

## *Brief Report*

# Ventricular fibrillation following removal of temporary epicardial pacemaking wires

Yildirim Imren, Hakan Zor, Irfan Tasoglu

*Department of Cardiovascular Surgery, Gazi Hospital, Ankara, Turkey*

**Abstract** Temporary wires are routinely sutured to both the atrial and ventricular epimyocardium after open heart surgery. Despite their rarity, complications related to removal of such pacemaking wires may cause life threatening situations. We describe here a patient who developed ventricular fibrillation immediately after removal of temporary epicardial pacemaking wires.

Keywords: Pacemaking; arrhythmias; complications

**T**HE INCIDENCE OF MAJOR COMPLICATIONS related to epicardial placement of pacemaking leads is reported to be approximately 0.4%. For example, significant bleeding, either following insertion or removal, and sufficient to cause pericardial tamponade, has been reported in several studies.<sup>1–3</sup> Removal of wires placed epicardially for temporary pacing has been described as leading to lacerations of the atrium and ventricle, injury to by-pass grafts, and even strangulation of the heart by a surrounding loop of wire.<sup>4</sup> In this report, we describe a patient who developed ventricular fibrillation following removal of such temporary wires.

## Case report

A 5-year-old boy, with the diagnosis of a small ventricular septal defect opening to the right ventricular inlet and pulmonary hypertension, was admitted to our surgical unit for surgical closure. The procedure was carried out in standard fashion, with temporary epicardial pacemaking leads placed superficially in the longitudinal axis of the ventricle following an infusion of protamine. The postoperative follow-up was uneventful, particularly with regard to distur-

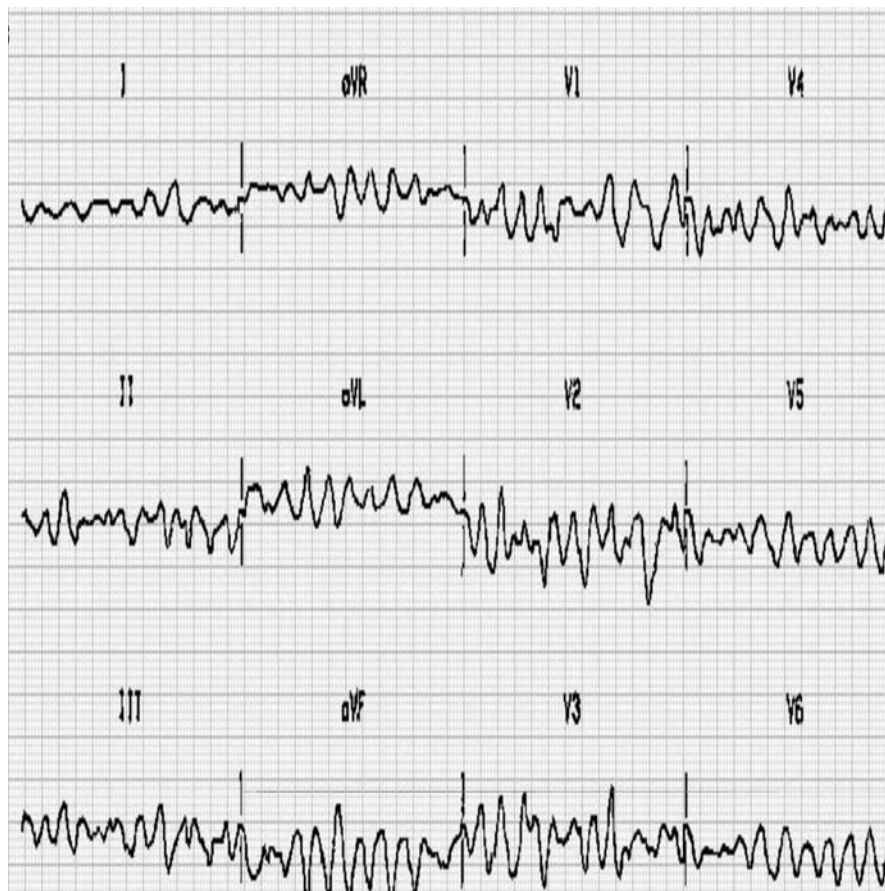
bances of rhythm, and he was scheduled for discharge from the hospital on the fifth postoperative day. During removal of the temporary wires on the fifth day, however, whilst being monitored electrocardiographically, he suddenly developed ventricular fibrillation only one or two seconds after the removal (Fig. 1). The arrhythmia responded to defibrillation with 300 joules. We were unable to detect either metabolic abnormalities, or any premonitory electrocardiographic disturbances of rhythm. He returned to normal sinus rhythm immediately after the defibrillation, and he was discharged from hospital two days later without any problems.

## Comments

Temporary wires are routinely sutured to the atrial and ventricular walls after open heart surgery. Although rare, unusual complications may lead to lethal results.<sup>5</sup> To our knowledge, however, ventricular fibrillation has not previously been reported following removal of temporary epicardial wires. We speculate that, in our patient, abnormal electrical activity in the right ventricle could have occurred while removing the wire secured by unduly deep suturing, or else pain induced during the process of removal might have played a role. In future, for all our patients, particularly children and those anticoagulated, we intend to check for vital signs, sedate them appropriately for relief of pain prior to removing the wires, and keep them in bed for at least 30 minutes afterwards. We

Correspondence to: Yildirim Imren MD, Gazi University Medical Faculty, Cardiovascular Surgery Department, Gazi Hospital, Besevler 06500, Ankara, Turkey. Tel: +90 312 202 67 97; Fax: +90 312 212 90 14; E-mail: yimren@gazi.edu.tr

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**Figure 1.**  
The electrocardiographic tracing showing ventricular fibrillation.

also suggest that epicardial wires should only be removed during electrocardiographic monitoring and, if not on the intensive care unit, at least in an area where equipment is readily available for resuscitation.

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