

Isolated left hepatic vein draining into the coronary sinus: a rare anomaly encountered during mitral valve surgery

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Case description

A left hepatic vein (LHV) draining into the coronary sinus (CS) is an extremely rare congenital abnormality as a solitary cardiovascular malformation. Diligent search of literatures by PubMed detected only four case reports in adult^{1–3}. Three cases were diagnosed incidentally by computed tomography (CT)^{2,3}, and the other was found during a coronary artery bypass surgery¹. All the patients were asymptomatic.

A 72-year-old woman with a history of hypertension and diabetes mellitus presented with leg oedema. Transthoracic echocardiography

showed prolapse of the posterior mitral leaflet (P2), causing severe mitral regurgitation. Electrocardiogram showed a normal sinus rhythm, and no coronary artery disease was detected.

The mitral valve repair was repaired under general anaesthesia. Cardiopulmonary bypass was established with aortic and bicaval cannulation. When a tape was placed around the inferior vena cava, we discerned another connection between the diaphragm and the heart (*Figure 1A*). It appeared to be an accessory caval vein directly draining into the CS. After the antegrade cardioplegic arrest achieved, the right atrium was opened.

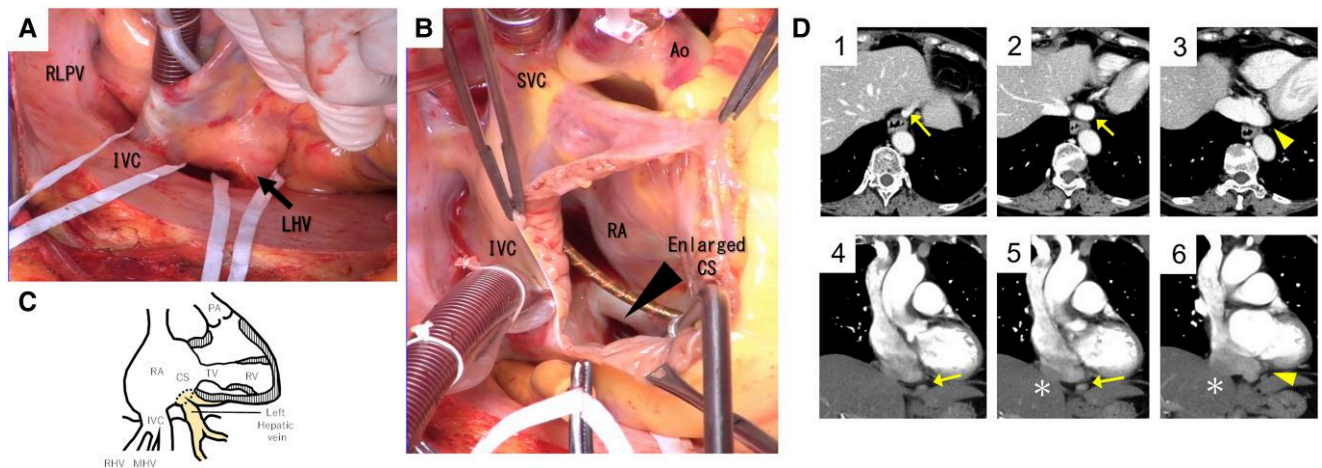


Figure 1 (A) Intraoperative findings after bicaval cannulation and caval tourniquets show an extravascular structure beside the IVC. (B) Right atriotomy revealed an enlarged CS receiving the vessel. (C) Diagram of the anatomy. The LHV runs separately from the RHV and pours into the CS. (D) CECT revealed that the LHV (arrow) drained into the CS (arrowhead). IVC (*) 1–3: axial sagittal section; 4–6: sagittal section. RLPV, right lower pulmonary vein; IVC, inferior vena cava; LHV, left hepatic vein; RA, right atrium; PA, pulmonary artery; CS, coronary sinus; TV, tricuspid valve; RV, right ventricle; RHV, right hepatic vein; MHV, middle hepatic vein; SVC, superior vena cava; Ao, aorta; and CECT, contrast-enhanced computed tomography.

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The opening of the vessel was in the CS. The orifice was 10 mm in diameter and with continuous but slow backflow of dark blood (Figure 1B and C). Instantaneous review of the CT image revealed that the structure was an anomalous LHV draining into the CS (Figure 1D). The venous return was fully captured by direct suction. Thus, the mitral valve was exposed through a transseptal approach and repaired using artificial cords and an annuloplasty ring (see Supplementary material online). The patient made an uneventful recovery, and the patient was discharged on post-operative day 26.

This anomaly results from the persistent left vitelline vein. This anomaly resulted even in the open-heart surgery requiring right atriotomy; additional cannulation is not mandatory to create a bloodless field. One should mind this anomaly at every cardiac surgery.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports*.

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Consent: Patient's written informed consent for submission and publication of this case report, including images, was obtained.

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Data availability

The data underlying this article are available in the article and in its online Supplementary material.

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