

CASE REPORT

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Closing gigantic left atrial appendage using a LAmbré Closure System: First implant experience in North America

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Abstract

Introduction: Despite maturing experience and growing procedural familiarity, there remain challenges in percutaneous left atrial appendage (LAA) closure due to anatomical complexities.

Methods: We report a complex and extremely large LAA that was successfully closed percutaneously using a LAmbré Closure System (Lifetech Scientific Corp.). Cardiac computed tomography angiography demonstrated a gigantic multilobed LAA measuring 48×45.3 mm at the level of the ostium that cannot be occluded by the currently approved LAA closure devices in Canada.

Results: The manufacturer custom-made a LAmbré 30/50 mm (lobe/disc) device to fit this patient's LAA according to his CTA, which was successfully deployed under fluoroscopy and transesophageal echocardiogram guidance without procedure-related complications.

Conclusion: The LAmbré device may be considered to close very large LAAs.

KEYWORDS

atrial fibrillation, LAmbré, left atrial appendage closure

1 | INTRODUCTION

Despite maturing experience and growing procedural familiarity, there remain challenges in percutaneous left atrial appendage (LAA) closure due to anatomical complexities. We report a complex and extremely large LAA that was successfully closed percutaneously, using a LAmbré Closure System (Lifetech Scientific Corp.).

2 | CASE REPORT

An 86-year-old male with permanent atrial fibrillation (AF) with CHA₂DS₂-Vasc 2 was referred for LAA closure given a high-risk of bleeding due to recurrent falls. Cardiac computed tomography

angiography (CCTA) demonstrated a gigantic multilobed LAA measuring 48×45.3 mm at the level of the ostium (Figure 1). Currently approved LAA closure devices in Canada, including Watchman FLX (Boston Scientific) and Amplatzer Amulet (St. Jude Medical), were too small for this LAA. Thus, we obtained special access approval and approached the manufacturer to custom make a LAmbré Closure System¹ to fit this patient's LAA based on the measurements obtained from his CCTA. The procedure was guided by transesophageal echocardiogram (TEE) under general anesthesia. There was no evidence of thrombi or spontaneous echo contrast inside the LAA. Measurements of the LAA by TEE at 135° were 41 mm in width at the level of the ostium and 24.1 mm in depth (Figure 2A). Right femoral venous access was obtained and transseptal puncture was performed using the VersaCross radiofrequency system (Baylis

