



Case Report

Percutaneous isolation of left atrial appendage thrombus



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ABSTRACT

Most physicians regard left atrial appendage (LAA) thrombus as a contraindication for LAA occlusion due to risk of distal embolization which is a serious complication. Here we report a case of successfully implanted Amplatzer cardiac plug without complication in elderly patients having LAA thrombus with recurrent embolic events despite oral anticoagulants for prevention of thromboembolic events.

<Learning objective: LAA thrombus is not completely resolved in all cases and can be a potential source of stroke or embolization even during anti-coagulation. We would like to share a case that suffered from 6 strokes or embolizations despite anti-coagulation, warfarin or non-vitamin K antagonist oral anti-coagulants due to incomplete resolution of LAA thrombus. In this clinical situation, we can suggest LAA occlusion to isolate thrombus from LA and prevent further stroke or embolization.>

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Introduction

Current guidelines recommend oral anticoagulation therapy for stroke prevention in patients with nonvalvular atrial fibrillation (AF) according to CHA₂DS₂-VASc score and HAS-BLED score [1]. Percutaneous left atrial appendage (LAA) closure is an alternative treatment for permanent protection from thromboembolism, avoiding lifelong antithrombotic therapy, and minimizing the risk of bleeding.

Case report

A 74-year-old woman with persistent AF was referred for percutaneous LAA closure due to recurrent thromboembolism despite treatment with oral anticoagulants. She had suffered from six embolic events of right cerebellar infarction and left popliteal artery occlusion 3 years previously, left renal infarction and left cerebellar infarction 1 year previously, and right distal brachial artery occlusion and bilateral renal infarction 1 month previously (Fig. 1). She took various oral anticoagulants including

warfarin, ribaroxaban, and dabigatran which failed to prevent recurrent embolism events. Echocardiography and cardiac computed tomography revealed LAA thrombus (Fig. 2A and D). After we had an in-depth discussion about the benefits and risks with a surgeon, imaging specialist, the patient and her family members in consideration of the patient's condition and thrombus location at distal part of LAA, we decided to perform carefully LAA closure with no-touch technique to prevent dislodging the thrombus within the LAA. In order to close the LAA without directly contacting LAA thrombus, we performed a left atrial (LA) angiography through the sheath within LA instead of a LAA angiography (Data Supplement Movie 1 in the online version at DOI: [10.1016/j.jccase.2017.05.002](https://doi.org/10.1016/j.jccase.2017.05.002)). Then, we made a ball with a lobe of the device by retracting the sheath in front of LAA, which can allow for better transesophageal echocardiography visualization of the device position and prevent damage to the LAA when the sheath was introduced into the LAA. Then, sheath with device was pushed cautiously to the landing zone not to touch the LAA thrombus under guidance of transesophageal echocardiography (Fig. 2B and E). Finally, the lobe was deployed at position of landing zone followed by deployment of the disc. We successfully deployed an Amplatzer Cardiac Plug of 26 mm size (St. Jude Medical, St. Paul, MN, USA; Fig. 2C and F, and Data Supplement Movie 2 in the online version at DOI: [10.1016/j.jccase.2017.05.002](https://doi.org/10.1016/j.jccase.2017.05.002)). The patient was discharged 4 days after the procedure and has been event-free with anticoagulation.

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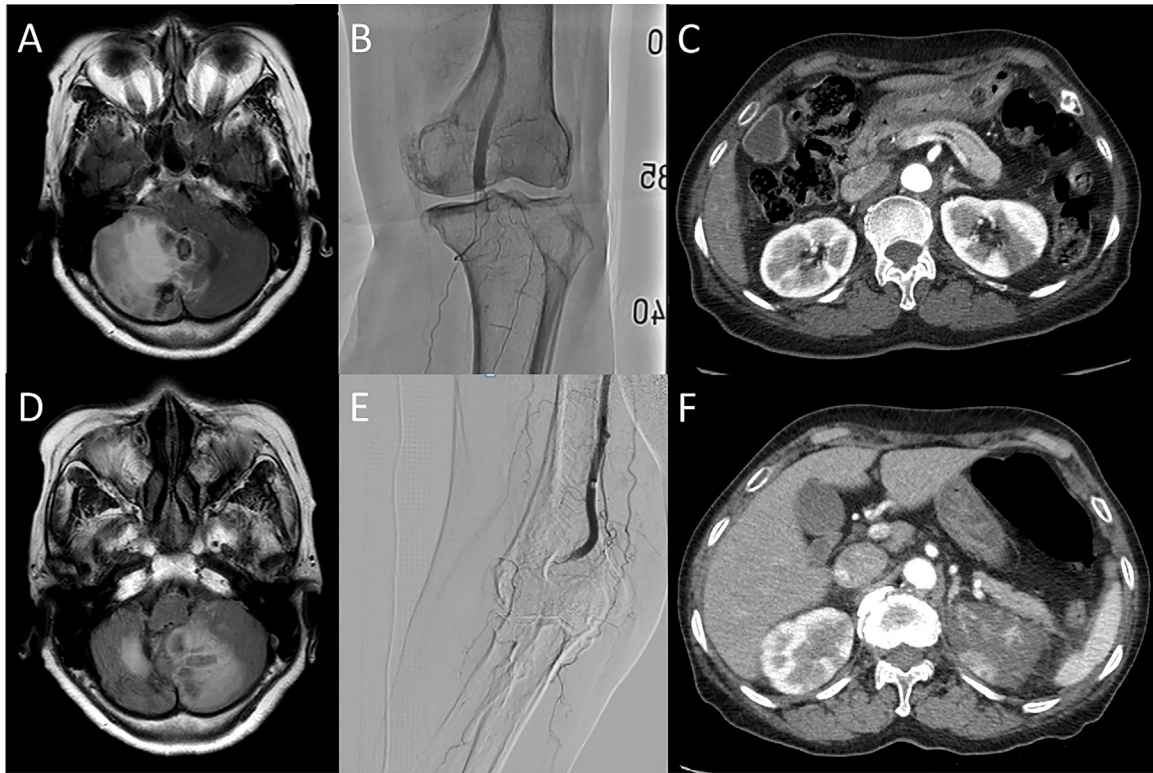


