

## ASD occluder device embolization- Lesson learnt on the importance of balloon sizing for aneurysmal interatrial septal tissue

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### Abstract

An adult female with Atrial septal defect secundum with aneurysmal interatrial septal tissue underwent percutaneous occluder device closure without balloon sizing technique. It is complicated by early embolization of device to the arch of aorta. It was successfully retrieved by percutaneous snare.

### Keywords

aneurysmal interatrial septum; ASD occluder device; embolization; percutaneous retrieval of occluder device; balloon sizing technique

### Abbreviations

ASD: Atrial septal defect

### Introduction

Percutaneous ASD occluder device closure is a minimally invasive procedure much favoured by clinicians and patients. Observational studies have shown good long term results and very rarely it is associated with device thrombosis and erosion in the long run [1].

### Case Report

A 59 years old lady with essential hypertension presented with shortness of breath on exertion for 6 months. Her ECG showed sinus rhythm. Transthoracic echocardiography showed mildly dilated right atrium and ventricle suspicious of intracardiac shunt. She underwent transoesophageal echocardiography which showed ASD secundum which measured 0.8cm along with aneurysmal and mobile inter-atrial septum. The aortic, superior vena cava, inferior vena cava, anterior and posterior rims measures at 0.45cm, 2.5cm, 2.6cm, 1.5cm and 1.5cm respectively (Figure 1).

She was decided for percutaneous ASD device closure. A 16mm AMPLATZER® Occluder (St. Jude Medical) was delivered through the sheath and deployed across the atrial septum. The device seated well, and deployment was confirmed on “push and pull.” Although the device was noted to have plenty of side-way movements after deployment, it was nevertheless in the correct position therefore the result was accepted.

Few hours after the procedure, patient complained of few short episodes of palpitation. Transthoracic echocardiography showed absence of occluder device in the inter-atrial septum. Suprasternal view showed seating of device on the arch of aorta below the bifurcation of left subclavian artery. This was confirmed on fluroscopy (Figure 2).

She was immediately started on anticoaguation. A 11F sheath was placed in the right femoral artery. By means of a 'gooseneck' snare, it was pulled successfully through the delivery sheath and removed via the arterial sheath (Figure 3). Then a 26-mm LIFETECH Occluder was successfully deployed across the ASD after balloon sizing method. An repeated TTE one month later showed seating of device at the interatrial septum with no residual shunt.

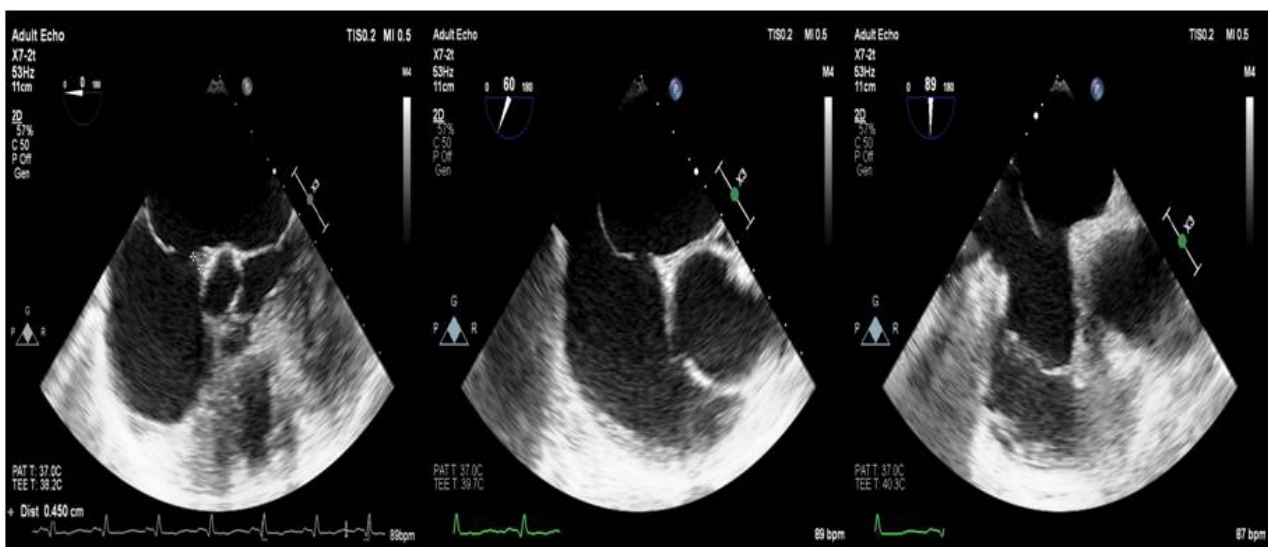
## Discussion

The incidence of ASD device embolization reported in prior studies is 0.01% to 0.55% [2]. The usual site of embolization is the right side of the heart including pulmonary artery, but the device embolization to the extracardiac aorta, as shown in the present case is not uncommon. Pubmed search showed four reported cases of embolization of device to aorta with successful retrieval by percutaneous snare [3-6]. With this regard, learning how to retrieve occluder device from the aorta is of paramount importance. The proposed mechanism or predisposing conditions of device embolization are as follows; undersized device, inadequate or floppy rim as in our case, and operator-related technical issues such as poor experience or device mal position or excessive tension[2].

