

# Left atrial appendage closure in a patient with cor triatriatum

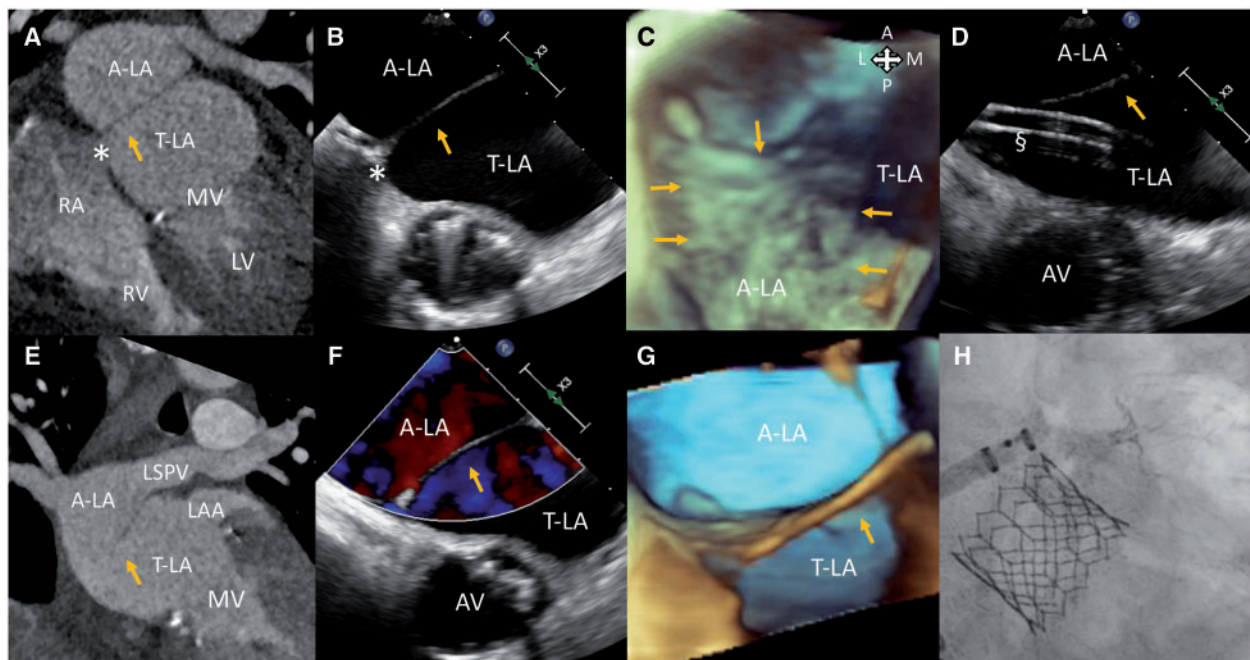
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Cor Triatriatum is a rare congenital anomaly that is most commonly encountered in children with congenital heart disease.<sup>1</sup> However, unrestrictive variants are often subclinical and may present incidentally in patients referred for transcatheter left-sided structural heart interventions.

A 66-year-old man with permanent atrial fibrillation (CHA<sub>2</sub>DS<sub>2</sub>-VASc = 5, HAS-BLED = 3) was referred for percutaneous left atrial appendage (LAA) occlusion, due to recurrent bleeding from gastrointestinal arteriovenous malformations. He has a history of coronary artery disease, hypertension, diabetes, hyperlipidaemia, peripheral vas-



**Figure 1** Illustration of the cor triatriatum with multimodality imaging. (A and E) Cardiac computed tomography showing a cor triatriatum with a small atrial septal defect. (B and F) Two-dimensional transoesophageal echocardiography imaging of the cor triatriatum. (C and G) Three-dimensional transoesophageal echocardiography imaging of the cor triatriatum. (D and E) Sheath manipulation into the true left atrium and left atrial appendage occlusion. The orange arrows refer to the dividing septum in the left atrium. \*The atrial septal defect and §the Mullins sheath. A-LA, accessory left atrium; T-LA, true left atrium; RA, right atrium; RV, right ventricle; LV, left ventricle; MV, mitral valve; AV, aortic valve; LSPV, left superior pulmonary vein.

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cular disease, and bicuspid aortic valve stenosis status post-transcatheter aortic valve replacement. Cardiac computed tomography (Figure 1A and E) and transoesophageal echocardiography (Figure 1B and F) showed a prominent fibromuscular membrane dividing the left atrium suggestive of a cor triatriatum, and a small atrial septal defect (ASD). The accessory left atrium (chamber receiving pulmonary venous return) communicated with the true left atrium (chamber connecting with the mitral valve) via an anterior communication (Figure 1C and G). The ASD was superior, and hence was not deemed to be an appropriate route for the LAA occlusion, in which an inferior and posterior trans-septal puncture is recommended.<sup>2</sup> A trans-septal puncture was hence performed in the inferoposterior portion of the intra-atrial septum with a Mullins sheath and a Brockenbrough needle (Medtronic, Minneapolis, MN, USA). The sheath was navigated through the anterior communication into the true left atrial chamber (Figure 1D). The Mullins sheath was then exchanged with the Watchman double curve sheath (Boston Scientific, Marlborough, MA, USA), which was steered over a pigtail catheter into the LAA. A 24-mm Watchman device was successfully deployed and released achieving an excellent position

(Figure 1E) (see [Supplementary material](#)). This case illustrated the feasibility of transcatheter LAA occlusion in patients with cor triatriatum.

## Supplementary material

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

**Consent:** The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

**Conflict of interest:** none declared.

## References

1. Bharucha T, Spicer DE, Mohun TJ, Black D, Henry GW, Anderson RH. Cor triatriatum or divided atriums: which approach provides the better understanding? *Cardiol Young* 2015;**25**:193–207.
2. Alkhouli M, Rihal CS, Holmes DR Jr. Transseptal techniques for emerging structural heart interventions. *JACC Cardiovasc Interv* 2016;**9**:2465–2480.