Fig. 1. Recurrent cerebral and systemic embolic events despite oral anticoagulants. Computed tomography, magnetic resonance imaging, or angiographic images of right cerebellar infarction (A), left popliteal artery occlusion (B), left renal infarction (C), left cerebellar infarction (D), right distal brachial artery occlusion (E), and bilateral renal infarction (F) are shown.

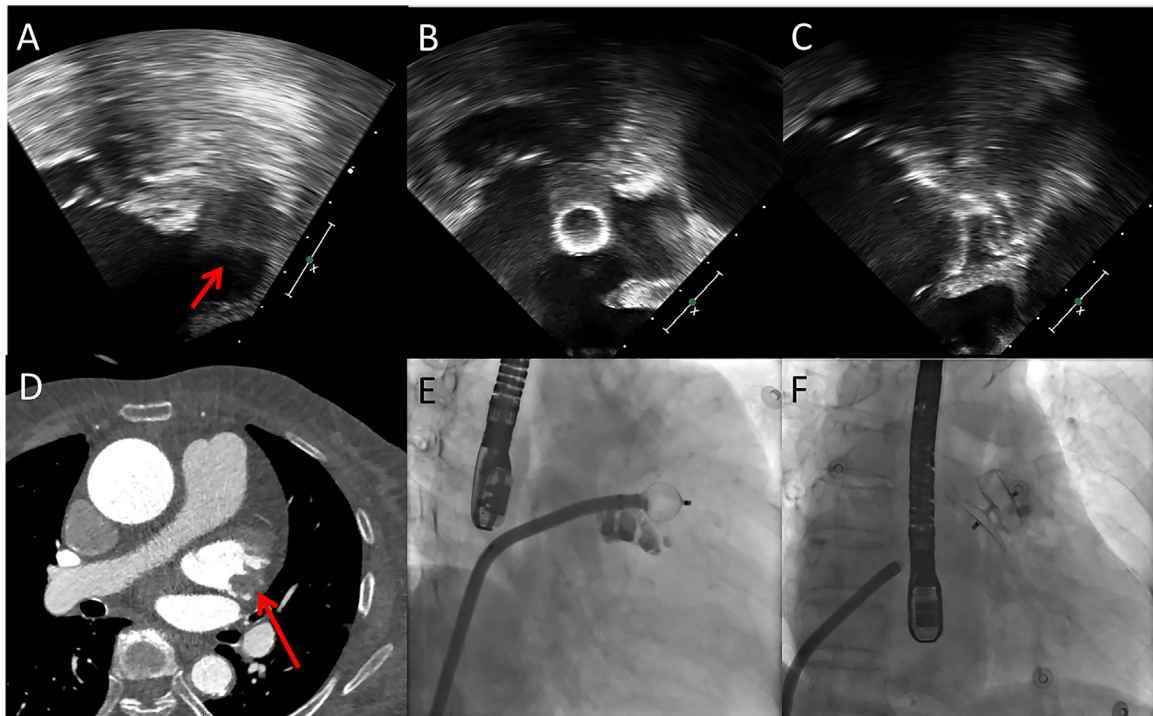


Fig. 2. Key images of procedure and left atrial appendage (LAA) thrombus. Because of LAA thrombus confirmed by pre-intervention echocardiography and cardiac CT angiography (A and D, arrow: thrombus), we made a ball by retracting the sheath covering the device in front of LAA (B) and pushed the device into LAA cautiously not to touch a thrombus under fluoroscopic and transesophageal echocardiography guidance (E). Optimal results were initially confirmed by angiography (F) and then, final echocardiography also confirmed optimal position and no acute complication (C).

Discussion

The rationale for LAA closure is that non valvular AF predisposes to LA thrombosis which was reported as an independent predictor of stroke [2]. In patients with LA or LAA thrombus, the high annual rates of embolic events has been reported up to 13.8% per year [3] and thrombus is localized within the appendage in 90% of the cases [4]. However, vitamin K antagonist (VKA) or non-VKA oral anti-coagulants (NOAC) may fail to resolve the thrombus. There are several reports with small study populations regarding a wide range of resolution rates (16–90%) of intra-atrial thrombus after treatment with VKAs and we have limited data from case reports of treatment with NOACs for thrombus resolution [5]. Therefore, percutaneous LAA closure is good alternative treatment for permanent protection from thromboembolism in cases with recurrent stroke or embolization despite adequate anti-coagulation treatment. However, there is no consensus for patients with LAA thrombus because the presence of LAA thrombus was considered as a contraindication for percutaneous LAA closure in previous randomized controlled trials. This successfully treated case suggests that we keep in mind percutaneous LAA occlusion for stroke prevention despite LAA thrombus.

Conflict of interest

This study was supported by the Cardiovascular Research Center, Seoul, Korea. Dr Jung-Sun Kim is a consultant for Amplatzer cardiac plug, St. Jude Medical.

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