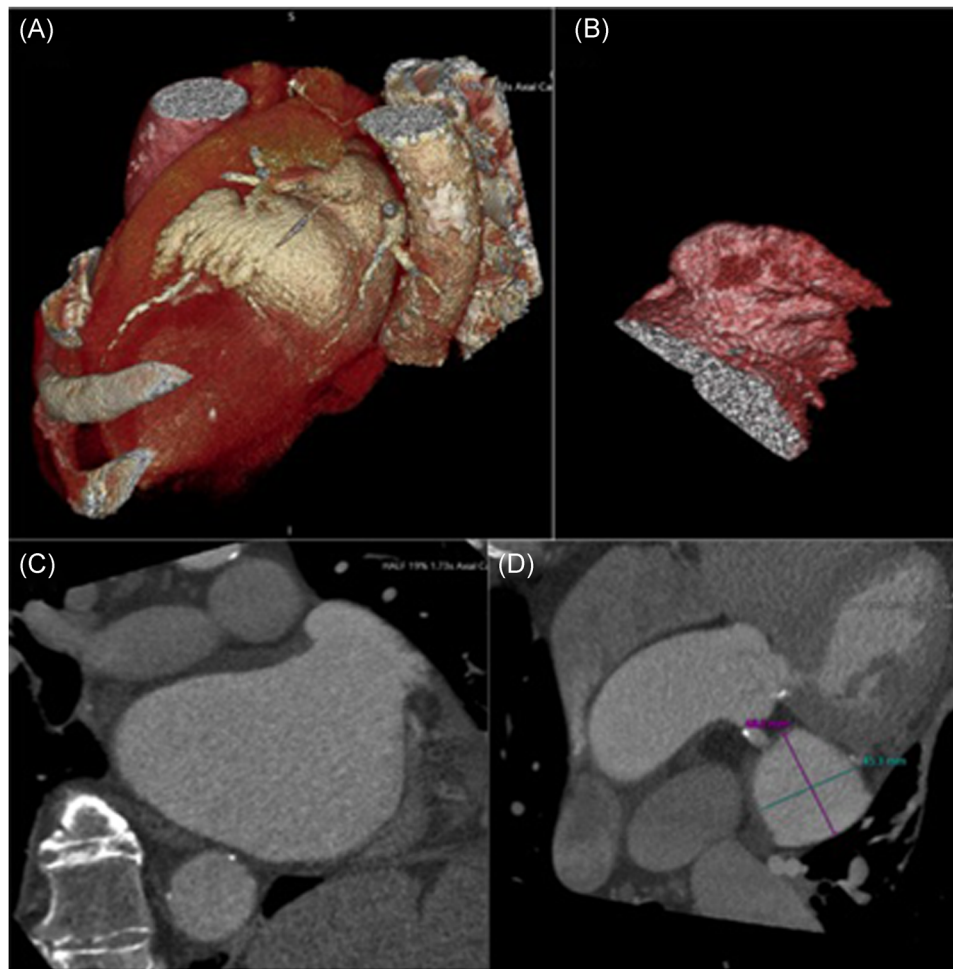


FIGURE 1 (A–C) Preprocedural CCTA showing a gigantic multilobed LAA. (D) LAA ostium with diameters measuring 48 mm × 45.3 mm. CCTA, cardiac computed tomography angiography; LAA, left atrial appendage

Medical). A 10-F delivery sheath was then advanced into the left atrium. Through the delivery sheath, a pigtail catheter was used to engage the LAA and to allow for safe advancement of the sheath. A LAmbré Closure System 30/50 mm (lobe/disc) was then deployed under fluoroscopy (Figure 3). After the deployment of the LAmbré device, positioning and compression were verified, and no peri-device leak was seen on TEE (Figure 2B,C). The patient was discharged on the same day postprocedure without any complications. Transthoracic echocardiogram performed the day after the procedure confirmed that the device was well-seated in the appropriate position.

3 | DISCUSSION

Owing to the high variability of the LAA anatomy, LAA closure with the currently available devices is sometimes very challenging. Previously, the “Kissing Watchman” technique with two Watchman

devices and double-device LAA closure using a combination of Watchman–Amplatzer Plug devices (Abbott Vascular) have been reported to close a large multilobar LAA.^{2,3} However, we successfully closed a gigantic LAA using a single LAmbré Closure System. Given the simplicity of the procedure, this device may be an optimal solution to close a large LAA percutaneously.

4 | CONCLUSION

We report a complex and extremely large LAA that was successfully closed percutaneously using a LAmbré Closure System. Although this device is not commercially available in North America, this device should be considered as a potential option to close a large LAA percutaneously.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

