Three-dimensional transoesophageal echocardiography in detailed evaluation of cor triatriatum

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Isolated cor triatriatum is a rare congenital cardiac malformation in which the left atrium (LA) is partitioned into two distinct chambers by a membrane. The clinical manifestations and management mainly depend on the degree of obstruction between the two chambers, namely, the size of fenestration in the membrane.

We present an asymptomatic 48-year-old man incidentally diagnosed with cor triatriatum, in whom three-dimensional transoesophageal echocardiography played a crucial role in confirming non-obstructive form. In this case, two-dimensional echocardiography demonstrated that a membrane (Figure A, arrow) partitioned LA into two distinct chambers, which had a communication orifice (arrowhead) around the interatrial septum (see Supplementary material online, Movie S1). The mean pressure gradient through the orifice was estimated to be 2 mmHg using modified Bernoulli equation. Real-time three-dimensional transoesophageal echocardiography (iE33; Philips Medical Systems, Bothell, WA, USA) clearly depicted the whole view of the abnormal membrane and its fenestration orifice (Figure B, arrowheads), as well as their structural relationships to the interatrial septum, aortic valve (Ao), and left atrial appendage (LAA; see Supplementary material online, Movie S2). Three-dimensional en face view of the membrane from the posterosuperior LA chamber showed that the orifice was an oval with changing configuration during the cardiac cycle (Figure C, arrowheads and see Supplementary material online, Movie S3). Cross-sectional plane of the membrane allowed measurement of the maximal fenestration orifice area of 2.8 cm² (Figure D, arrowheads). Quantification of the orifice area could conclusively confirm non-obstructive form in this case; consequently, it was determined that the surgical correction was not necessary and clinical follow-up was recommended.

Supplementary data
Supplementary data are available at European Journal of Echocardiography online.

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