

LETTERS TO THE EDITOR

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Diagnosis of arrhythmogenic right ventricular cardiomyopathy: the role of endomyocardial biopsy guided by electroanatomic voltage map

In the March, 2009, edition of *Europace* (volume 11, number 3), Ejima *et al.*¹ reported the case of a young woman in whom a diagnosis of arrhythmogenic right ventricular cardiomyopathy (ARVC) was obtained with of a novel endomyocardial biopsy (EMB) approach, guided by electroanatomic mapping of the right ventricle (RV). In order to increase the diagnostic accuracy of EMB, Ejima *et al.*¹ performed a biopsy sampling focused on selected RV pathological areas characterized by low-voltage potentials (voltage mapping-guided EMB).

We share with Ejima *et al.* a great interest for this innovative biopsy approach. Anyhow, we would like to make some comments regarding this "innovative strategy for performing EMB...".

First, to the best of our knowledge, this voltage-guided biopsy approach has been described for the first time in 2007 by our group in a report² dealing with the case of a young athlete with ARVC undetectable with conventional diagnostic techniques.

Second, in 2008, we published³ the first report assessing the feasibility of RV voltage mapping-guided EMB in a series of 16 consecutive patients with a clinical evidence or suspicion for ARVC. In the editorial comment, accompanying our article, Hauer and Cox⁴ particularly highlighted the important diagnostic yield which the voltage-guided EMB had provided above all in the early stages of ARVC, often undetectable with conventional standardized diagnostic criteria. Our experience, for the most part reported in several scientific sessions,^{5–8} has been recently considered in a paper by Basso *et al.*⁹ concerning an *in vitro* validation of diagnostic criteria for ARVC.

In comparison with the conventional biopsy approach, voltage-guided EMB seems to provide a greater sensitivity for obtaining samples that are consistent with ARVC. However, in order to verify the real

diagnostic accuracy of this innovative approach, a prospective randomized study comparing the non-targeted approach with the voltage-guided approach seems necessary.

Conflict of interest: C.T. serves as a member of the Advisory Board of Biosense Webster.

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We really appreciate Drs Avella, d'Amati, and Tondo for their interest in our case report.¹ We obviously share a common interest in the research of endomyocardial biopsy (EMB) guided by electroanatomical voltage mapping and applaud their successful approach and results.^{2,3}

We had independently performed a similar EMB approach on 6 August 2007, before their case report was published.² I would, however, like to point out a difference in our research that was published in 2009. In our present case, we performed EMB not only for making a correct diagnosis of arrhythmogenic right ventricular cardiomyopathy, but also applied this approach for therapeutic radio-frequency catheter ablation for ventricular tachycardia. We discussed this approach at a local Japanese congress in January 2008 and we are in agreement with Dr Avella *et al.* that a prospective clinical study is necessary to verify the diagnostic accuracy of this method. We are thankful for the feedback