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Research Letter

Late embolization of the atrial septal occluder device into the abdominal aorta



A B S T R A C T

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Atrial septal defect occluder device
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CT angiography

Although early device embolization is a well-known complication of percutaneous atrial septal defect (ASD) closure, late device embolization is rarely encountered and information about management of it are very limited. Herein, we reported a case of late ASD device embolization into the abdominal aorta at the level of the superior mesenteric artery, 8 months after percutaneous closure.

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A 35-year-old female underwent a 13.5 mm atrial septal defect (ASD) occluder device implantation (Occlutech Figulla Flex II, defect size, 11 mm) 8 months ago in another tertiary referral center. Occluder device was absent in interatrial septum at 8-month routine echocardiographic control. The computed tomography guided angiogram confirmed the position of the device into abdominal aorta at the level of the superior mesenteric artery (Fig. 1). First, we planned to remove the device percutaneously using 20 mm. Amplatzer goose neck snare kit (Fig. 2) from right femoral artery. However, this technique was not successful. Then we tried to catch the device with 2 snares simultaneously from both femoral arteries (12 F sheath) but we were not able to move the device (probably it was endothelialized and had embedded into the aorta). In view of the high vascular risk, the patient underwent surgical retrieval of the device and surgical ASD closure (Fig. 3). She was uneventfully discharged from hospital 5 days later.

Despite advances in implantation techniques and device improvements, there are some reports about the early and late embolization of ASD closure devices. Most cases of device embolization during the procedure are usually recognized, but delayed embolization may not [1].

There are several case reports reporting late device embolization to left ventricular outflow tract, main pulmonary, and iliac arteries [2–4]. There are some possible mechanisms of device embolization. Some of these factors are anatomical features of the defect like floppy and aneurysmatic septum, type of device, large defect size, thin rims, mobility of the implanted device, use of an undersized device, deficiency or absence of the aortic rim, and inadequate

experience. Embolization of the device is usually observed into the main pulmonary artery, left atrium, right ventricle, and aortic arch [2–5]. Device embolization mostly occurs early after implantation and it is rarely seen after complete endothelialization. The rims of the atrial septum are critical for percutaneous closure. The distance from the ASD to superior and inferior vena cava, right upper and lower pulmonary veins, aorta, coronary sinus, and mitral/tricuspid valves should be enough for successful implantation. Proper aortic rim is not mandatory for closure but less than 5 mm aortic rim may predispose early and late device embolization. The aortic rim was deficient in the current case. Acute changes

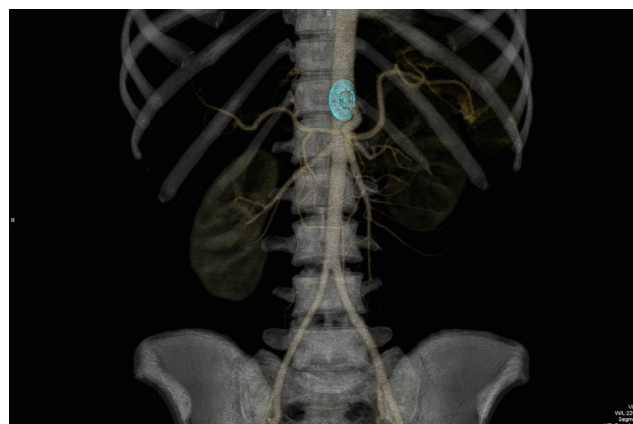


Fig. 1 – 3D CT angiographic view of the device in the abdominal aorta.

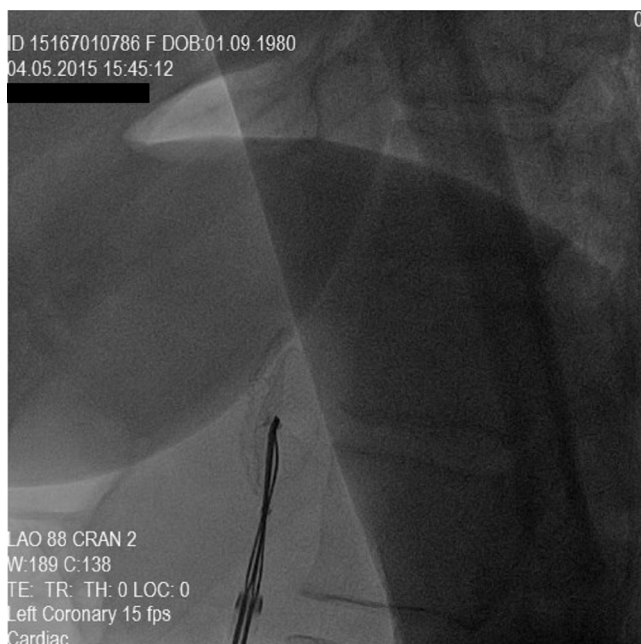


Fig. 2 – Fluoroscopic image showing catching of device with two snares at the level of superior mesenteric artery.

in intracardiac pressure due to physical activity and a sudden increase in afterload to the left heart with Valsalva maneuver may lead to dislocation of the device. In our case, we speculated that deficient aortic rim combined with undersized device and strenuous exercise may be responsible for late embolization. In fact, it should be better to implant 15 mm ASD device and to use balloon sizing in the present case. Although most of the embolized devices can be percutaneously removed in cases of early embolization. On the other hand, late embolizations usually require surgical removal because of the possible dangerous complications, such as rupture of aorta, embolization, and dissection.

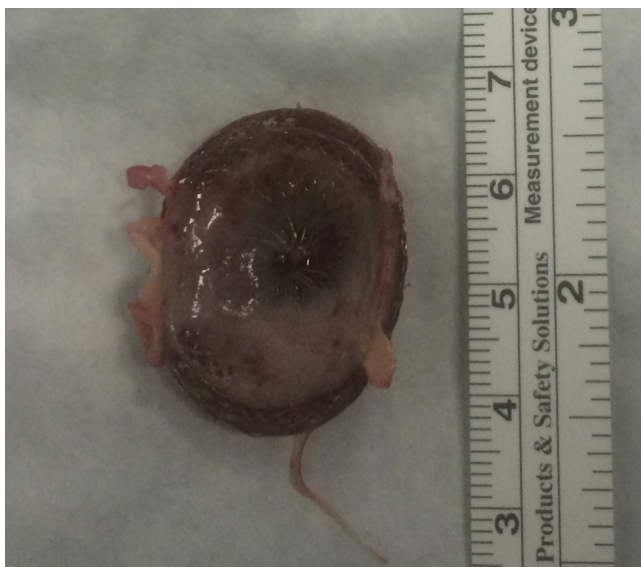


Fig. 3 – Surgically explanted device with full endothelialization.

Herein, we report an asymptomatic ASD closure device embolization to abdominal aorta 8 months after successful percutaneous closure.

Conflicts of interest

The authors have none to declare.

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