

## IMAGE IN CARDIOLOGY

## Transcatheter mitral valve-in-valve implantation: Role of preprocedural multidetector computed tomography<sup>☆</sup>



### Implantação mitral transcater *valve-in-valve*: papel pré-procedimento da tomografia computadorizada com multidetecores

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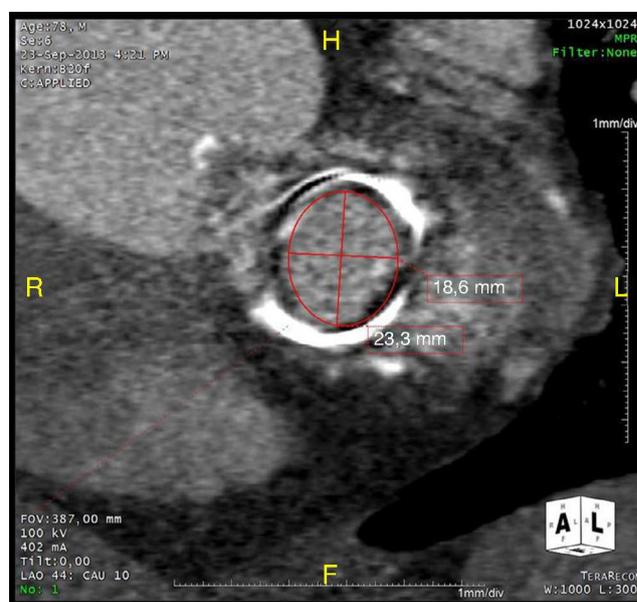
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Reoperation after mitral valve surgery due to bioprosthesis dysfunction is associated with high morbidity and mortality. A possible alternative for patients at high surgical risk is transcatheter implantation of a prosthesis in reverse position using the valve-in-valve technique.

Based on our experience with three cases of transcatheter double valve (aortic and mitral) implantation by a transapical approach, we describe the essential steps in preprocedural planning using multidetector computed tomography (MDCT). The first step is to identify the brand and size of the previously implanted bioprosthesis. The true internal diameter of this valve is then determined by MDCT (mean of major and minor axes, [Figure 1](#)), which is usually less than the labeled prosthesis size. The true internal diameter should be confirmed by referring to conversion tables or software apps such as ViV<sup>®</sup> (Valve-In-Valve). The internal diameter between the stent posts of the bioprosthesis is

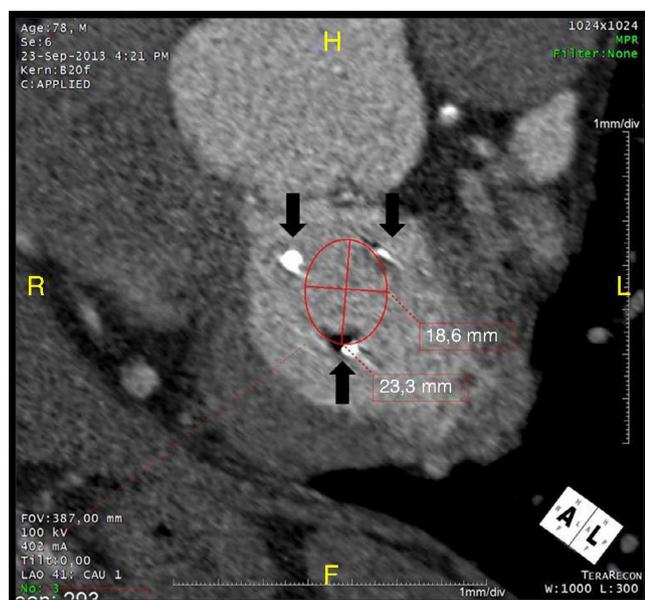


**Figure 1** Determination of the true internal diameter of a 27-mm Hancock II tissue valve (true diameter=(18.7 mm+23.1 mm)/2=21 mm).

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**Figure 2** Measurement of the internal diameter between the stent posts (arrows) of the previously implanted mitral bioprosthesis.

then measured (Figure 2), since if this is less than the true internal diameter due to deformation of the stent posts, it can prevent transcatheter valve-in-valve implantation. This information is then used to select the correct size of the valve to be implanted and the procedure can commence.

MDCT plays an essential role in planning transcatheter mitral valve implantation, to determine the true internal diameter of the dysfunctional bioprosthesis, select the correct size of the replacement valve and prevent periprocedural complications such as the valve becoming wedged against the stent posts, paravalvular leak or valve migration.

## Ethical disclosures

**Protection of human and animal subjects.** The authors declare that no experiments were performed on humans or animals for this study.

**Confidentiality of data.** The authors declare that they have followed the protocols of their work center on the publication of patient data.

**Right to privacy and informed consent.** The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

## Conflicts of interest

The authors have no conflicts of interest to declare.