Letter From Yamada et al Regarding Article, “Differentiation of Papillary Muscle From Fascicular and Mitral Annular Ventricular Arrhythmias in Patients With and Without Structural Heart Disease”

To the Editor:

We read with great interest the most recent publication by Dr Al’ Aref et al1 on the differentiation of ventricular arrhythmias (VAs) originating from the left ventricular papillary muscle, the anterior and posterior fascicles, and the mitral annulus in patients with and without structural heart disease. We agree with the authors that a useful algorithm that could differentiate papillary muscle from fascicular and mitral annular VAs would be welcome.

However, we are concerned with the authors’ anatomic representation of the fascicles of the left ventricle (LV). Anatomically, the LV posterior fascicle begins from the main trunk of the left bundle branch and extends down the LV septal wall, whereas the LV anterior fascicle extends on the LV anterior wall toward the anterolateral papillary muscle.2 It is known that the LV posterior fascicle is likely to be thicker than the LV anterior fascicle.2 However, in the article of Dr Al’ Aref et al,1 the fascicle that was located at the higher LV septum as shown in Figures 1, 3, and 5 was called the LV anterior fascicle. Anatomically, this fascicle should be termed the LV septal fascicle.2 This midseptal fiber is given off in most cases by the posterior division, less frequently by the anterior division or from both and, in a few cases, has an independent origin from the central part of the main left bundle branch at the site of its bifurcation. In Figure 3, a few tags were located at the sites with Purkinje potentials in the LV anterior wall, and they should represent the course of the LV anterior fascicle. In addition, we disagree with the authors about the electrocardiographic features of VAs originating from the LV anterior fascicle. In Figure 5, the authors presented a VA with a left axis deviation as a VA originating from the LV anterior fascicle. However, VAs originating from the LV anterior fascicle should exhibit an LV posterior fascicular block pattern with an rS in leads I and aVL.

Because of these anatomic considerations, the proposed algorithm to differentiate LV VAs with an inferior axis QRS morphology in this article may need to be refined. We think that it remains challenging to differentiate VAs originating from the anterolateral papillary muscle and LV anterior fascicle because of their close anatomic relationship.3

Disclosures

None.

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References


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