

## Long-term Thrombus-free Survival

# A Forgotten Prosthesis in a Forgotten Valve: A Surprising Case Report

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## Abstract

The development of prosthetic heart valves has allowed to drastically improve the quality of life and the life expectancy in patients who would otherwise have succumbed to the inevitable course of the disease. While prosthetic heart valves are invaluable resources in therapy, they are not devoid of possible complications, some inherent to the prosthesis itself (structural damage, thrombosis, etc.), others related to the patient (e.g., thrombophilia, non-adherence to medication). The case of a patient is presented whose findings are surprising and show that there is always an exception to the rule.

**Keywords:** Mechanical prosthesis; valvular heart disease; thrombus-free survival

## Case

A 71-year-old patient comes in for a cardiologist's evaluation. When she was 33 years-old, she underwent valve replacement surgery with biological prostheses for both the tricuspid and mitral valve due to rheumatic heart disease. Due to structural deterioration, she underwent a new intervention ten years later, this time with mechanical valves for both positions; a bileaflet valve (Bicarbon™, Sorin Biomedica, Saluggia, Italy) for the mitral and a caged-ball valve (Starr-Edwards, Edwards Lifesciences, Irvine, CA) for the tricuspid position. Afterwards she remained under continuous surveillance. Recently, she was diagnosed with atrial fibrillation, therefore, a vitamin K antagonist use was reaffirmed, with an international normalized ratio (INR) range target of 2.0–3.0.

After clinical evaluation, no significant alterations other than the expected prosthetic clicks were found. A chest X-ray showed a

cardiomegaly (fig. 1A) and the transthoracic echocardiogram revealed adequate prostheses functioning (fig. 1B, C, D and E). The target INR was adjusted to 4.5 along with a beta blocker prescription and outpatient follow-up.

Valvulopathies are pathological conditions in which it is necessary to repair or, in most cases, replace the valvular tissue with prostheses, which can be made of biological or mechanical materials. The choice depends on several factors, including thrombus formation risk. In this regard, the combination of a tricuspid valve with mechanical tissue, especially in the case of a caged-ball prosthesis, is considered the most thrombogenic combination possible. The ESC 2021 Guidelines for the management of valvular heart disease [1] suggest a target INR of 4.5 in these cases to reduce thrombogenicity. There are exceptional cases, such as ours, where remaining free from any complications is a peculiarity.

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## Ethics Statement

Written informed consent was obtained.

## Conflict of Interest Statement

The authors have no potential conflicts of interest to declare.

## Author Contributions

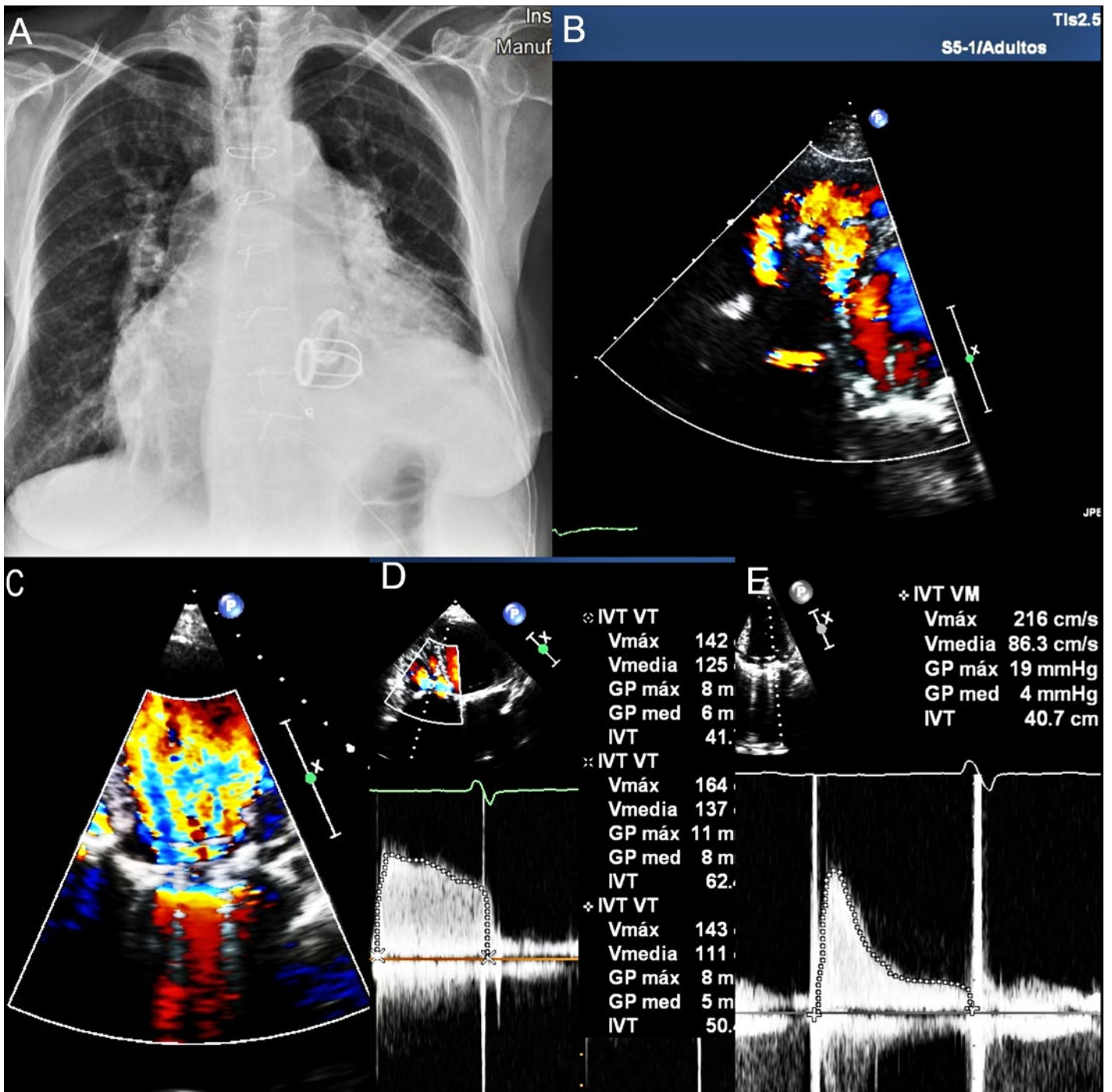
Every author contributed to the conception, planification, writing, imaging acquisition and edition, supervision and formulation of the final manuscript before submission.

## Data Availability Statement

No new data was generated or analyzed in support of this research.

## Reference

1 Vahanian A, Beyersdorf F, Praz F, Milojevic M, Baldus S, Bauersachs J, et al.; ESC/EACTS Scientific Document Group, ESC National Cardiac Societies. 2021 ESC/EACTS Guidelines for the management of valvular heart disease. *Eur Heart J.* 2022 Feb;43(7):561–632.



**Figure 1:** A) Posteroanterior projection clearly depicting both caged-ball tricuspid and bidisc mitral prostheses. B+C) Transthoracic echocardiogram. Apical four-chamber view. Color-coded Doppler ultrasonography showing the expected downstream jet flows through both valves (B Tricuspid Valve, C Mitral Valve). D+E) Continuous Doppler showing a slightly increased mean tricuspid (D) and a normal transmitral (E) gradient.