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Fully contrast-less EchoNavigator-guided left atrial appendage occlusion in a patient with severe chronic kidney disease

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The EchoNavigator® (Philips Healthcare) is a recently introduced system able to integrate real-time information from transoesophageal echocardiography (TOE) and fluoroscopy in the same anatomical alignment, and its use has been associated with the reduction of

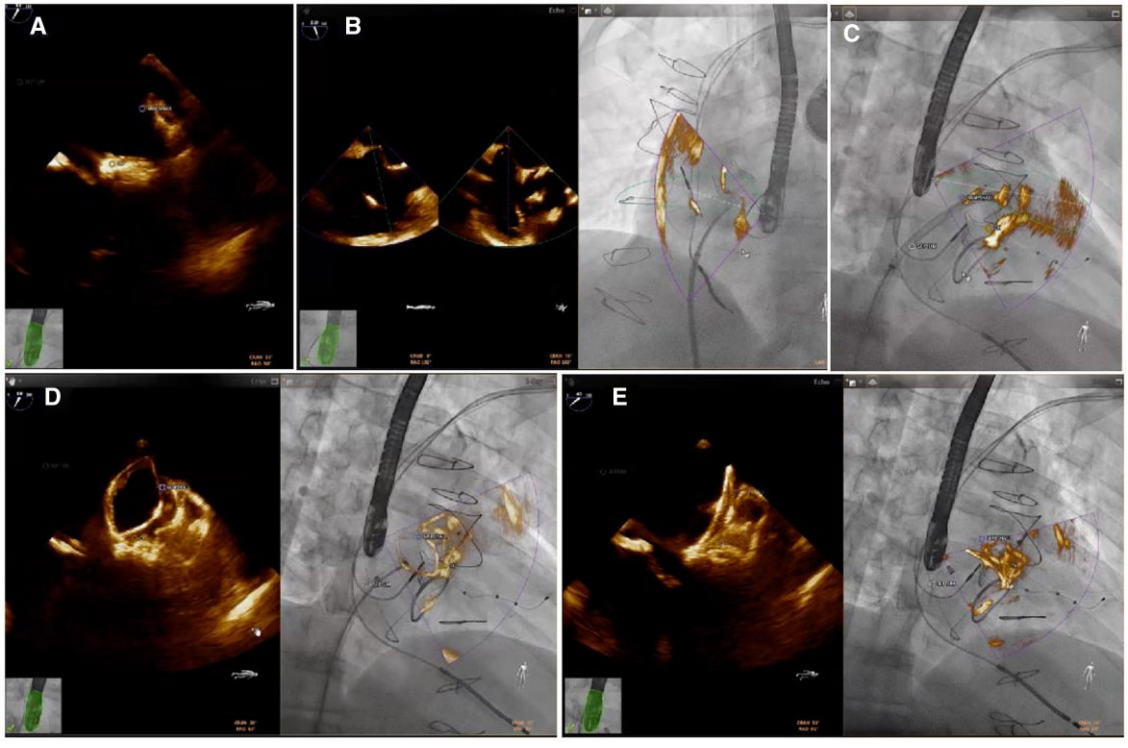

Figure 1 (*A*) Left circumflex and Marshall band markers placed at the beginning of the procedure. (*B*) Transseptal puncture is easily followed with the aid of echographic overlay that also helps with the positioning of the device inside the left atrial appendage (*C*). (*D*) The device is stable after a gentle pull-manoeuvre and a correct position is established with the Echonavigator system (*E*).

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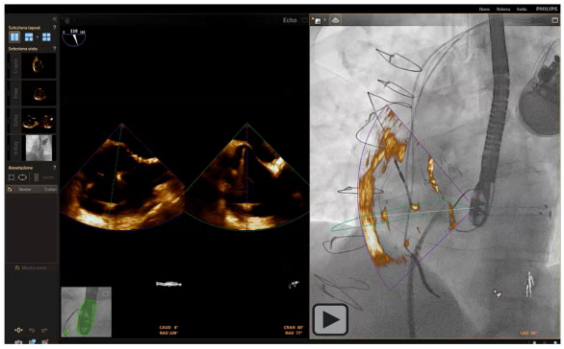
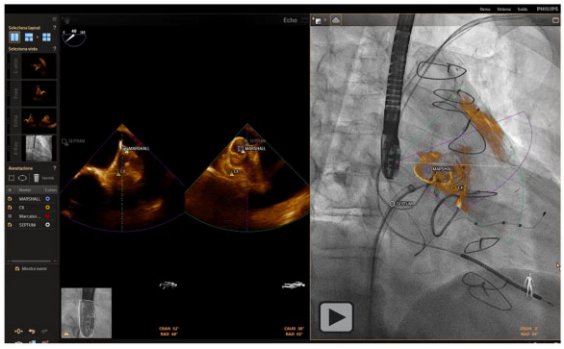
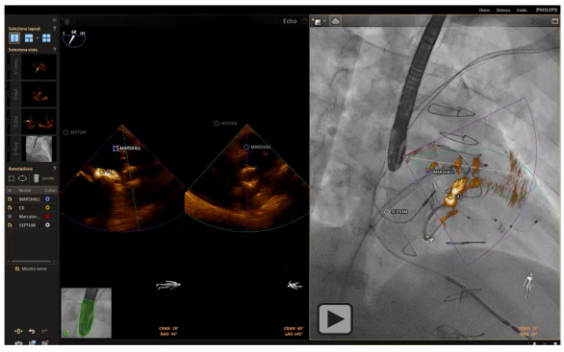


Video 1 Transseptal puncture.



Video 3 The device in its final position.



Video 2 The implantation of the device and colour Doppler flow of the mitral valve showing no interference with the device.

radiation exposure and fluoroscopy time.[1,2] The present case illustrates the advantages resulting from the use of intraprocedural guidance with the Echonavigator system (EN), in particular, the possibility to avoid any contrast dye. A 50-year-old hypertensive gentleman with a history of mitral and coronary artery disease, previous treated surgically, was referred for percutaneous left atrial appendage (LAA) occlusion because of permanent atrial fibrillation and a history of severe not-correctable gastrointestinal bleeding while on oral anticoagulant therapy. The patient also suffers from chronic kidney disease, and the estimated glomerular filtration rate was 40 mL/min/1.73 m^2. Hence, pre-procedural planning with TOE was carried out showing a thrombus-free LAA with a landing zone of 21 mm. The LAA occlusion procedure was performed under general anaesthesia and TOE guidance, using fluoroscopic-echocardiographic fusion imaging from the EN software (Philips Healthcare, Amsterdam, Netherlands). At the beginning of the procedure, we placed fixed markers on the left circumflex artery and the tip of the Marshall band (*Figure 1A*) that highlighted the LAA ostium and guided the subsequent catheter and device positioning in relation to relevant cardiac structures. EN provided significant advantages during the transseptal puncture (*Figure 1B*, *Video 1*) and guided the hardware and device orientation during the implantation (*Figure 1C*). A 25-mm Amplatzer Amulet (Abbott, Chicago, IL, USA) occluder device was chosen. Good stability of the implanted device (*Figure 1D*), no interference with the mitral valve apparatus (*Video 2*), and the correct final position were assessed by TOE (*Figure 1E*, *Video 3*). The patient was discharged home the day after and dual antiplatelet therapy was recommended for 1 month.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: None declared.

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