

Images in cardiovascular medicine

A fenestrated fossa ovalis aneurysm mimicking an atrial septal defect: correct diagnosis and treatment by intracardiac echocardiography

Gianluca Rigatelli, Mario Zanchetta, Eustaquio Onorato*, Luigi Pedon, Marco Zennaro, Emanuela Visentin**, Giorgio Rigatelli**, Pietro Maiolino

Department of Cardiovascular Disease, Cittadella General Hospital, Cittadella (PD), *Operative Unit of Cardiology, Clinica San Rocco, Ome (BS), **Department of Cardiovascular Disease, Legnago General Hospital, Legnago (VR), Italy

(Ital Heart J 2002; 3 (9): 538-539)

© 2002 CEPI Srl

Received July 1, 2002;
accepted July 25, 2002.

Address:

Dr. Gianluca Rigatelli

Dipartimento di Malattie
Cardiovascolari
ULSS 15

Via Riva Ospedale
35013 Cittadella (PD)
E-mail: emodinacit@
ulss15.pd.it

Information about the shunt flow and the location, size and shape of a secundum atrial septal defect (ASD), as well as data about the surrounding structures of the right and left atria are the main factors for patient selection and successful transcatheter closure.

Nowadays, echocardiography is the gold standard for the non-invasive preoperative diagnosis and for the guidance of transcatheter ASD closure procedures¹, but sometimes it may fail to differentiate an ASD from a fenestrated aneurysm of the fossa ovalis.

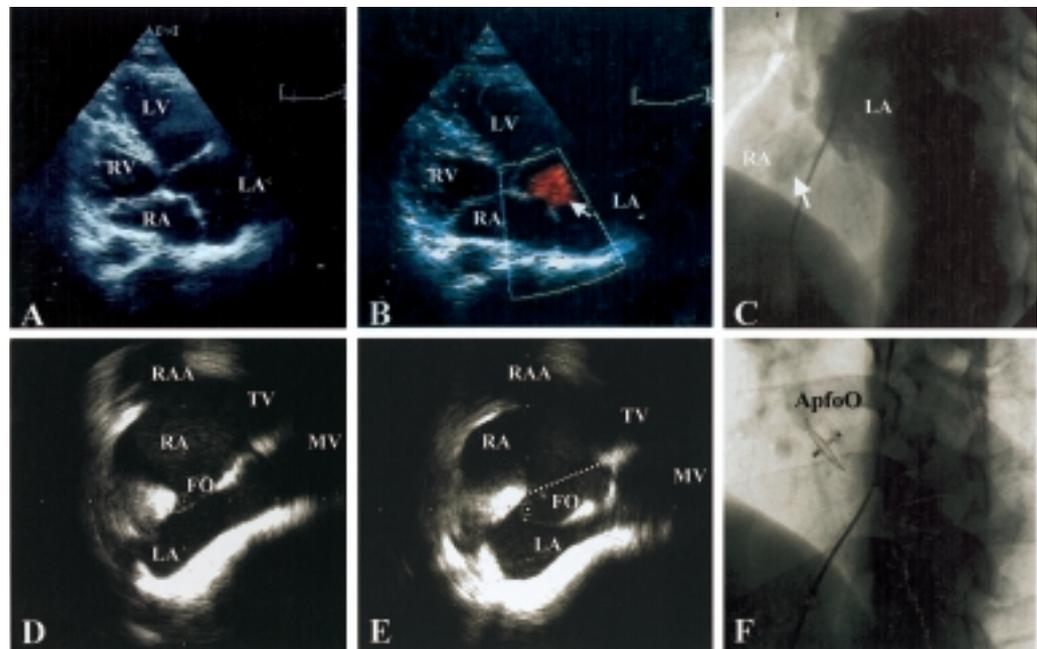


Figure 1. A, B: 4-chamber axial view during transthoracic echocardiography. A 1.2 cm interatrial communication (arrow) with shunting was clearly displayed, suggesting an atrial septal defect. C: right upper pulmonary vein angiography in the right anterior oblique view. The arrow points out a jet of contrast medium which partially opacifies the right atrium (RA). D, E: apex up 4-chamber planes during intracardiac ultrasound imaging, displayed in a computed tomographic scanning format (left-sided structure displayed to the viewer's right, anterior-sided structure on the top, and so on). The fossa ovalis (FO) is viewed as a continuous structure without a significant defective area and its bulging, with respect to the ideal line of the interatrial septum was evident during the cardiac cycle (D: diastole; E: systole). The other structures are: the left atrium (LA), the mitral valve (MV), the RA, the right atrial auricle (RAA) and the tricuspid valve (TV). F: successful closure using an Amplatzer 25 mm patent foramen ovale occluder (ApfoO). LV = left ventricle.

In the present case report, a 38-year-old male patient with a history of vertigo, lipothymia and a supraventricular arrhythmia underwent transthoracic echocardiography which revealed an ostium secundum ASD (diameter 1.2 cm) with a fossa ovalis aneurysm (Figs. 1A and 1B) and a relevant left-to-right shunt (QP/QS = 2) without pulmonary hypertension. Right and left heart catheterization confirmed the diagnosis (Fig. 1C) suggesting the need of percutaneous closure of the defect.

During intraoperative intracardiac echo-cardiography, performed using a 9F-9 MHz, 110 cm long transducer (Ultra ICE, Ep Technologies, Boston Scientific Corporation, San Jose, CA, USA), a large atrial septal aneurysm was discovered (Figs. 1D and 1E). The fossa ovalis, engaged by the guide wire in several and different sites, seemed to have a fenestrated morphology, and a 25 mm Amplatzer patent foramen ovale occluder was successfully implanted (Fig. 1F). At 1-year of follow-up, the patient was free from symptoms and no residual shunt was detectable at transesophageal echocardiography. Intracardiac echocardiography is the newest ultra-

sound technology employed for transcatheter closure of interatrial communications²⁻⁴. Due to its better spatial resolution, intracardiac echocardiography may sometimes modify or refine the primary diagnosis of an interatrial communication, permitting a correct percutaneous closure strategy.

References

1. Rao PS, Langhough R. Relationship of echocardiographic, shunt flow, and angiographic size to the stretched diameter of the atrial septal defect. *Am Heart J* 1991; 122: 505-8.
2. Bruce CJ, Packer DL, Belohlavek M, Seward JB. Intracardiac echocardiography: newest technology. *J Am Soc Echocardiogr* 2000; 13: 788-95.
3. Hijazi ZM, Cao QL, Heitschmidt M, Lang MR. Residual inferior atrial septal defect after surgical repair: closure under intracardiac echocardiographic guidance. *J Invasive Cardiol* 2001; 13: 810-3.
4. Zanchetta M, Rigatelli G, Pedon L, Zennaro M, Onorato E, Maiolino P. Diagnosis of the superior sinus venosus defect by intracardiac echocardiography. *Ital Heart J* 2001; 8: 633-4.