WATCHMAN FLX implantation with an extremely small left atrial appendage ostium

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Summary

An 84-year-old man with paroxysmal AF underwent a left atrial appendage (LAA) occlusion using a WATCHMAN FLX. Pre-procedural transesophageal echocardiography (TEE) revealed a very small LAA ostium and depth ([11.3 mm ostium × 10.8 mm depth [45°], 10.0 mm ostium ×11.9 mm depth [90°] and 11.9 mm ostium × 11.9 mm depth [135°], respectively]. The WATCHMAN FLX (20mm) was deployed, and the post-release diameter ranged from 17.0-18.2 mm (9-15% compression) and TEE revealed a well-seated device. A sufficient LAA seal was confirmed by TEE 45-days after the WATCHMAN FLX implantation.
1 Acknowledgement

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Case Description

An 84-year-old man with paroxysmal atrial fibrillation and repeated episodes of colonic diverticular bleeding (the CHA₂DS₂-VASc score was 5 for including age, hypertension, diabetes mellitus and stroke [cardiogenic cerebral embolism], and the HAS-BLED score 4 for including hypertension, stroke, bleeding, and age) underwent a left atrial appendage (LAA) occlusion using a WATCHMAN FLX (Boston Scientific, Marlborough, MA, USA).

Pre-procedural transesophageal echocardiography (TEE) revealed a very small LAA ostium (Figure 1A-1D and Video 1). The LAA had the following measurements: 11.3 mm ostium × 10.8 mm depth (45°), 10.0 mm ostium × 11.9 mm depth (90°) and 11.9 mm depth (135°), respectively. The details of the distal LAA could not be evaluated by TEE. To confirm the details of the LAA anatomy, pre-procedural computed tomography (CT) was performed. It showed the same small LAA ostium (10.8 mm) as the TEE and the 11.8 mm depth (Figure 1E-1F). Although the device requires an LAA ostial diameter of at least 14 mm, we decided to perform the procedure anyway because of the possibility that there was an underestimation of the ostial diameter by TEE and CT, and the safe distal device advancement and strong radial force of WATCHMAN FLX. 1, 2

The LAA angiography showed that the LAA ostial diameter calculated based on the diameter of the guiding catheter was 10.4 mm (Figure 1G). The WATCHMAN FLX (20 mm) was deployed while the distal end of the device was pressed on the LAA wall (Figure 1H and Video 2). The post-release diameter ranged from 17.0 to 18.2 mm (9-15% compression) and TEE revealed a well-seated device (Figure 1I-1L and Video 3). We determined it could be placed because of the device good stability during a strong tug test. A sufficient LAA seal was confirmed 45-days after the WATCHMAN FLX implantation (Figure 1M-1O).
**Statement of Consent:** The authors confirm that written consent for submission and publication of this case report including image and associated text has been obtained from the patients in line with COPE guidance.

**Conflict of Interest:** None

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References


Figure legends

Figure 1

A: Pre-procedural transesophageal echocardiography showing the left atrial appendage had 11.3 mm ostium × 10.8 mm depth (stump at 45°).

B: Pre-procedural transesophageal echocardiography showing the left atrial appendage had 10.0 mm ostium × 11.9 mm depth (stump at 90°).

C: Pre-procedural transesophageal echocardiography showing the left atrial appendage had 11.9 mm ostium × 11.9 mm depth (stump at 135°).

D: Pre-procedural transesophageal echocardiography showing the left atrial appendage 3D image.

E: Pre-procedural computed tomography in the RAO 3 CAU 30 view; the left atrial appendage ostium 10.8 mm.

F: Pre-procedural computed tomography in the superior view showed the ostium was 10.8 mm, and it was 11.8 mm from the ostium to the opposite wall of the left atrial appendage.

G: LAA angiography. The guiding catheter was 8Fr (external diameter = 2.7 mm) and the left atrial appendage ostial diameter was 10.4 mm as calculated based on the reference diameter.

H: Angiographical image after the WATCHMAN FLX implantation.

I: Post-procedural transesophageal echocardiography showing the left atrial appendage was 17.0 mm ostium (stump at 45°).

J: Post-procedural transesophageal echocardiography showing the left atrial appendage was 17.5 mm ostium (stump at 90°).

K: Post-procedural transesophageal echocardiography showing the left atrial appendage was 18.2 mm ostium (stump at 135°).

L: Post-procedural transesophageal echocardiography showing the left atrial appendage 3D image.
**M:** Transesophageal echocardiography 45-days after the implantation showed no thrombi along the device.

**N:** Transesophageal echocardiography 45-days after the implantation showed that there was no leak flowing around the device.

**O:** Transesophageal echocardiography 45-days after the implantation showing the left atrial appendage 3D image.

CT, computed tomography; LAA, left atrial appendage; TEE, transesophageal echocardiography.
Video Legends

A: Pre-procedural transesophageal echocardiography (stump at 90°)

B: WATCHMAN FLX deployment

C: Post-procedural transesophageal echocardiography (stump at 90°)