A 43-year-old man with a repaired partial atrioventricular septal defect presented post-stroke. Transthoracic and bubble contrast echocardiography was positive, suggesting a right-to-left shunt. Transoesophageal echocardiography (TOE) was arranged to define the anatomy.

TOE demonstrated an atrial septal and left atrioventricular valve repair with mild central regurgitation and a second small jet of presumed residual regurgitation through the valve.

Bubble contrast injection showed bubbles in the left heart immediately after the right heart opacification. Using real-time three-dimensional echo, bubble contrast opacified the right atrium and the right ventricle (RV), crossing the AV bridging leaflet, entering the left atrium before the left ventricle (LV), and suggesting a possible pathway for paradoxical emboli.

ECG confirmed that bubbles crossed in systole (Figure A–C), clearly demonstrated by frame advancing the image.

A full-volume acquisition was able to demonstrate a lack of apposition in the superior bridging leaflet, which was a direct communication for flow from the RV to the left atrium (Figure D).

In the normal heart, the mitral and tricuspid valves are offset with a small wall common to the RA and the LV, thus making the LV to RA flow possible; a defect in this common wall can give rise to a VSD—the Gerbode defect (Figure E). With normal situs, there is no common border of the RV and LA that could give rise to a communication.

We would like to describe this anatomy as a mirror-image Gerbode defect (Figure F).

Figure A. Early systolic frame showing bubbles appearing in the right atrium after opacifying the right heart.

Figure B. Bubbles filling the left atrium.

Figure C. Diastolic filling of the left ventricle.

Figure D. Arrow pointing to defect in the superior bridging leaflet.

Figure E. Normal heart showing the common wall of the left ventricle and right atrium which could give rise to a Gerbode defect due to the normal offset of mitral and tricuspid valves.

Figure F. Inter atrial septum patch placed slightly offset to the midline of bridging leaflet, allowing a common border of the right ventricle and left atrium.