

# Aortic wall erosion 4 years after Amplatzer septal occluder implantation

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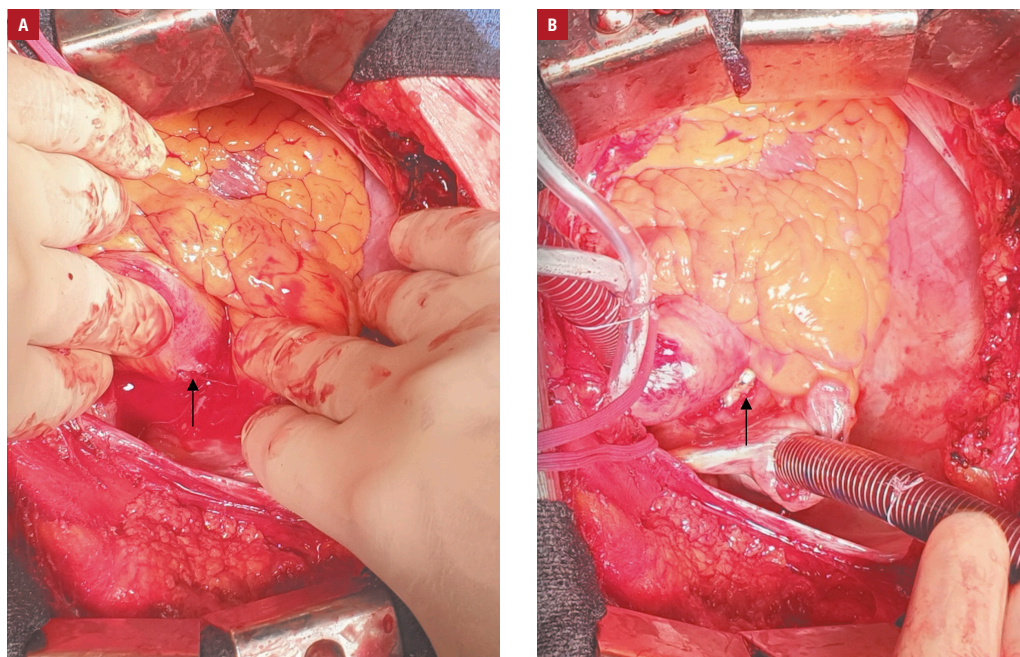
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Percutaneous closure is currently the method of choice in the management of patent foramen ovale, but it turns out that it is not completely free of complications. Lack of a surgical incision and shorter hospital stay are beneficial, but late, device-related complications do occur.<sup>1</sup> The overall mortality due to atrial septal occluder (ASO) closure and surgical defect closure is equivalent, and the need for emergent surgery is more common in patients undergoing device-related than surgical closure.<sup>2</sup> Aortic erosion is one of the very rare complications occurring usually

within 72 hours after ASO implantation, with the incidence ranging between 0.1% and 0.3%.<sup>3,4</sup>

Here, we report the case of a 65-year-old woman—the first successfully treated patient in Poland who underwent transcatheter closure of patent foramen ovale 4 years earlier. A 20-mm ASO device was implanted after a stroke event. The procedure and hospital stay were uneventful. Four years later, she presented to the emergency department with chest pain after a bicycle ride. On admission, pericardial effusion, cardiac tamponade with early diastolic collapse of



**FIGURE 1** Cardiac surgery in a patient with aortic wall erosion: **A** – linear 2-cm noncoronary sinus aortic rupture (arrow); **B** – rupture closed with a prolene suture and a fibrin sealant patch (arrow)

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the right atrium and ventricle, and ventricular interdependence were seen on transthoracic echocardiography. The patient sustained cardiac arrest on admission and was transferred directly to the operating room. She was intubated and pericardiectomy was performed as a salvage procedure. Tamponade was successfully treated and sinus rhythm restored. Thrombi were removed and hemorrhage from the noncoronary sinus was seen (FIGURE 1A). Cardiopulmonary bypass was necessary to repair the aortic noncoronary sinus erosion (Supplementary material, *Video S1*). Transesophageal echocardiography showed the edge of the ASO device directly touching the aortic wall. Blood flow through the lesion was visualized by Doppler imaging. Interestingly, there was no erosion of the left atrial wall. The 20-mm aortic erosion was repaired on the beating heart using 2 pericardial patches and a 5–0 polypropylene suture, without removing the device (FIGURE 1B). A fibrin sealant patch was applied to achieve better hemostasis. Subsequently, the patient was weaned off bypass. She was extubated 6 hours after the procedure. Her stay at the intensive care unit was short and uneventful. Follow-up transthoracic echocardiography revealed no abnormalities and the patient was discharged home on day 4.

Mortality after surgical management of a device-related complication seems to be much higher than that associated with elective ASO closure. Complications related to ASO tend to be lethal and usually require urgent or emergency surgery.<sup>2</sup> Erosion may affect the aortic root and sometimes result in fistulous atrial–aortic communication and associated heart failure. Most often, it occurs at the anterosuperior atrial wall, resulting in pericardial effusion and cardiac tamponade.<sup>3</sup> Aortic erosion without left atrial wall damage is hard to imagine yet possible, as exemplified by our patient's case. Lack of left atrial erosion can be explained by the deficient (<5 mm) retro-aortic rim where an occluder lies on the aortic bulb.<sup>5</sup> Our team experienced and successfully treated a very rare case of cardiac tamponade associated with cardiac arrest, caused by aortic erosion 4 years after ASO implantation. The presented case should facilitate the appropriate examination of patients with chest pain, dyspnea, and symptoms of new-onset heart failure following ASO implantation and their transfer to a cardiac surgery center.

#### SUPPLEMENTARY MATERIAL

Supplementary material is available at [www.mp.pl/kardiologiapolska](http://www.mp.pl/kardiologiapolska).

#### ARTICLE INFORMATION

**CONFLICT OF INTEREST** None declared.

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