# Is there a superior method for fibrosis detection than magnetic resonance?

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**Introduction**: Magnetic resonance is the most sophisticated imaging technique for morpho-functional and tissue characterisation of the heart[1]. Echocardiography is the first-line imaging tool used for heart evaluation but is not sensitive enough to detect subtle myocardial fibrosis[2]. Both techniques are essential for right ventricle arrhythmogenic cardiomyopathy diagnosis, which can be genetically inherited or "exercise induced". Right ventricle wall stress during intense sports may lead to chronic remodelling and proarrhythmogenic fibrosis formation[3].

**Case report**: We report a case of a 45-year-old cyclist who presented to our hospital with syncope. During a bicycle race he suddenly lost his consciousness. At that moment his smart watch recorded extremely high heart rate of around 260 bpm. He was never ill before, and he did not take any medications or supplements. After the admission to our hospital routine examinations were done. Laboratory findings showed elevated high sensitive troponin T and NT-proBNP, and 12-lead electrocardiogram was without deviation. Transthoracic echocardiography showed an aneurism of basal and mid segment of right heart lateral wall, with preserved systolic function. Coronary angiography was normal. Magnetic resonance imaging was done showing no dilatation and no fibrosis of the right ventricle. Patient underwent an electrophysiological study and ventricular tachycardia provocation. In basal conditions there was no documented tachycardia. After isoproterenol administration and programmed stimulation persistent ventricular tachycardia with left bundle branch block with inferior axis and frequency of 250 bpm was induced. A three-dimensional voltage map of the right ventricle indicated a small zone of "patchy" fibrosis of the outflow tract basal anterolateral wall. Activation map in tachycardia showed focal tachycardia pattern (microreentry) from documented region which was successfully terminated by radiofrequency ablation.

**Conclusion**: Echocardiography indicated deformation of the right heart with high suspicion for fibrosis, which was confirmed by CARTO electrophysiological mapping system while magnetic resonance showed no pathological changes of right ventricle.

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## LITERATURE

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