

**Catheter intervention to
treat migrated
temporary epicardial
pacing wire into the
pulmonary artery**



Rational

- Temporary epicardial pacing wires (TEPW) are routinely inserted postoperatively for treating electrophysiological disturbances after open-heart surgeries.
- They are typically placed on the surface of the right ventricle and the right atrial appendage.
- They are usually removed before discharge, but in case of difficult removal, they are cut flush to the skin, and thus retained.
- Leaving TEPW can be associated to complications, especially with wires migration.
- As described in literature, TEPW migration is rare and typically involves the right side of the heart, even if any part of the body can be involved.
- A review proposed an algorithm for removal decision making, based on the risk of serious complications like infection, dissection and perforation.
- We present a case of a transcatheter removal of a TEPW migrated into the pulmonary artery, in an asymptomatic patient.

Case Presentation

- A 52 year-old man, with previous history of:
- Hodgkin Lymphoma treated with radiotherapy and chemotherapy;
- Coronary Artery Disease (inferior Acute Myocardial Infarction);
- Constrictive pericarditis;
- **Valvular disease:** underwent mitral valvular repair and aortic valvuloplasty, followed by mitral valve substitution with a mechanic valve together with tricuspid repair and finally Transcatheter Aortic Valve Implantation (TAVI).
- During routine follow-up exams, a Computerized Tomography (CT) Scan showed the presence of a hyperintense signal in the region between the right atrium and the right ventricle, crossing the tricuspid valve, with a final loop in the right ventricle infundibulum, suspected to be a TEPW. (Figure 1)
- A transthoracic echocardiogram confirmed the position of the extraneous body, that was causing no impingement to the leaflets of the tricuspid valve, without worsening tricuspid regurgitation.

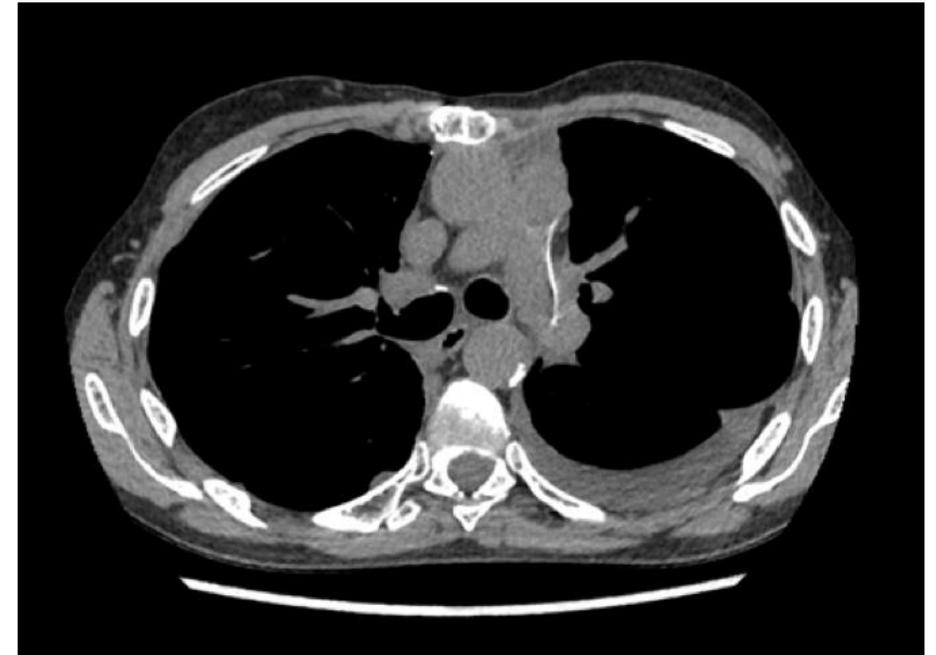


Figure 1.

Technical Resolution

- A fluoroscopy showed the presence of a metallic wire divided into two segments, the former extended from the right atrium till the right subclavian vein passing through the superior cava vein; the latter extended from the right ventricle till the left pulmonary artery.
- The patient underwent a transcatheter intervention with a right femoral vein access, to try to remove the TEPWs. The former located in the right atrium had an extravascular location, so it was left inside. The other one was removed.
- After advancing a Swan- Ganz catheter into the pulmonary artery, it was exchanged with a multipurpose catheter and a Multi-Snare 20 mm retrieval system (Figure 2) captured the wire and dragged till the inferior cava vein; a second retrieval system, a Snare STD 12-20 mm (Figure 3), was finally able to anchor firmly the wire and to carry it outside.



Figure 2.

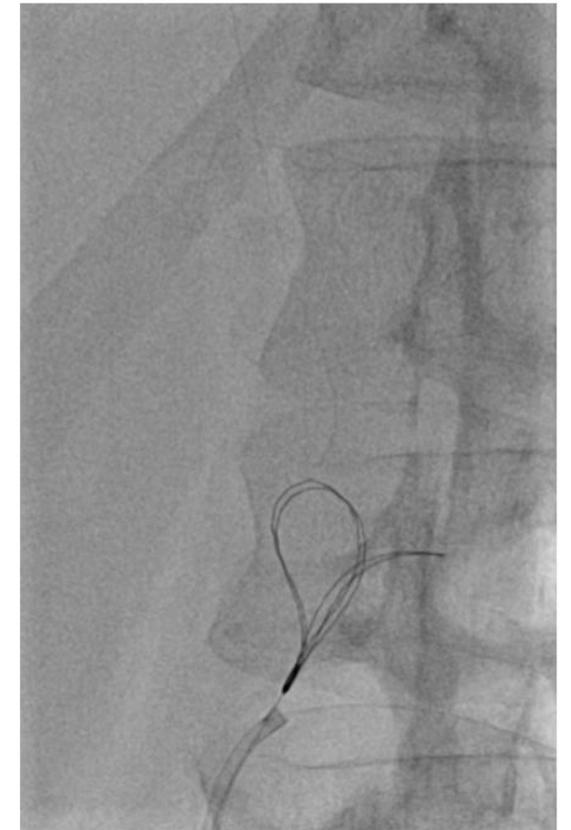


Figure 3.

Clinical Implications and Perspectives

- In this case, a transcatheter removal of the TEPW was performed, even if the presence of the wires caused no symptoms and/or complications to the patient.
- Anyway, because of the presence of both a prosthetic valve and a mechanic valve, in a setting of constrictive pericarditis and the consequent possibility of several in-hospital admission in conditions of acute heart failure with worsening of tricuspid regurgitation, the persistence of the wire could represent a risk factor for infective endocarditis and for severe tricuspid regurgitation. Removing it with a fast and safe transcatheter femoral approach, a potential cause of other complications was avoided.

Since TEPW retaining can occur frequently, because of difficult removal, identifying in a proper time manner patients at high risk of complications could be useful, especially in prosthetic valves carriers for infective risk. A standardized approach, based on TEPW location, symptoms and patient-related conditions should be approved to guide clinical and interventional decisions.

References

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