Iatrogenic Axillary Arteriovenous Fistula After Pacemaker Implantation

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A 71-year-old woman with a history of second-degree atrioventricular block underwent dual-chamber pacemaker implantation via the left axillary vein. The procedure was uneventful, and the patient remained asymptomatic.

One year later, she was referred for elective coronary angiography following the detection of a new continuous murmur. Transthoracic echocardiography showed preserved biventricular systolic function, no significant valvular disease, and only mild mitral regurgitation. Coronary angiography demonstrated normal coronary arteries. Careful reassessment of the physical examination localized the murmur to the left axillary region, radiating to the ipsilateral neck and shoulder.

Contrast injection into the left subclavian artery demonstrated early opacification of the axillary vein, suggestive of an arteriovenous communication (Figure 1). Selective catheterization further delineated the fistulous tract between the axillary artery and vein (Figure 2). Doppler ultrasound and computed tomography angiography confirmed a small arteriovenous fistula at the subclavian–axillary transition.

The findings were consistent with an iatrogenic axillary arteriovenous fistula related to pacemaker implantation, a rare complication resulting from inadvertent arterial puncture during venous access.[1,2] Although vascular injury is often recognized early due to bleeding or local symptoms, some patients remain asymptomatic and present only with a continuous machinery-like murmur.

Given the absence of symptoms and the limited anatomical extent of the lesion, a conservative management strategy with clinical and imaging surveillance was adopted. Alternative treatment options include endovascular closure or surgical repair in selected cases.[3]

This case highlights the importance of careful physical examination and multimodality imaging in the recognition of uncommon vascular complications associated with cardiac device implantation.

Keywords

Artificial Pacemaker; Arteriovenous Fistula; Angiography

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Author Contributions

Conception and design of the research: Fernandes ASN, Costa SAARR, Marques JMGS; Acquisition of data: Fernandes ASN, Marques JMGS, Costa JFS; Analysis and interpretation of the data: Fernandes ASN, Costa SAARR, Marques JMGS, Costa JFS; Writing of the manuscript: Fernandes ASN, Ferreira CRO; Critical revision of the manuscript for intellectual content: Fernandes ASN, Ferreira CRO, Costa SAARR, Marques JMGS, Costa JFS.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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Study Association

This study is not associated with any thesis or dissertation work.

Ethics Approval and Consent to Participate

This article does not contain any studies with human participants or animals performed by any of the authors.

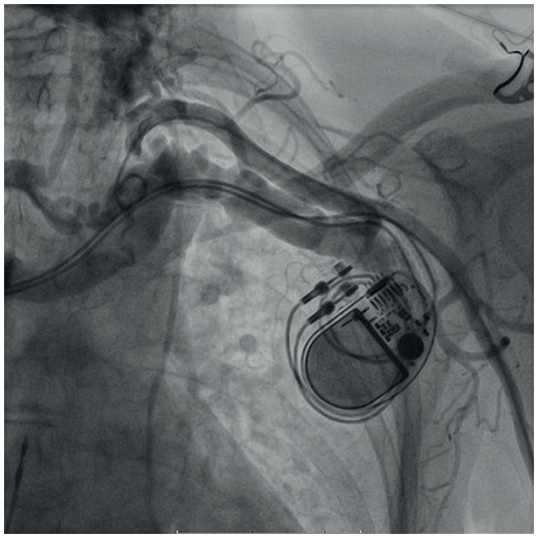


Figure 1 – *Contrast injection through a pigtail catheter positioned in the left subclavian artery demonstrating early opacification of the axillary vein.*

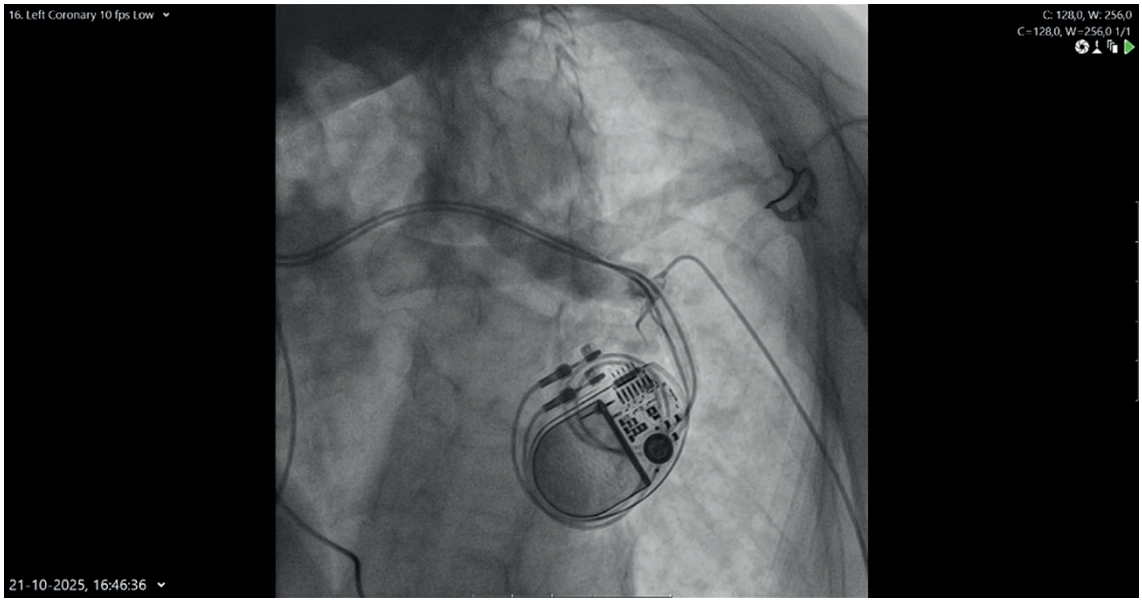


Figure 2 – *Selective catheterization of the fistula demonstrating direct communication between the axillary artery and vein.*

Use of Artificial Intelligence

The authors did not use any artificial intelligence tools in the development of this work.

Availability of Research Data

The underlying content of the research text is contained within the manuscript.

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