

Catheter Ablation of Premature Ventricular Contractions Originating from Kissing Papillary Muscles

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Abstract

A 73-year-old woman with premature ventricular contractions (PVCs) had very thick left ventricular papillary muscles (PAMs) kissing each other. The PVC origin at the septal side of the anterolateral PAM that faced the posteromedial PAM, rendered mapping confusing. This case illustrated an unusual challenge in catheter ablation of PAM PVCs.

Catheter Ablation of Premature Ventricular Contractions Originating from Kissing Papillary Muscles

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Short Title: ABL of PVCs originating from kissing papillary muscles.

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ABSTRACT

A 73-year-old woman with premature ventricular contractions (PVCs) had very thick left ventricular papillary muscles (PAMs) kissing each other. The PVC origin at the septal side of the anterolateral PAM that faced the posteromedial PAM, rendered mapping confusing. This case illustrated an unusual challenge in catheter ablation of PAM PVCs.

Key Clinical Messages

Very thick left ventricular papillary muscles (PAMs) may kiss each other and premature ventricular contractions (PVCs) can originate from the facing side of the PAMs. In such a setting, mapping of those PVCs is confusing, rendering catheter ablation challenging.

KEY WORDS: catheter ablation; papillary muscle; premature ventricular contraction.

A 73-year-old woman with symptomatic idiopathic premature ventricular contractions (PVCs) exhibiting a right bundle branch block and right inferior axis QRS morphology underwent electrophysiological testing. Pre-procedural cardiac magnetic resonance imaging and intracardiac echocardiography revealed very thick posteromedial and anterolateral papillary muscles (PPM and APM, respectively) in the left ventricle that were kissing each other during systole. Activation mapping during the PVCs was confusing because the earliest ventricular activation was recorded in the middle between the PPM and APM. Pace mapping was helpful for recognizing the location of the mapping catheter on the PPM or APM because the QRS axis dramatically changed between them. Radiofrequency catheter ablation was successful on the septal side of the APM where an excellent pace map was recorded.

Catheter ablation of ventricular arrhythmias originating from the papillary muscles (PAMs) is often challenging because their origins are located deep inside thick PAMs. However, in this case, mapping of the PAM PVCs was challenging because a very thick PPM and APM were kissing each other and the PVC origin was located on the septal side of the APM that faced the PPM. This case illustrated an unusual type of challenge in catheter ablation of PAM PVCs.

References

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Figure legends

Figure 1. Twelve-lead electrocardiograms exhibiting a premature ventricular contraction and pace map (left panels), two-dimensional images of intracardiac echocardiography (ICE) and cardiac magnetic resonance imaging exhibiting thick papillary muscles in the left ventricle (middle upper and lower panels, respectively), and three-dimensional maps merged with ICE images exhibiting the successful ablation site (right panels).

The tags encircled by a red line indicate the ablation sites of another premature ventricular contraction at the mid-septal aspect of the tricuspid annulus.

APM=anterolateral papillary muscle; INF=inferior; PPM=posteromedial papillary muscle; RAO=right anterior oblique view.

Figure 1.

