A previously healthy 12-year-old boy was admitted to the hospital with acute pneumonitis. On admission, a heart murmur was detected. The transthoracic echocardiogram showed multiple secundum atrial septal defects with left-to-right shunt and signs of right ventricular volume overload. He underwent right cardiac catheterization and transesophageal echocardiogram (transesophageal echocardiography): 3 sizeable atrial septal defects (anterosuperior, measuring 10 mm; posterior, 9 mm; anteroinferior, 6 mm) were closed with 3 Amplatzer atrial septal occluder devices, measuring 10, 9, and 6 mm (Figures 1 and 2). A good result was achieved, with no residual shunt across the atrial septum and no complications. The live transthoracic 3D (Figures 3 and 4, Data Supplement Movies I and II) and concurrent transesophageal echocardiography assessment at the end of the procedure showed good position of the devices, no residual interatrial shunts, no interference with the atrioventricular valves, and no obstruction to the venous returns.

To our knowledge, there have been no previous reports of 3D echocardiographic imaging after transcatheter closure of multiple atrial septal defects using 3 devices. Few previous reports focus on the initial results of 3D echocardiographic analysis based on image acquisition and offline postprocessing. Live transthoracic 3D echocardiography was used for the first time to evaluate the postprocedural results, and it proved to be a useful tool to assess the spatial relationship between the devices and with the surrounding structures.

Disclosures

None.

References

**Figure 1.** Angiographic image of the 3 Amplatzer atrial septal occluder devices after release, indicated by the black arrows.

**Figure 2.** Angiographic image of the 3 Amplatzer atrial septal occluder devices after release, indicated by the black arrows. In the bottom right corner, the delivery sheath is visible.

**Figure 3.** Live transthoracic 3D image of the right surface of the atrial septum with the 3 devices indicated by white and black arrows.

**Figure 4.** Live transthoracic 3D image of the right surface of the atrial septum with the 3 devices indicated by white and black arrows.
Percutaneous Closure of Multiple Secundum Atrial Septal Defects Using 3 Amplatzer Atrial Septal Occluder Devices: Evaluation by Live Transthoracic 3-Dimensional Echocardiography

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