Case Report:
A Rare Association of Abdominal Aortic Aortoarteritis with Persistent Left Superior Vena Cava

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Citation

Abstract: We present findings of persistent left superior vena cava and abdominal aortic stenosis detected incidentally by CT pulmonary angiography. To our knowledge, there has been no previous case report with all of the above findings detected by CT. In addition to the radiological findings and their clinical significance, the anatomy and embryological explanation of each anomaly is discussed.

Key Words: Left superior vena cava, Abdominal aortic stenosis, Aortoarteritis

Introduction:
Persistent left superior vena cava (PLSVC) is the most common venous abnormality of the thorax, but is found in less than 0.5% of the general population and about 4% of patients with congenital heart disease.[1] Persistent left superior vena cava (PLSVC) may drain either into right atrium or left atrium of which drainage into right atrium is common. Etiology being Failure of regression of left anterior and common cardinal veins and left sinus horn Persistent left superior vena cava (PLSVC) is associated with many other congenital anomalies but in our patient it is associated with abdominal aortic stenosis with multiple arterial collaterals.

Case Report
A 44 years old female with a history of hypertension and hypothyroidism and presented to the emergency room with shortness of breath, chest pain and palpitations. The chest pain was constant but increased in intensity with movement. It was non-exertional and was not relieved with nitroglycerin. Her serial troponin values were all negative. On examination the BP in right upper limb was 210/100 and in left upper limb was 160/90. Femoral pulses were feeble and distal pulses were absent in bilateral lower limbs.

So a CT angiography of arch of aorta and abdominal aorta are performed ,after injection of non–ionic contrast through left antecubital vein. These images were interpreted with MIP, SSD and volume rendering. Arterial System: The study revealed evidence of eccentric soft plaque in distal thoracic aorta causing insignificant stenosis. Aortic arch and proximal thoracic aorta were normal in course and calibre. The study also revealed evidence of calcified plaque in distal thoracic aorta and proximal abdominal aorta causing insignificant stenosis. There was evidence of short segment tight stenosis of aorta at level of D12-L1(Figure1) causing area stenosis of 84% and another long segment stenosis of approximate length 4cm causing complete stenosis of aorta at L2-L3 disc level to L3-L4 disc level. There were multiple collaterals arising from celiac, superior mesenteric and inferior mesenteric arteries supplying distal segment of abdominal aorta and its bifurcation into iliac arteries. Branches of aorta were normal in calibre. Venous system revealed persistent left cardinal vein persisting as Persistent left superior vena cava (PLSVC) giving a left long collateral venous channel upto D12 crossing the midline and joining the right azygous (Figure2) which drained into SVC. Persistent left superior vena cava (PLSVC) drained into right atrium. The right superior vena cava (SVC) was presented normally. Pulmonary venous system was normal. The diagnosis of Persistent left superior vena cava (PLSVC) was made because normally, at the level of the left main bronchus, there is only one vessel — the left superior pulmonary vein — located ventral to the bronchus. In PLSVC, two vessels — the normal left superior pulmonary vein and the left SVC — are present.
Infectious aortitis is a rare but potentially life-threatening disorder. Although the majority of patients with PLSVC are asymptomatic and are only discovered incidentally, this condition can present technical difficulties during intravascular procedures such as Swan–Ganz catheterisation and insertion of pacing systems or during cardiac surgery. In addition, PLSVC may predispose the heart to arrhythmia owing to the close proximity of the dilated coronary sinus to the final position of the left-sided primitive pacemaking tissue. Singular left SVC without a right SVC is rare. Most cases of PLSVC are presented as part of double SVC, as in our case. The PLSVC drains into the coronary sinus and then into the right atrium in 90% of cases, which are often asymptomatic and haemodynamically insignificant. However, 10% of PLSVC cases connect to the left atrium, causing right-to-left shunt. In rare instances, PLSVC forms a connection to the left atrium via a communication between the coronary sinus and left atrium. This cardiac defect is often called "unroofed coronary sinus" and it has a particularly strong association with PLSVC. Any right-to-left shunt, including unroofed coronary sinus, predisposes venous emboli to bypass the pulmonary circulation and gain access to the systemic circulation, resulting in paradoxical embolism. Other than direct observation of the vessel, there are some radiological clues that can point to the existence of PLSVC, including (i) an enlarged and densely opaque coronary sinus on CT when intravenous contrast is injected from the left arm, (ii) the presence of focal mediastinal widening superior to the left side of the aortic knob on chest radiography and (iii) the aberrant course of the intravenous catheter approaching the left atrium from the left arm.

References


