CASE REPORT

Exercise-Induced Atrial Fibrillation by Myocardial Ischemia in a Young Male: A Rare Case Report

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Ann Noninvasive Electrocardiol 2013;18(3):297–298

noninvasive techniques; electrophysiology; atrial arrhythmias

CASE REPORT

We describe a case of a 26-year-old, overweight male smoker who presented with exertion oppressive chest discomfort in previous weeks. There was no premature coronary artery disease (CAD) or atrial fibrillation (AF) in his familial history. Physical examination and baseline electrocardiogram (ECG) (Fig. 1) were normal. Structural heart disease was ruled out by echocardiography. The exercise stress test disclosed AF runs with right

bundle branch and significant, ST-segment depression in V₅-V₆ and inferior leads (Fig. 2) since the third minute of exercise. With these changes in ECG, the patient referred oppressive chest pain. We started treatment with aspirin and full doses of atenolol without improvement in clinical status and recurrence of AF, ST changes and angina on a new exercise test. In view of these, a coronary angiography was performed where a proximal left anterior descending stenosis was found. Direct sirolimus stent was successfully implanted. After

Figure 1. Basal electrocardiogram.

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Conflict of interest: None.

Figure 2. Electrocardiogram during exercise test. Exercise-induced atrial fibrillation accompanied by right bundle branch and ST-segment depression in inferior and V₅-V₆ leads.

revascularization the symptoms disappeared and recurrence of AF on several exercise stress tests have not been described.

Exercise-induced AF by myocardial ischemia is a condition rarely described.¹ Previous reports suggest that it is due to elevation of left ventricular diastolic pressure and secondary of left atrial pressure.² However, the reason why only a few patients with myocardial ischemia develop AF is unknown. Schoonderwoerd et al.³ suggest that an individual arrhythmogenic substratum must participate and be the trigger of the AF in this type of patients. Other factors might play some role but neither stress nor sympathetic response during exercise is sufficient to induce AF. In fact, register of exercise stress test shows a very low incidence of AF during exercise.⁴ For these reasons, the true association of AF with CAD remains controversial.⁵ In our case, ST changes during stress test and absence of AF recurrences after revascularization support ischemic origin. Therefore, although unusual, myocardial ischemia

should be strongly ruled out in patients with exertional symptoms and induction of AF with ST changes during exercise testing.

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