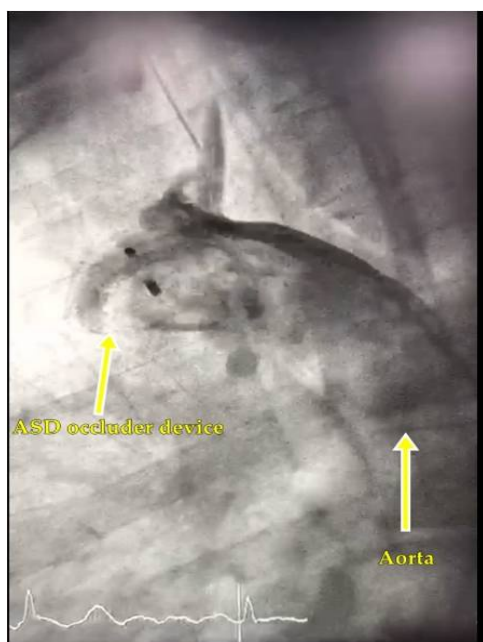
## Conclusion

Aneurysmal and floppy inter-atrial septal tissue is an important predisposing conditions for ASD device emboization. In anticipation of this complication, proper sizing using balloon sizing technique should be routinely used.

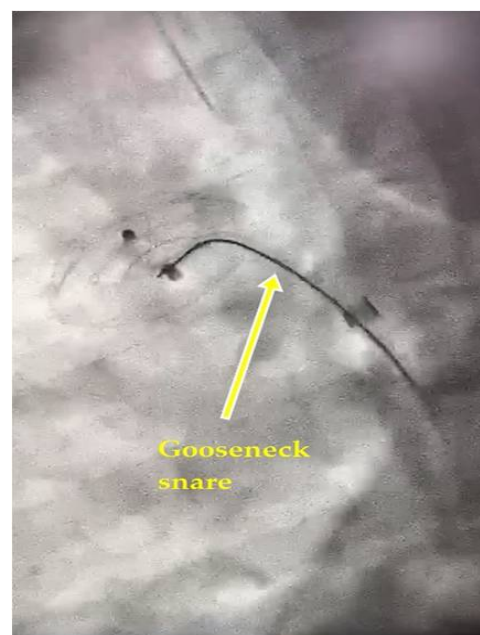
## Figures



**Figure 1:** ASD secundum with aneurysmal posterior rim. There was adequate surrounding rim sizes.



**Figure 2:** ASD device occluder seating at the arch of aorta



**Figure 3:** snaring of ASD device occluder from the arch of aorta

## References

1. Jalal Z, Hascoet S, Baruteau AE, Iriart X, Kreitmann B, Boudjemline Y, et al. Long-term Complications After Transcatheter Atrial Septal Defect Closure: A Review of the Medical Literature. *Can J Cardiol.* 2016; 32: 1315.
2. Moore J, Hegde S, El-Said H, Beekman R, Benson L, Bergersen L, et al. Transcatheter device closure of atrial septal defects: a safety review. *JACC Cardiovasc Interv.* 2013; 6: 433-442.
3. Celik T, Ozturk C, Bozlar U, Iyisoy A. Late embolization of the atrial septal occluder device into the abdominal aorta. *Indian Heart J.* 2016; 68: 200-201.
4. Cho JY, Kim KH, Yoon HJ, Seon HJ, Ahn Y, Jeong MH, et al. Percutaneous Retrieval of Embolized Amplatzer Septal Occluder after Treatment of Double Atrial Septal Defect: A Case Report. *J Korean Med Sci.* 2015; 30: 1361-1366.
5. Pala S, Açar G, Tigen K, Kıрма C. Percutaneous retrieval of an interatrial septal occluder device embolized into the aortic arch. *Turk Kardiyol Dern Ars.* 2010; 38: 502-504.
6. Imre J, Hejjel L, Miklán D, Ajtay Z, Papp L. Dislodged Amplatzer occluder in the aorta. *Magy Seb.* 2008; 61: 76-78.

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