Dear Editor,

Percutaneous closure of secundum type atrial septal defects has recently become the treatment of choice.¹ The procedure has been done safely and effectively, and has become the standard treatment with excellent results and a low rate of early and late complications. The possible complications are device embolisation, erosion, pericardial effusion with tamponade, thrombus formation, atrial arrhythmias, stroke and endocarditis.² Despite the advances in implantation techniques and device improvements, there are some reports about the early and late embolisation of the closure devices. The most cases of device embolisation during the procedure are usually recognized, but delayed embolisation may not.² Lysitsas et al. report a delayed presentation of acute right heart failure due to Amplatzer septal device embolisation into the main pulmonary artery, 2 years after implantation.³ Kim et al. reported a delayed embolisation of amplatzer (atrial septal defect) ASD closure device caused partial obstruction of left ventricular outflow tract.⁴ Wei et al. report another case embolized to an iliac artery during percutaneous closure of an ASD.⁵

Here, we report a case of late device embolization to the abdominal aorta at the level of the superior mesenteric artery, approximately one month after percutaneous closure of an ASD. It did not cause any obstruction at the level of the aorta. A 39 year old male patient was implanted a 15 mm ASD occluder (Occlutech) device for 11 mm ASD, one month ago in our centre. The patient had no symptoms due to the ASD or device embolisation. During the routine control at first month after closure, the device was not seen in the interatrial septum on transthoracic echocardiography. The fluoroscopy confirmed the position of the device into abdominal aorta at the level of the superior mesenteric artery (Figure 1). There was no problem on the flow of the bilateral renal, superior mesenteric, celiac truncus and bilateral iliac arteries (Figure 2). It was unknown when the device embolized. Firstly, we planned to remove the device percutaneously with using an Amplatzer goose neck snare kit. We caught the device with the snare and we could move it but we couldn’t remove it. We thought that the device was endothelialized and embedded into the aorta. Then, we tried to remove the device with another big snare and it was achieved (Figure 3-6). There were no complications of the percutaneous removal procedure. The device was mildly endothelialized.

We know that percutaneous closure techniques have similar complication rates comparable to surgery but hospital stay with percutaneous closure is less than surgery.⁶ There are some possible mechanisms of device embolisation. Some of these factors are anatomical features of the defect like floppy and aneurysmatic septum, the type of device, larger size of defect, thin rim of interatrial septum, mobility of the implanted device, use of an undersized device, and deficiency or absence of the aortic rim and inadequate experience. Embolisation of the device is usually into the main pulmonary artery, left atrium, right ventricle and aortic arch.⁷⁻¹² This patient presented with no clinical signs, she was asymptomatic for one month following the closure. The device was intact after removal. The device embolisation mostly occurs early after implantation, after endothelialisation is complete, it is rare. In this case, the time of dislocation is not known and the patient did not develop symptoms after embolisation. It was detected incidentally. The rims of the atrial septum are critical for percutaneous closure. The device was implanted successfully 1 month ago. The defect was 11 mm and device was selected 15 mm. The defect size and device length were acceptable but it was embolised. The distance from the ASD to superior and inferior vena cava, right upper and lower

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The device was caught by the second snare on fluoroscopy at the iliac artery level.
pulmonary veins, aorta, coronary sinus and mitral/tricuspid valves should be enough for successful implantation. In addition, the aortic rim is not mandatory for closure but the presence of it is important and less than 5 mm rim may predispose early and late device embolisation. Acute changes in intracardiac pressure due to physical activity, a sudden increase in afterload to the left heart with Valsalva maneuver may lead to dislocate the device. Some authors advise the patients not to do strenuous exercise to avoid device embolisation after implantation for six months. Our patient said 'I lifted my 15 kilos 1 year old son during the last one month'. In our case, we thought the exact reason for delayed embolisation was weight lifting. Most embolised devices can be removed by percutaneous approach especially early periods after implantation. But late embolisation usually require surgical removal because of the dangerous complications.

Herein, we report a delayed and silent embolisation of an ASD device caused no obstruction at the level of the aorta one month after successful percutaneous closure and percutaneous removal. The close monitoring with a careful physical examination, chest X-ray and transthoracic echocardiography is crucial for controlling the device in the true location during the follow-up period and should be continued for a longer period of time

Declarations of Interest

The authors declare no conflicts of interest.

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References