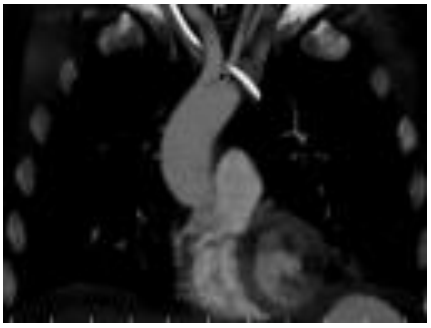

Fig 2 (a)

Fig 2(b)

Fig 2 (a):Axial CT chest (black arrow) demonstrates left-sided SVC coursing anterolateral to the aortic arch.Note that there is also a left pleural effusion (red arrow) and absence of a normal right-sided SVC (white arrow) to the right of the aortic arch.

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Fig 2 (b): MIP coronal CT chest demonstrates right central venous catheter crossing the midline into the left SVC (arrow).

Fig-3(a)

Fig-3(b)

Fig-3(a): MIP sagittal CT chest demonstrates left-sided SVC (arrow) draining into the dilated coronary sinus.

Fig 3(b): Coronal CT image demonstrates the absence of a right-sided SVC (white arrow) with left-sided SVC (black arrow)

Diagnosis was made as isolated left-sided superior vena cava. Differential diagnosis included

- Duplicated superior vena cava
- Isolated left-sided superior vena cava
- Partial anomalous pulmonary venous drainage of the left upper lobe
- Venous collaterals

CONCLUSION & DISCUSSION

Left-sided superior vena cava (SVC) is the most common type of thoracic venous anomaly seen in approximately less than 0.5% of the population. A left-sided SVC develops from a persistent remnant of the embryonic left anterior cardinal vein[1,2] An isolated left SVC is a rare variant of this venous anomaly that typically empties into the left coronary sinus[3] as depicted by this case. Usually, it is found in conjunction with a normal right-sided superior vena cava and results in duplicated SVC.(Here in this case , right sided SVC is absent.) [4] This form is more commonly associated with congenital heart disease, such as atrial septal defect.

Patients are usually asymptomatic and diagnosed incidentally due to vascular interventions or imaging. a left-sided SVC can lead to a mild right Rarely, -to-left shunt by draining directly in to the left atrium.

However, the degree of shunting seldom causes clinically significant cyanosis, but it can be relevant in cases of paradoxical thromboembolism.

Knowledge of this venous anomaly is important for thoracic interventions, especially in patients who may need transvenous lead placement for cardiac pacer or defibrillator.

In most patients with left SVC, a right SVC is present. Persistent left SVC with absent right SVC occurs in only 0.05% -0.15% of patients who have congenital heart defects. Approximately 50% to 70% of these patients are at risk of paradoxical embolism because of accompanying lesions (e.g., interatrial septal defect, unroofed coronary sinus, or direct communication of the vein to the left atrium). So It is imperative for us radiologists to carefully scrutinise the possible associated cardiac defects, to prevent life threatening complications.

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