

Embryological considerations on a case of coexistence of persistent left superior vena cava and partially left inferior vena cava

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The persistent left superior vena cava (PLSVC) is the most common venous thoracic congenital anomaly. The PLSCV generally drains into the right atrium, which it reaches through a dilated coronary sinus. Its presence is usually unrecognized, until a venous approach is performed. Abnormalities of the inferior vena cava (IVC) are rare (0.2-0.3% of healthy subjects and 0.6-2% of patients with cardiovascular defects). A single left IVC (LIVC) is very rare (11.9% of all the abnormalities) [1]. To the best of our knowledge, the coexistence of PLSCV and LICV has not been previously described. We present a case of a 32-year-old woman on hemodialysis for more than 12 years. An angiography demonstrated both a normal right SVC and a PLSCV and a single IVC with a lower left course, an intermediate circumaortic ring and an upper normal right course. The double SVC can be consequent to the failed development of the anastomosis between the anterior cardinal veins and the patency of the caudal part of the left anterior cardinal vein forming the PLSCV. As to the partially LIVC, its iliac and subrenal parts can be the results of the persistence of the left supracardinal vein. The circumaortic venous ring might indicate that a persistent intersupracardinal anastomosis receiving the left and the right renal veins was maintained around the abdominal aorta [2], while the superior part represents the normal right subcardinal and hepatic derivatives. The existence of anomalies should be considered, as they can have important implications in invasive procedures such as venous catheter placement, and may represent a speculative bridge between clinicians and embryologists.

References

- [1] Chen H et al. (2012) Double inferior vena cava with interiliac vein: a case report and literature review. *Okajimas Folia Anat Jpn* 88: 147-151.
- [2] Kyung DS et al. (2012) The double retro-aortic left renal vein. *Anat Cell Biol* 45: 282-284.

Keywords

Persistent left superior vena cava, partially left inferior vena cava, anterior cardinal vein, posterior cardinal vein, supracardinal vein.