

Left Atrial Appendage Occlusion

The Current Device Landscape and Future Perspectives



Ignacio Cruz-Gonzalez, MD, PhD^{a,*}, Monica Fuertes-Barahona, MD^a,
Jose C. Moreno-Samos, MD^a, Rocio Gonzalez-Ferreiro, MD^a,
Yan Yin Lam, MD^b, Pedro L. Sanchez, MD, PhD^a

KEYWORDS

• Atrial fibrillation • Stroke prevention • Left atrial appendage occlusion • Stroke

KEY POINTS

- Left atrial appendage occlusion is a safe and effective therapy for stroke prevention in atrial fibrillation patients.
- Different devices have been used for left atrial appendage occlusion.
- Several devices for left atrial appendage occlusion are under development or in the initial clinical experience.

Since the earliest designs of left atrial appendage occlusion (LAAO) devices, technological evolution has undergone a continuous advance resulting in significant improvements in the currently available devices.

In this article, the latest design improvements and clinical data regarding the most widely used devices, the Amplatzer Amulet (Abbott Vascular, Abbott Park, IL, USA) and Watchman (Boston Scientific, Marlborough, MA, USA), are discussed. Recently introduced devices, such as the LAmbre (Lifetech Scientific Co, Ltd, Shenzhen, China) or the Ultraseal (Cardia, Eagan, MN), are also reviewed, and finally, the new prototypes in preclinical or in the initial clinical stage are summarized^{1,2} (Table 1).

ENDOCARDIAL APPROACH

Amplatzer Cardiac Plug and Amplatzer Amulet

The Amplatzer devices (Amulet and Amplatzer Cardiac Plug) are self-expanding devices with a distal lobe and a proximal disc connected by an articulated waist. The devices are made of a nitinol mesh with 2 polyester patches sewn onto the 2 components. The devices are retrievable and repositionable, and they are implanted from the femoral vein using a transeptal approach.

The Amulet device is an evolution of the Amplatzer Cardiac Plug, and it was introduced in 2012 and obtained the CE mark in January 2013. Despite the similarity in design compared with the Amplatzer Cardiac Plug,^{3–6} the Amulet had several novelties, including

Disclosure Statement: Dr I. Cruz-Gonzalez is proctor and consultant for Abbott Vascular and Boston Scientific. Dr Y. Y. Lam is proctor for LAmbre Left Atrial Appendage Occluder.

^a Cardiology Department, University Hospital of Salamanca, Biomedical Research Institute of Salamanca (IBSAL), CIBER-CV, Paseo San Vicente, Salamanca 37007, Spain; ^b Cardiology Department, Centre Medical, 62 Mody road, East Tsim Sha Tsui, Hong Kong, China

* Corresponding author. Cardiology Department, University Hospital of Salamanca, Paseo San Vicente 58-182, Salamanca 37007, Spain.

E-mail address: i.cruz@usal.es

Intervent Cardiol Clin 7 (2018) 253–265

<https://doi.org/10.1016/j.iccl.2017.12.011>

2211-7458/18/© 2018 Elsevier Inc. All rights reserved.

Table 1
Descriptive summary of the main devices of closure of left appendage

	Amplatzer Amulet	Watchman	LAmBRE	Ultraseal	Coherex WaveCrest	Lariat
Design	Distal lobe and proximal disc	Parachute-shaped device	Umbrella and a cover connected with a short central waist	Proximal disc and a distal lobe	Umbrella shape and distal anchoring	Percutaneous epicardial LAA ligation guided by an endocardial magnet tipped wire placed in the LAA
Sizes lobe	8 sizes (16, 18, 20, 22, 25, 28, 31, and 34 mm)	5 sizes (21, 24, 27, 30, and 33 mm)	11 sizes (16, 18, 20, 22, 24, 26, 28, 30, 32, 34, and 36 mm)	9 sizes (16, 18, 20, 22, 24, 26, 28, 30, and 32 mm)	3 sizes (22, 27, and 32 mm)	Maximum target size: W 40 × H 20 × L 70 (Lariat+: W 45)
Sheaths	12–14F	14F	8–10F	10–12F	12F	12F Lariat suture delivery device
Device selection	3–6 mm longer than LAA neck diameter	10%–20% longer than LAA neck diameter	3–8 mm longer than the measured LAA orifice	Bulb diameter at least 25% to 33% greater than the largest diameter of the landing zone	The smaller device size is chosen so that the longest measured diameter does not exceed the nominal device size and the average of the longest and shortest diameters is at least 3 mm below the nominal device size	Not applicable

(Courtesy of Amulet image courtesy of Abbott Vascular, IL; Watchman image courtesy of Boston Scientific, Burlington, MA; LAmBRE image courtesy Lifetech Scientific Co, Ltd, Shenzhen, China; Ultraseal image courtesy of Cardia, Eagan, MN; Coherex WaveCrest System image courtesy of Coherex Medical, Biosense Webster, Johnson & Johnson, Salt Lake City, UT; LARIAT device image courtesy of SentreHEART, Redwood City, CA; with permission.)

Download English Version:

<https://daneshyari.com/en/article/8663219>

Download Persian Version:

<https://daneshyari.com/article/8663219>

[Daneshyari.com](https://daneshyari.com)