

Left atrial appendage closure with a novel nonpacifier device for stroke prevention in atrial fibrillation

Ziyong Hao^a, MD; Weifeng Zhang^a, MD; Zhongping Ning^b, MD; Chenyang Jiang^c, MD; Lihong Wang^d, MD; Jianjun Jiang^e, MD; Heng Zhang^f, MD; Cheng Wang^a, MD; Xin Pan^a, MD; Lisheng Jiang^{g*}, MD, PhD; Ben He^g, MD, PhD

^aDepartment of Cardiology, Shanghai Chest Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

^bDepartment of Cardiology, Zhoupu Hospital, Pudong New District, Shanghai, China

^cDepartment of Cardiology, Sir Run Run Shaw Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China

^dDepartment of Cardiology, Zhejiang Provincial People's Hospital, Hangzhou, Zhejiang, China

^eDepartment of Cardiology, Taizhou Hospital of Zhejiang Province, Taizhou, Zhejiang, China

^fDepartment of Cardiology, The First Affiliated Hospital of Bengbu Medical College, Bengbu, Anhui, China

^gDepartment of Cardiology, Shanghai East Hospital, Tongji University School of Medicine, Shanghai, China

Supplementary Table 1 Specifications of the novel LAA closure device

Device model	Device size (mm)	Landing zone diameter (mm)	Working depth (mm)
YFDQ-20-1, YFDQ-20-2	20	14-18	11
YFDQ-24-1, YFDQ-24-2	24	17-21	13
YFDQ-27-1, YFDQ-27-2	27	19-24	15
YFDQ-31-1, YFDQ-31-2	31	22-28	17
YFDQ-35-1, YFDQ-35-2	35	25-32	19.5

Core Components:

The occluder consists of two parts: 1. A bare nickel-titanium (Ni-Ti) alloy metal stent (providing structural support and shape memory for anatomical conformity). 2. A biocompatible flow-blocking membrane (facilitating endothelialization to prevent thrombus formation).

Delivery System Composition: Includes a push steel cable, delivery sheath, dilation tube, and guiding sheath (all single-use, sterile).

Key Design Features:

Multiple anchor hooks with forward/reverse barbs (for secure fixation without LAA wall damage).

Low-profile height (smaller height than comparable devices for the same diameter, enabling adaptation to more LAA morphologies).

Retrievable and repositionable before final deployment (per "PASS principle" for implantation safety).

Minimum LAA opening diameter for device implantation: ≥ 14 mm (occluder models start at 20 mm, corresponding to 14–18 mm LAA openings).

Maximum LAA opening diameter for device implantation: ≤ 32 mm (largest occluder model: 35 mm, corresponding to 25–32 mm LAA openings).

Contraindication for LAA anatomies: Opening diameter < 14 mm or > 32 mm (no compatible device models available).

LAA = left atrial appendage.

Supplementary Table 2 Antithrombotic regimen at hospital discharge

Antithrombotic treatment	Number of patients, n (%)
DOAC	133 (72.3)
DOAC+antiplatelet	101 (54.9)
DOAC alone	30 (16.3)
VKA	28 (15.2)
VKA+antiplatelet	25 (13.6)
VKA alone	3 (1.6)
DAPT	17 (9.2)
SAPT	2 (1.1)
No treatment	4 (2.2)

Supplementary Table 3 Detailed case profiles of deceased patients

Case	Age	Sex	Time to Death	Cause of Death	Investigation Findings	Device Relatedness
1	76	F	12 months	Traffic accident	NA	Unrelated
2	78	M	1 day	Acute cardiovascular collapse secondary to device embolization with aortic valve obstruction	• Device embolization to aortic valve (echocardiography confirmed) • Emergency surgical retrieval • Refractory cardiogenic shock post-op	Probably related
3	77	F	1 month	Probable cerebrovascular accident (stroke) due to subtherapeutic anticoagulation	• Successful device implantation • Post-op INR 1.03 • Lost to follow-up prior to death	Unrelated
4	78	M	2 months	Probable fatal hemorrhage under dual antithrombotic therapy (warfarin and aspirin)	• Successful device implantation • High bleeding risk (HAS-BLED=5) • Hemoptysis and shortness of breath	Unrelated
5	77	F	2 weeks	Hypernatremic encephalopathy due to warfarin-induced GI and inadequate fluid resuscitation	• Critical INR elevation (9.41) • Refractory hypernatremia despite intervention • Patient non-compliance with life-saving measures	Unrelated

GI = gastrointestinal bleeding, INR = International Normalized Ratio

Supplementary Figure 1: Photograph of the Novel Nonpacifier LAA Occluder Device



Photograph of the novel plug-type nonpacifier LAA occluder. This photograph complements the schematic illustration in Figure 1, offering a realistic visualization of the device' s structure to clarify its anatomical adaptability and safety-oriented design.

LAA = left atrial appendage.

Protocol numbers and approving IRBs for all 6 centers

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