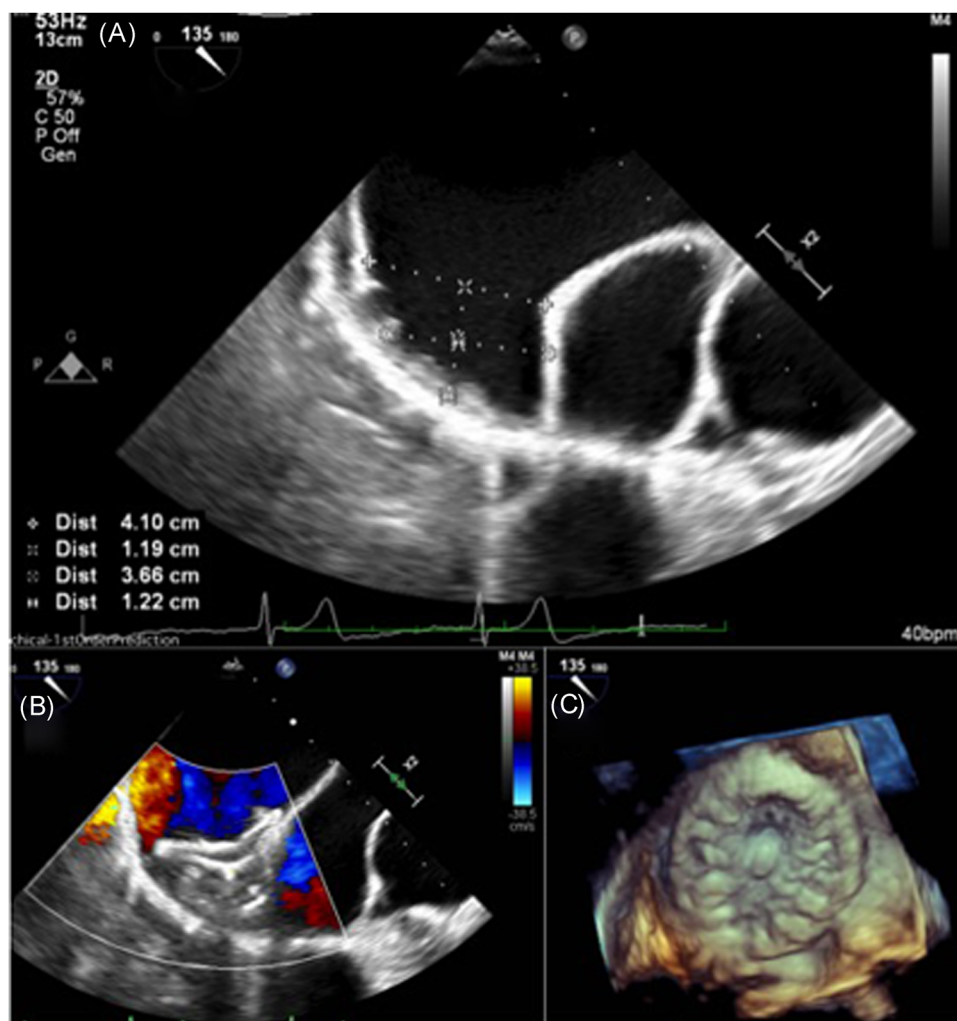


FIGURE 2 Pre- and post-TEE images: (A) Preprocedural TEE at 135° showed measurements of 41 mm in width and 24.1 mm in depth. (B) Postprocedural TEE showed the proper placement of LAMBRE 30/50 mm with its disk covering the LAA entrance and no significant peri-device leak. (C) Three-dimensional TEE showing the LAMBRE covering the entrance of LAA. LAA, left atrial appendage; TEE, transesophageal echocardiogram

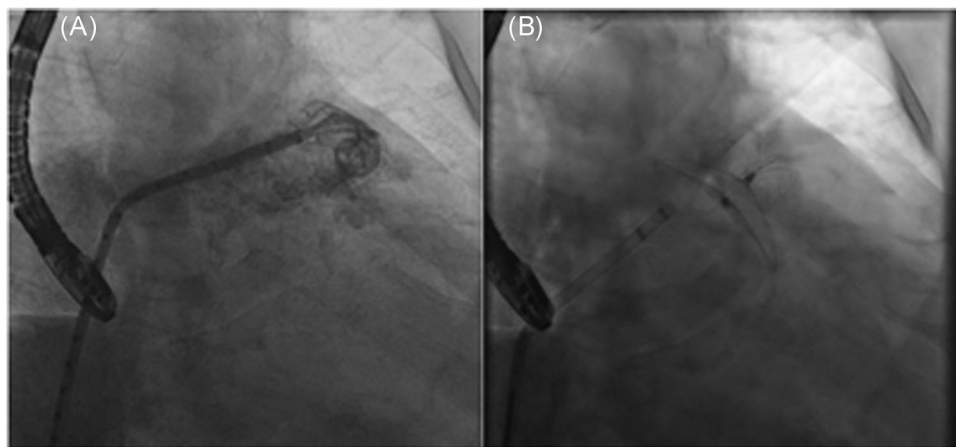


FIGURE 3 Fluoroscopy images: (A) Contrast injection into LAA. (B) Fluoroscopy image of LAMBRE's release after confirmation of proper positioning and device stability. LAA, left atrial appendage

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