



## CASE REPORT

# Unusual cause of central aortic prosthetic regurgitation during transcatheter replacement



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### KEYWORDS

Aortic regurgitation;  
Transcatheter aortic valve replacement;  
Coronary occlusion

**Abstract** Transcatheter aortic valve replacement (TAVR) is an increasingly common procedure for the treatment of aortic stenosis in elderly patients with comorbidities that prevent the use of standard surgery. It has been shown that implantation without aortic regurgitation is related to lower mortality. Mild paravalvular regurgitation is inevitable in some cases due to calcification of the aortic annulus and its usually somewhat elliptical shape. Central regurgitation is less common, but has been associated with valve overdilatation in cases in which reduction of paravalvular regurgitation was attempted after the initial inflation. However, there are no reported cases of central prosthetic aortic regurgitation due to acute LV dysfunction. We report a case in which central aortic regurgitation occurred due to transient ventricular dysfunction secondary to occlusion of the right coronary artery by an embolus. The regurgitation disappeared after thrombus aspiration and normal ventricular function was immediately recovered. © 2016 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. All rights reserved.

### PALAVRAS-CHAVE

Insuficiência aórtica;  
Substituição percutânea de válvula aórtica;  
Oclusão coronária

### Causa rara de refluxo central durante a substituição percutânea de válvula aórtica

**Resumo** A substituição percutânea de válvula aórtica (*transcatheter aortic valve replacement* – TAVR) tem-se tornado cada vez mais frequente para o tratamento da estenose aórtica em pacientes idosos com doenças associadas, para evitar a cirurgia convencional. Sabe-se que, não havendo refluxo aórtico após o implante, a mortalidade será mais baixa. Em alguns casos, contudo, um refluxo paravalvular moderado é inevitável, devido à calcificação do anulo-aórtico e à sua configuração geralmente elíptica. O refluxo central é mais raro, tendo sido associado à excessiva dilatação da válvula em casos em que se tentou redução do refluxo paravalvular, após a inflação inicial. Entretanto, não foram referidos casos de refluxo aórtico central por disfunção ventricular esquerda aguda. Referimos um caso em que ocorreu refluxo aórtico central por

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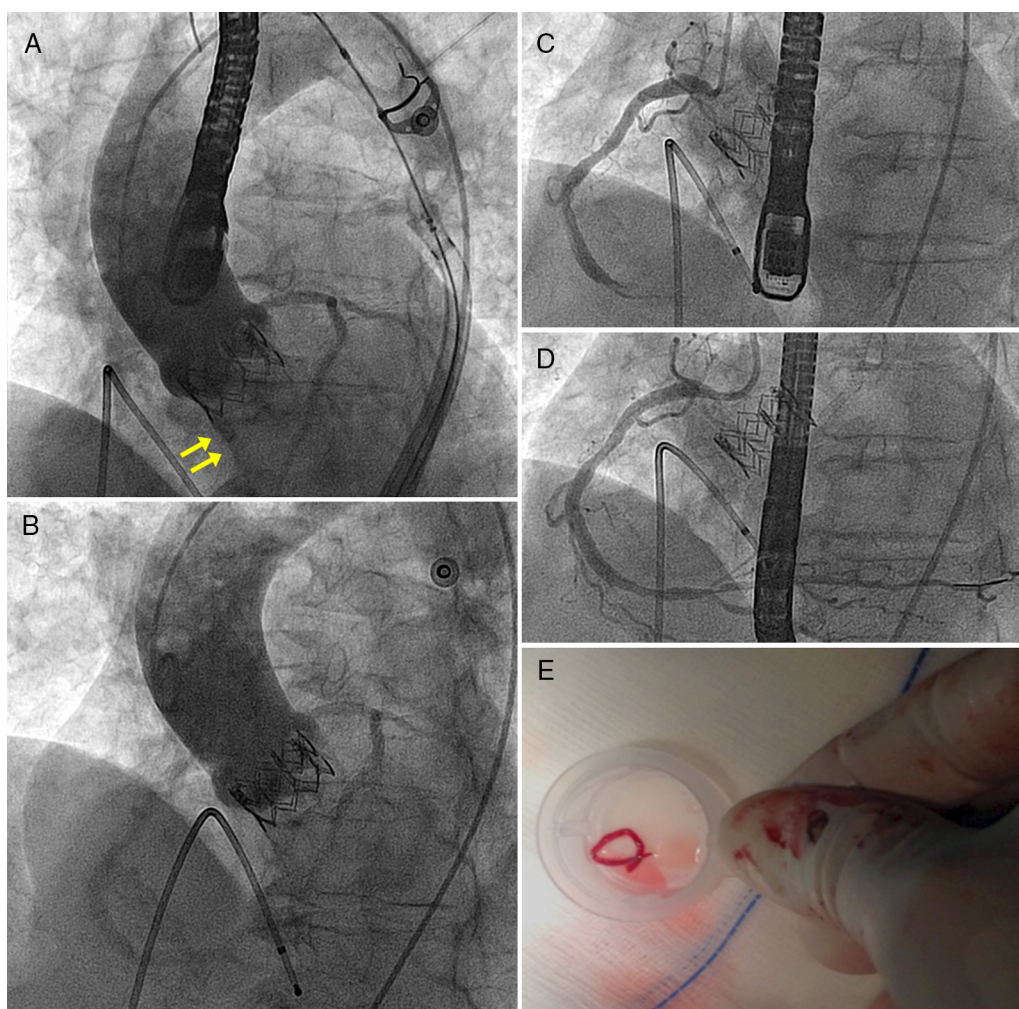
disfunção ventricular transitória, secundária à oclusão da artéria coronária direita por êmbolo. O refluxo desapareceu após aspiração do trombo, sendo recuperada imediatamente a função ventricular normal.

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## Introduction

Paravalvular aortic regurgitation (PAR) is relatively common after transcatheter aortic valve replacement (TAVR). In a recent meta-analysis, the incidence of moderate or severe PAR was 11.7%, although it is apparently less frequent with the Edwards SAPIEN valve (Edwards Lifesciences; Irvine, CA, USA) than with the CoreValve® (Medtronic; Tolothenaz, Switzerland) (9.1% vs. 16.0%, respectively;  $p=0.005$ ). The PARTNER study reported severe PAR in 6.8% of cases,

compared to 1.6% found in the meta-analysis by Athapan et al., while moderate PAR occurred in 10.5% of cases in both studies.<sup>1,2</sup> Minimal PAR was observed in 46% according to the meta-analysis. Three factors have been identified as predictors of PAR after TAVR: prosthetic valve undersizing, improper implantation depth and aortic valve calcification. The importance of this issue is that moderate or severe regurgitation has been associated with increased mortality at both 30 days and one year; mild regurgitation has been linked to higher mortality, although this is only a tendency



**Figure 1** (A) Aortography with mild to moderate regurgitation (arrows) through the prosthetic aortic valve; (B) aortography showing resolution of regurgitation after removal of thrombus from the right coronary artery (CA) (due to immediate improvement of left ventricular function seen on transesophageal echocardiography); (C) acute thrombotic occlusion in the mid third of the RCA; (D) RCA with TIMI 3 flow after extraction of the thrombus; (E) thrombus extracted from the RCA after aspiration with the Pronto device.

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