

Takotsubo cardiomyopathy after pacemaker implantation: A Case Report

Cardiomyopathie de takotsubo après implantation de pacemaker: à propos d'un cas

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SUMMARY

We describe a case of Takotsubo cardiomyopathy after a pacemaker (PM) implantation. The echocardiography showed typical apical ballooning with hyperdynamic contractility of the basal segments. The patient's symptoms were resolved two days after and the left ventricular function had fully recovered.

KEYWORDS

Tako-tsubo;
Pacemaker,
stress
cardiomyopathy

RÉSUMÉ

Nous présentons le cas d'une cardiomyopathie de Takotsubo survenue après l'implantation d'un Pacemaker double chambre. L'Échocardiographie a montré une ballonnisation apicale avec une hypercontractilité des segments basaux. L'évolution a été marquée par la régression des symptômes et la normalisation de la fonction ventriculaire gauche quelques jours après.

MOTS-CLÉS

Takotsubo,
pace maker,
cardiomyopathie de
stress

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INTRODUCTION

A 67-year-old woman without medical history was referred to our department for complaints of near-syncope. She was not on any drugs, physical examination was unremarkable, her ECG showed third-degree Atrio-Ventricular (AV) block (Figure 1), laboratory investigations were normal and echocardiography showed normal left and right ventricular function without valvular disease. She was admitted and 3 days later she underwent an uncomplicated dual chamber pacemaker implantation. Electrocardiogram (ECG) after implantation showed sinus rhythm with ventricular pacing (Figure 2).

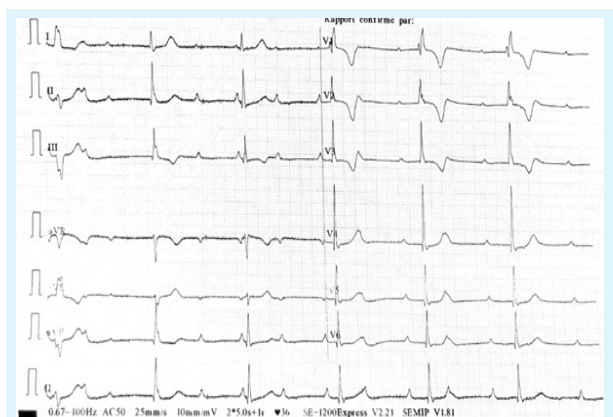


Figure 1. The basal electrocardiogram (ECG) showing third degree atrio-ventricular block



Figure 2. Postprocedure ECG showing sinus rhythm with ventricular pacing.

However, the following morning she developed chest pain. Physical examination showed haemodynamic stability without heart failure signs. Chest radiography excluded pneumothorax and showed normal lead position (Figure 3). The ECG revealed sinus rhythm with ventricular pacing and negative T waves in anterior leads (Figure 4).



Figure 3. Chest radiography showing normal lead position

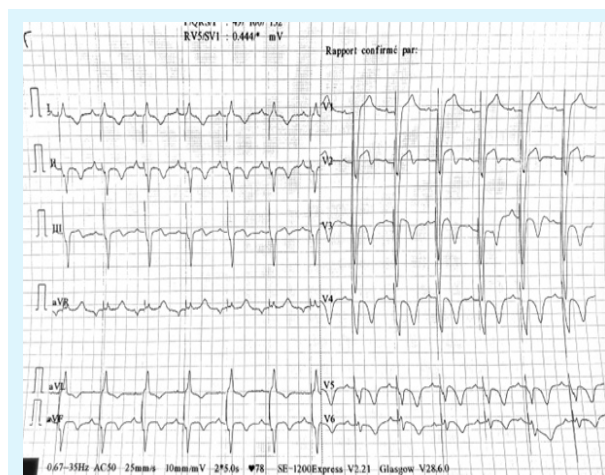


Figure 4. ECG showing ventricular pacing and negative T waves in anterior leads.

Pacemaker interrogation was unremarkable but echocardiography revealed a severely depressed left ventricular function (Left Ventricular ejection fraction = 35%) with apical ballooning and hyperdynamic basal segments (Figure 5). Ultrasensitive Troponin T (463 ng/l, ULN < 17) was raised but coronary angiography documented normal coronary flow and no coronary stenosis. Pacemaker implantation-induced Takotsubo cardiomyopathy was diagnosed. Accordingly, she was treated with a beta blocker and angiotensin converting enzyme inhibitors (ACE).

The left ventricular function returned to normal over several days, and she could be discharged. After 3

months, the heart failure medication was discontinued, and she remained well during follow-up.



Figure 5. Echocardiograms. Apical four-chamber view. End-systolic echocardiogram during Takotsubo cardiomyopathy shortly after pacemaker implantation; note the hyperdynamic basis and dyskinetic apical segments

DISCUSSION

Takotsubo cardiomyopathy also known as stress cardiomyopathy is a cardiovascular disease «atypical» reversible, mimicking an acute coronary syndrome. One of the cardinal signs of this pathology is that it is always preceded by significant physical and/or emotional stress (1). The implantation of an uncomplicated PM as in our observation was sufficient to precipitate this syndrome as reported by other publications [2,3,4,5]. Our observation summarizes the course of this syndrome, sudden chest pain, transient ST segment modification and troponin elevation; alteration of left ventricular function (LVEF) and the absence of coronary stenosis. Increasingly, to excluding a true ischemic process becomes necessary in such circumstances [6].

Stress cardiomyopathy is a rare disease, it is observed in 0.6 - 2.5% of patients with acute coronary syndrome (7). The occurrence of takotsubo syndrome is 9 times higher in women, who are aged 60-70 years old, than in men. The hospital mortality among patients with Takotsubo corresponds to 3.5% - 12% (7). Physical or emotional stress do not precede disease in all patients with Takotsubo. Most of patients with Takotsubo have neurological or mental illnesses. The level of catecholamines is increased in patients with Takotsubo, therefore, the occurrence of Takotsubo is associated with excessive activation of the adrenergic system. The negative inotropic effect of catecholamines is associated with the activation of β_2 adrenergic receptors.

Once the diagnosis is confirmed, even if currently there is no recommendation, beta-blockers, angiotensin converting enzyme (ACE) inhibitors and diuretics should be used at least until total recovery [8].

Regarding the prevention of Takotsubo, a meta-analysis published in 2014, involving 511 patients who showed that neither beta-blockers (7 studies), nor ACE inhibitors (5 studies) or statin (3 studies) or even aspirin (4 studies) reduced significantly the recrudescence of the disease [9].

CONCLUSION

we report a case of Takotsubo cardiomyopathy after double chamber Pacemaker implantation. This pathology must be considered as reversible heart failure. Although the treatment is currently not codified, it is necessary to ensure total recovery.

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