

A protruding lesion on the previous pulmonary vein isolation line in a case with paroxysmal atrial fibrillation

Kazuyoshi Suenari*, Hidekazu Hirao, and Hironori Ueda

Department of Cardiology, Hiroshima Prefectural Hospital, 5-54 Ujina Kanda, Minami-ku, Hiroshima, Japan

* Corresponding author. Tel: +81 82 254 1818; fax: +81 82 253 8274. E-mail address: suenari@bg7.so-net.ne.jp

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A 67-year-old female with paroxysmal atrial fibrillation successfully underwent circumferential pulmonary vein isolation (CPVI). Nine months later, a thrombus formation on the previous CPVI line was occasionally observed in the left atrium by follow-up transoesophageal echocardiography. This is a rare case with a late detection of a clot on the previous CPVI line in spite of receiving dabigatran.

Case presentation

A 67-year-old woman with drug refractory paroxysmal atrial fibrillation (AF) was scheduled for catheter ablation. She underwent a successful circumferential pulmonary vein isolation (CPVI) using a 4-mm irrigated-tip ablation catheter (Cool Path Duo™, St. Jude Medical, Inc.) guided by EnSite Velocity™ system (St. Jude Medical, Inc.). Nine months later, she underwent follow-up transoesophageal echocardiography (TEE) to evaluate the left atrial (LA) and LA appendage (LAA) function without any AF recurrence. As a result, a protruding lesion was occasionally observed in the LA (Figure 1A), and had a high echoic appearance, with non-mobility, and sessile lesion morphology. Although no tumours or thrombi were detected in either the LA or LAA on the TEE and reconstructed three-dimensional computed tomography (CT) images before CPVI (Figure 1B), the protrusion appeared on the previous right PV isolation line nearby the anterior aspect of the right inferior PV (RIPV, Figure 1C and D). The lesion size was 12 × 15 mm. According to the cardiac cine magnetic resonance imaging, the lesion appeared as if it could obstruct the blood flow from the RIPV (Movie in the Data Supplement). She had been receiving 110 mg of

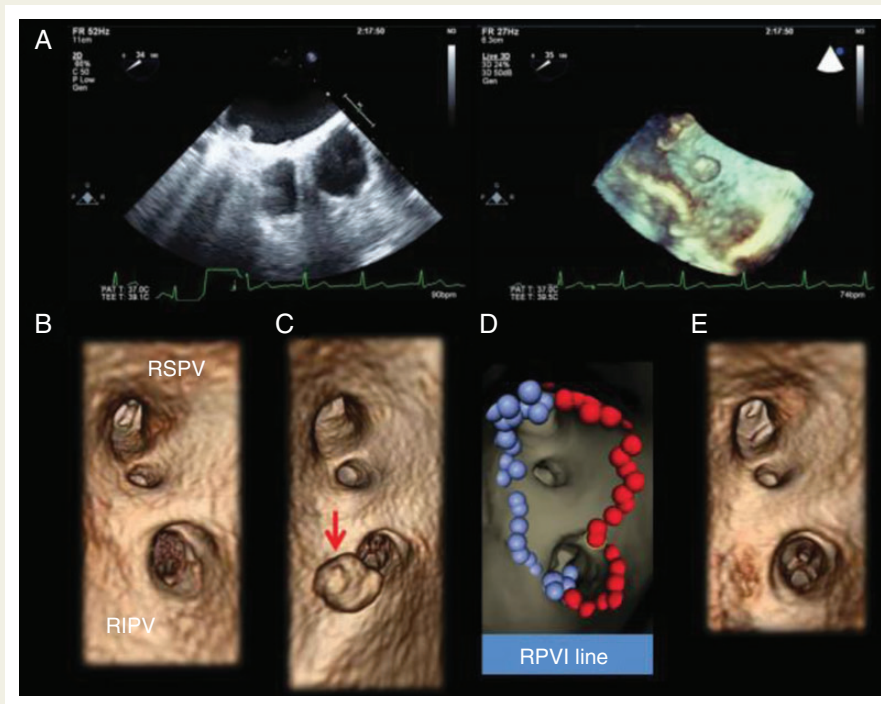


Figure 1 A protruding lesion on the previous CPVI line. Nine months after the primary procedure, a protruding lesion was found by two- and three-dimensional follow-up TEE images. It had a high echoic appearance, with non-mobility, and sessile lesion morphology (A). No tumours or thrombi were detected at the same site on the reconstructed three-dimensional CT images before the CPVI (B). The lesion (red arrow) was found to be located at the ostium of the right inferior PV (C) and was closely related to the previous CPVI line (D). The lesion was observed to have disappeared from the LA in the repeat CT scan 6-months after having found it (E). RSPV indicates right superior pulmonary vein; RIPV, right inferior pulmonary vein; RPVI; right pulmonary vein isolation.

dabigatran twice daily until the lesion was detected (CHADS₂ score 1). Since the protruding lesion was suspected to be due to thrombus formation, tumour, or iatrogenic granuloma, first the dose of the dabigatran was increased to 150 mg twice daily. She did not have any findings that suggested a malignancy; therefore, we carefully observed her in our clinic. Fortunately, she has had no symptoms for 6-months after finding the protruding lesion. Follow-up CT scanning revealed that the protruding lesion had disappeared from the LA (Figure 1E).

Although CPVI has a significant effect on the long-term efficacy of AF ablation, several critical complications have been reported.¹ The present case was found such an asymptomatic protruding lesion on the previous CPVI line 9 months later. To the best of our knowledge, there have been no previous similar publications in the medical literature up to now. After AF ablation, it has been reported that late ischaemic stroke events with a minimal residual deficit rarely occur, and have an incidence of only 0.06% per year.² Because all patients age over the length of the follow-up, there is an inevitable increased vulnerability to a risk of a stroke over time if AF were to recur.³ However, those late stroke events might be caused not only by LAA thrombus due to AF recurrence, but also to thrombus formation on the CPVI line as in the present case. The protruding lesion in the present case might have been generated by the development of coagulum adhering to the radiofrequency-induced thermo-coagulative necrosis on the atrial wall. Since it was relatively small, the follow-up transthoracic echocardiography twice at 1 and 6 months after the procedure could not detect it. In the present case and similar cases, routine follow-up TEE or CT scans might be useful to detect any thrombus formation in the LA after AF ablation and to decide whether to discontinue systemic anticoagulation therapy.

Conflicts of interest: There is no conflict of interest or financial relationship with the industry for any of the authors.

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