

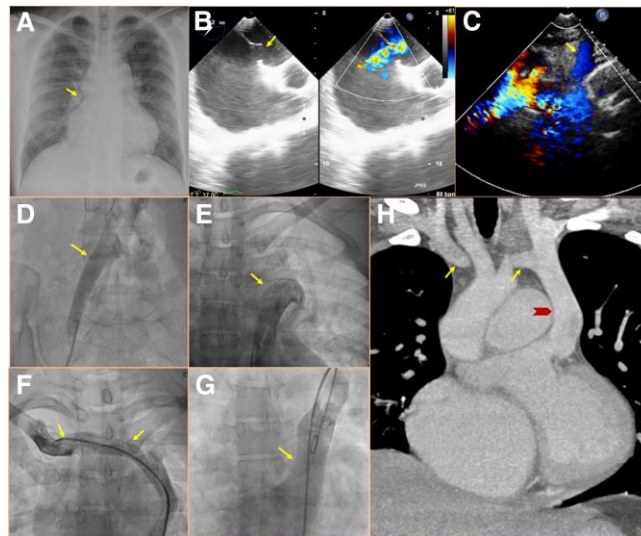
# Absent right and persistent left superior vena Cava, interrupted Inferior vena cava: a case report

Sudipta Mondal \*, Bhagwati Prasad Pant, Arun Gopalakrishnan, and Sivadasanpillai Harikrishnan

Department of Cardiology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India, PIN 695011

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**Figure 1** (A) Chest X-ray showing the absence of right superior vena cava shadow creating a notch (arrow) giving a clue pre-procedure; (B) transoesophageal echocardiogram showing large mal-aligned ostium secundum atrial septal defect with left to right shunt (arrow); (C) left superior vena cava (arrow) going inferiorly to coronary sinus; (D) common iliac vein (arrow) continuing as hemiazygos vein crossing to left of the spine; (E) hemiazygos vein (arrow) draining into left superior vena cava in turn into coronary sinus; (F) right brachiocephalic vein injection draining into left superior vena cava via connecting vein (arrow), right superior vena cava absent; (G) left superior vena cava angiogram with catheter course from right femoral vein to hemiazygos vein to left superior vena cava, showing drainage of left superior vena cava to coronary sinus; (H) cardiac computed tomography showing right brachiocephalic (arrows) vein draining into left superior vena cava (arrow head) which in turn draining into coronary sinus.

\* Corresponding author. Tel: +91 7686906481, Email: [sudiptamondalnrs@gmail.com](mailto:sudiptamondalnrs@gmail.com)

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A 29-year-old asymptomatic gentleman was found to have atrial septal defect on routine check-up. His clinical examination corroborated large atrial septal defect with significant shunt. Electrocardiogram showed incomplete right bundle branch block, normal PR interval. Chest X-ray showed mildly increased pulmonary blood flow, mild cardiomegaly and conspicuous notching at right heart border raising suspicion of absent right superior vena cava (SVC; [Figure 1A](#)). Echocardiogram revealed normal left ventricular systolic function, mildly dilated right ventricle, right ventricular systolic pressure of 55 mmHg, 20 mm high ostium secundum atrial septal defect (OS-ASD) with left to right shunt and persistent left SVC ([Figure 1B and C](#)). During right femoral venous access, an interrupted inferior vena cava was documented as the catheter was progressing towards the left side of the spine ([Figure 1D](#) and [Supplementary material online, Video S1](#)), continuing up as left-sided hemiazygos vein ([Figure 1E](#) and [Supplementary material online, Video S2](#)) and draining into the left SVC in turn into coronary sinus (CS; see [Supplementary material online, Videos S3–S6](#)). Left and right innominate vein injection confirmed the absence of right SVC and the presence of left SVC, draining via CS ([Figure 1F and G](#), and [Supplementary material online, Videos S3 and S4](#)). There was no un-roofing of the CS (see [Supplementary material online, Video S7](#)), and normal pulmonary venous drainage was evident (see [Supplementary material online, Video S8](#)).

Catheterization study showed  $Q_p/Q_s$  (pulmonary/systemic blood flow) 1.67:1, pulmonary vascular resistance 3.19 Woods unit, and pulmonary/systemic vascular resistance 0.1. Cardiac computed tomography showed normal veno-atrial concordance with hepatic veins

draining into right atrium. Inferior vena cava was interrupted with hemiazygos continuation draining into left SVC, no un-roofing of CS, no right-sided SVC, and no additional shunt lesions ([Figure 1H](#) and [Supplementary material online, Figure S1](#)). This case highlights the importance of tracing systemic venous drainage besides pulmonary venous drainage in a case of ASD to avoid cath-lab misadventures.

## Supplementary material

[Supplementary material](#) is available at *European Heart Journal – Case Reports* online.

**Consent:** The authors confirm that consent for submission and publication of this case report has been obtained from the patient in line with COPE guidance.

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## Data availability

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