

## An incidentally detected persistent left superior vena cava with an absent right superior vena cava during port catheter insertion

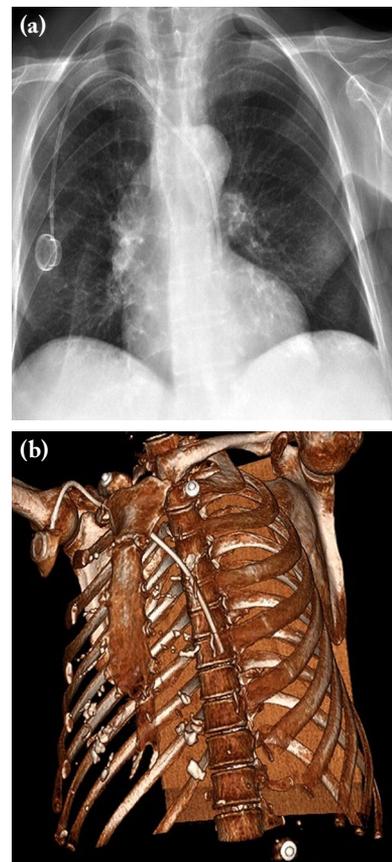
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A 71-year-old female patient with the diagnosis of gastric cancer was referred to our clinic for the placement of a port catheter access system. His medical history was non-specific without any cardiopulmonary symptoms. Under local anesthesia and online rhythm monitoring, a totally implantable venous access device (Venous Port, Baxter Healthcare Corp., CA, USA) was placed via the right subclavian vein uneventfully to allow the administration of chemotherapy. Subsequent control X-ray revealed that the central venous catheter (CVC) was not terminating in the right atrium as expected and the path of CVC was near the aorta (Figure 1a, b). A blood gas analysis confirmed the venous concentration. Then, computed tomography (CT) was performed to visualize the port catheter. The CT images revealed that the right subclavian vein was draining into the left persistent superior vena cava (LPSVC), while there was no evidence for a right superior vena cava (RSVC) (Figure 2). The procedure was well-tolerated by the patient and he is still on chemotherapy uneventfully.

Although LPSVC represents the most common congenital venous anomaly of the thoracic systemic venous return with a rate of 0.3 to 0.5% of individuals in the general population, coexisting absence of RSVC is extremely rare.<sup>[1]</sup> About only 10 to 20% of cases with LPSVC have this variation. As in our case, the majority of LPSVC drains into the right atrium via dilated coronary sinus without resulting in any hemodynamic consequences. Therefore, most patients remain asymptomatic.<sup>[1-3]</sup> However, some authors demonstrated the viability and safety of LPSVC for long-term CVC in the setting of both hemodialysis and chemotherapy in such patients.<sup>[1,3,4]</sup> Beyond that, this circumstance remains a challenge during pacemaker or implantable cardioverter-defibrillator

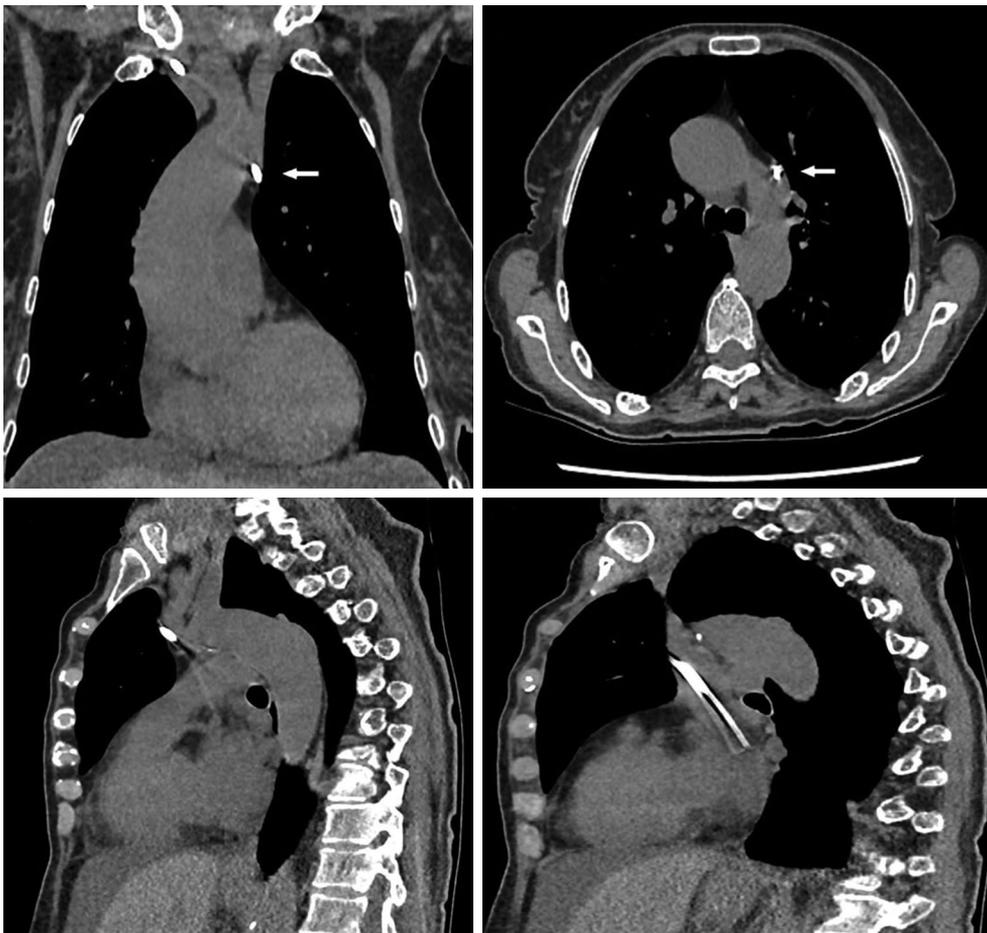


**Figure 1.** (a) Chest X-ray image. (b) Three-dimensional image showing unusual course of central venous catheter.

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**Figure 2.** Computed tomography images showing venous catheter located in left persistent superior vena cava.

implantation either, as the coronary sinus ostium is not aligned with the tricuspid orifice as usual. Therefore, several techniques have been introduced to overcome this difficulty.<sup>[5]</sup>

In the presence of LPSVC, irrespective of the timing of diagnosis (i.e., before or after the intervention), a comprehensive examination of the systemic venous return should be performed to assess the suitability for continued catheterization.<sup>[6]</sup>

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