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IMAGES IN MEDICINE

Percutaneous Closure of a Large Atrial Septal Defect: A Simplified Approach

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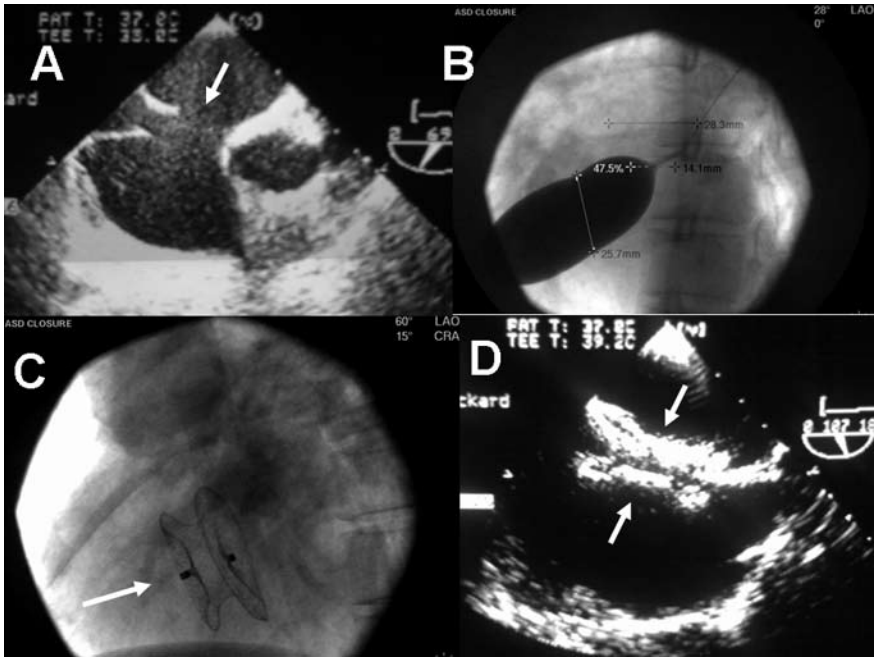
A 44-year-old female patient presented with easy fatigability, dyspnea on exertion and frequent episodes of migraine. Echocardiography revealed a large atrial septal defect (ASD) of the secundum type. This was further visualized with transesophageal echocardiography (TEE) (Figure, Panel A, arrow). The diameter of the ASD at TEE was measured at 1.93 cm. Pulmonary to systematic flow ratio (Qp/Qs) was calculated at 3.3:1, indicating a significant left-to-right shunt across the ASD. Percutaneous closure of the defect was subsequently undertaken. The diameter of the defect was measured intra-procedurally using an intracardiac balloon and it was found to be 2.6 cm (Panel B). An Amplatzer 9-ASD-032 occluder was successfully implanted percutaneously via the right femoral vein (Panel C, arrow). TEE 48 hours after implantation showed that the closure device was in proper place (Panel D, arrows) and the left-to-right shunt was abolished.

A secundum atrial septal defect (ASD) represents a relatively common congenital heart disease. The defect size covers a wide spectrum, from only subclinical anatomic



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defects to large defects associated with hemodynamically significant left-to-right shunt across the ASD. Although in the majority of cases, pulmonary artery pressures are unaffected, large defects may cause enlargement of the right atrium, dyspnea and symptoms due to volume overload of the right heart and the pulmonary circulation.

A large ASD accompanied by significant (>1.5:1) left-to-right shunt in a symptomatic patient needs to be corrected. The effectiveness of surgical treatment is hampered by impact on quality of life, considerable perioperative risks and long-term arrhythmogenesis, usually in the form of atrial tachyarrhythmias. In recent years, surgery has been supplanted by percutaneous methods (except in very large defects) simplifying the procedure and minimizing risks and complications, as illustrated in the current case. Routinely, transesophageal guidance has been used for such procedures. However, more recently, a simpler technique with use of only fluoroscopic guidance has been proposed and it has been the routine successful approach in our department over the last one year.

New Orleans 2004 *Liana Alexopoulou*