

Images in cardiology

Giant Chiari Network, Foramen Ovale, and Paradoxical Embolism



Red de Chiari gigante, foramen oval y embolia paradójica

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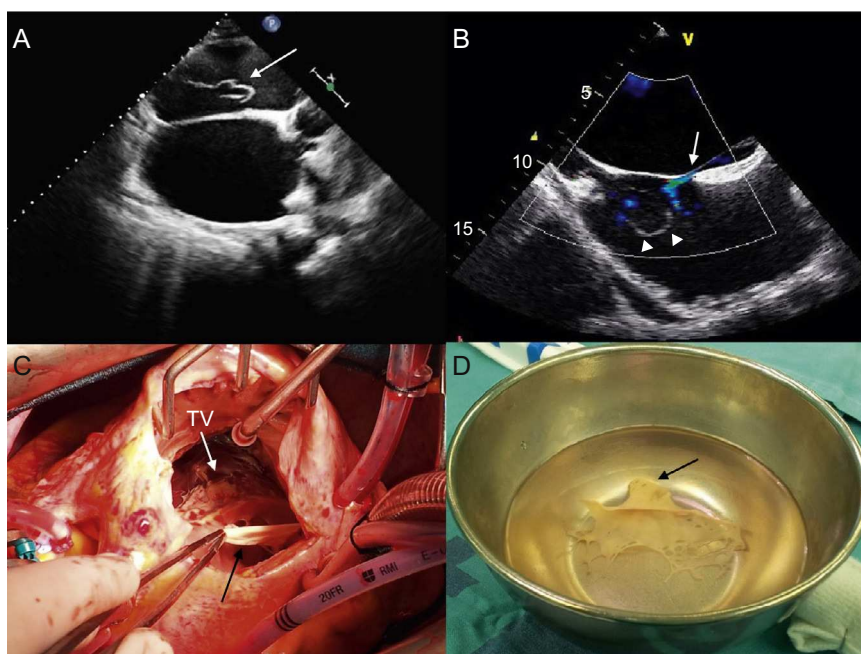


Figure.

A Chiari network is identified in the course of 1.3% to 4% of all autopsies and in 2% of patients who undergo transesophageal echocardiography. This network is associated with patent foramen ovale (PFO) in up to 80% of cases. Moreover, a number of scientific articles have linked this association to the development of stroke.

The patient, a 78-year-old man with a history of embolic stroke and no evidence of cerebrovascular disease, complained of progressive breathlessness and dyspnea even on minimal exertion (New York Heart Association class III). A transesophageal echocardiogram revealed severe degenerative mitral regurgitation, severe functional tricuspid regurgitation, and a prominent Chiari network, in the shape of an inverted cone with a *cul-de-sac* (Figure A, white arrow), the distal end of which reached the PFO (Figure B, white arrowheads). We also observed turbulent flow from the left atrium to the right atrium through the PFO (Figure B, white arrow).

The patient underwent mitral valve replacement, tricuspid valve repair, and PFO closure by means of simple suture with cardiopulmonary bypass. In the right atrium, we observed a large Chiari network (6.2 cm × 6 cm), which we resected completely (Figures C and D, black arrow. TV, tricuspid valve).

Although this malformation is uncommon, the characteristics of the Chiari network described here might explain the pathophysiology of a paradoxical embolism. The *cul-de-sac* would promote blood stasis and thrombosis, the inverted cone morphology would enable the mobilization of the thrombus toward the fenestrated region (Figure D, arrow), and the proximity of this region to the PFO could explain the embolism, especially during atrial diastole and Valsalva maneuvers.

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