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Tulip-like deformation of a nitinol septal occluder

Deformação em tulipa em oclutor septal de nitinol

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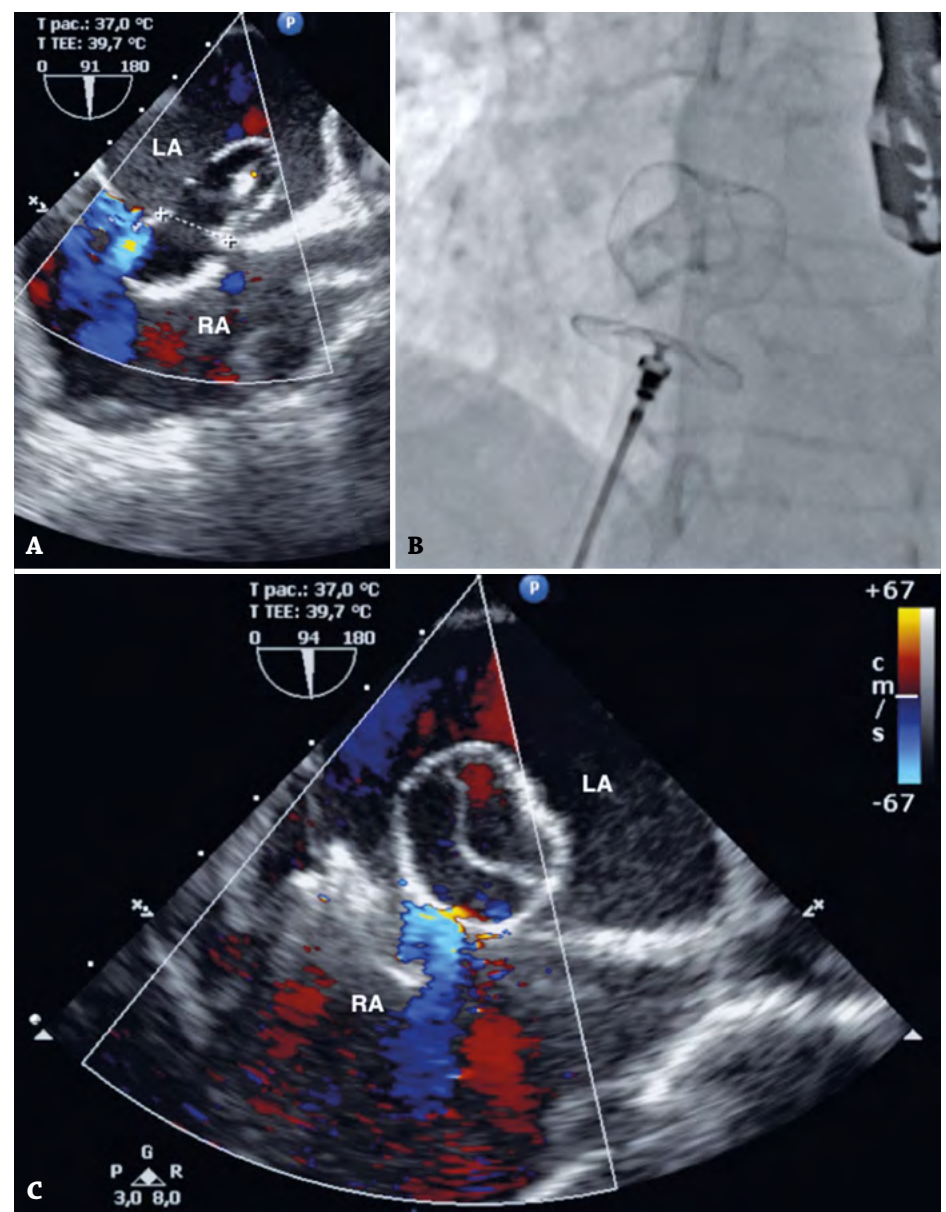


Figure 1. (A) Transesophageal echocardiography image of 16-mm ASD diameter determined using a balloon and stop-flow sizing technique. (B) The 16-mm CeraFlex™ ASD Occluder showing the tulip shape of the left atrium disc after removal from the 12-F delivery catheter. Fluoroscopic images in two views. (C) Transesophageal echocardiography image.



Video 1. Transesophageal echocardiography image of the tulip shape of the left atrium disc.

A 47-year-old woman was referred for transcatheter closure of a secundum atrial septal defect (ASD). Vascular access was obtained via the right femoral vein and 16-mm ASD diameter was determined using balloon and the stop-flow sizing technique (Figure 1A).

During positioning of a CeraFlex™ ASD Occluder 16-mm device (Lifetech Scientific Co, Shenzhen, China), through a 12-F SteerEase™ sheath, the left atrial disc of the device adopted an abnormal tulip shape (Figures 1B and 1C).

The device was retracted into the delivery sheath and, in a second attempt to deploy it, the left atrial disc adopted the same shape. The device was pulled out of the delivery catheter and kept the abnormal shape. A CeraFlex™ ASD Occluder 18mm device was successfully implanted with no residual shunt.

CeraFlex™ is an alternative device to Amplatzer® septal occlude with some structural innovations, including increased device flexibility, and a delivery system that

allows the device to be deployed with reduced tension. The CeraFlex™ device uses a proprietary titanium nitride coating technology that prevents over 90% of nickel release compared with uncoated occluders.¹

This is a rare and probably specific complication of the CeraFlex™ septal occluder device, previously called “tulip” deformation. This problem appears to occur when attempting to retrieve the intra-atrial disc, while it remains in contact with some part of the atrial septum or left atrial wall. This probably results in a stronger traction force and consequent modification of the nitinol mesh properties. Assuring complete intra-atrial position of the left atrial disc before retrieving it into the sheath is how one can avoid this complication.

SOURCE OF FINANCING

None.

CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest.

CONTRIBUTION OF AUTHORS

Conception and design of the study: PC; data collection: APT and FMV; data interpretation: PC and DP; text writing: GLA and RCS; approval of the final version to be published: PC and GLA.

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