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CLINICAL CASE

Transitory electrocardiographic abnormalities following blunt cardiac trauma: Case report and literature review

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KEYWORDS
Blunt cardiac trauma;
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Abstract Blunt cardiac trauma (BCT) includes a number of diseases ranging from clinically silent arrhythmias to lethal cardiac wall rupture. The most common form is ''cardiac contusion'', which is currently under debate. The absence of a clear definition and the lack of diagnostic tests of choice make diagnosing cardiac contusion difficult. We present the case report of a healthy young patient who went to the emergency department with electrocardiogram changes following blunt chest trauma, and review the current literature on the subject.

PALABRAS CLAVE
Trauma cardiaco cerrado;
Manejo;
ECG

Alteraciones electrocardiográficas transitorias post trauma cardiaco cerrado: Caso clínico y revisión de literatura

Resumen El traumatismo cardiaco cerrado (TCC) incluye una serie de patologías que van desde arritmias clínicamente silentes hasta la muerte por la rotura de la pared cardiaca. La forma más habitual es la ''contusión cardiaca'', lo cual actualmente se encuentra en debate. La ausencia de una definición clara así como las pruebas diagnósticas de elección hacen el diagnóstico de contusión cardiaca difícil. Presentamos el caso clínico de un paciente joven y

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sano que se presenta al servicio de urgencias con cambios en el electrocardiograma tras un traumatismo torácico cerrado y se revisa la literatura actual sobre el tema.

Introduction

The incidence of blunt cardiac trauma (BCT) after blunt chest trauma is difficult to determine and ranges from 8% to 76%. Moreover, its clinical presentation varies enormously, and there is no defined pattern for ruling out or documenting cardiac involvement. Recently, it has been demonstrated that an electrocardiogram and troponins may have a 100% negative predictive value in BCT. We present the case of a 56-year-old patient with ECG abnormalities following a fall from a bicycle and impact with the handlebars in the central chest region.

Case report

A 56-year-old patient with no prior history of interest went to the emergency department following a fall from a bicycle and direct impact to the chest at the central sternum with the bicycle handlebars. On admission, the patient was alert and oriented, and his respiration and haemodynamics were stable. He only presented with mild pain on palpation in the lower sternal region, with no other associated signs or symptoms. An ECG on arrival showed a complete right bundle branch block with T wave inversion (V1–V4) (Fig. 1) compared to an asymptomatic prior ECG (Fig. 2); his myocardial enzymes showed no abnormalities (troponin I: 0.10 ng/ml). A chest X-ray showed a simple sternal fracture of the distal third of the sternal body. He remained in observation, and after 8 h had elapsed since his admission, a minimum of enzymes started (troponin I: 0.42). After 24 h, peak enzyme elevation was reached (troponin I: 0.52). An echocardiogram was requested, which showed preserved ventricular function. A chest CT scan confirmed the findings of a fracture of the distal third of the sternum with no associated injuries. He was admitted for observation and follow-up to the intensive care unit for 48 h with a diagnosis of myocardial contusion, and subsequently to the cardiology unit. He progressed favourably and a follow-up ECG demonstrated electrocardiographic improvement (Fig. 3). The patient was discharged after 4 days and is currently in follow-up at a cardiology outpatient clinic.

Discussion

What is this patient's diagnosis: cardiac contusion, myocardial contusion or blunt cardiac trauma?

Blunt cardiac trauma (BCT) encompasses a spectrum of diseases ranging from clinically silent, transitory arrhythmias to fatal myocardial wall rupture. It includes commotio cordis, which refers to sudden cardiac arrest following sternal trauma in the absence of structural heart disease or structural damage to the heart. The most common form is ''cardiac contusion'', which remains a subject of considerable debate. The absence of a clear definition and the fact that there is no accepted gold standard in complementary tests make diagnosing cardiac contusion difficult. Important considerations in blunt cardiac trauma include arrhythmias

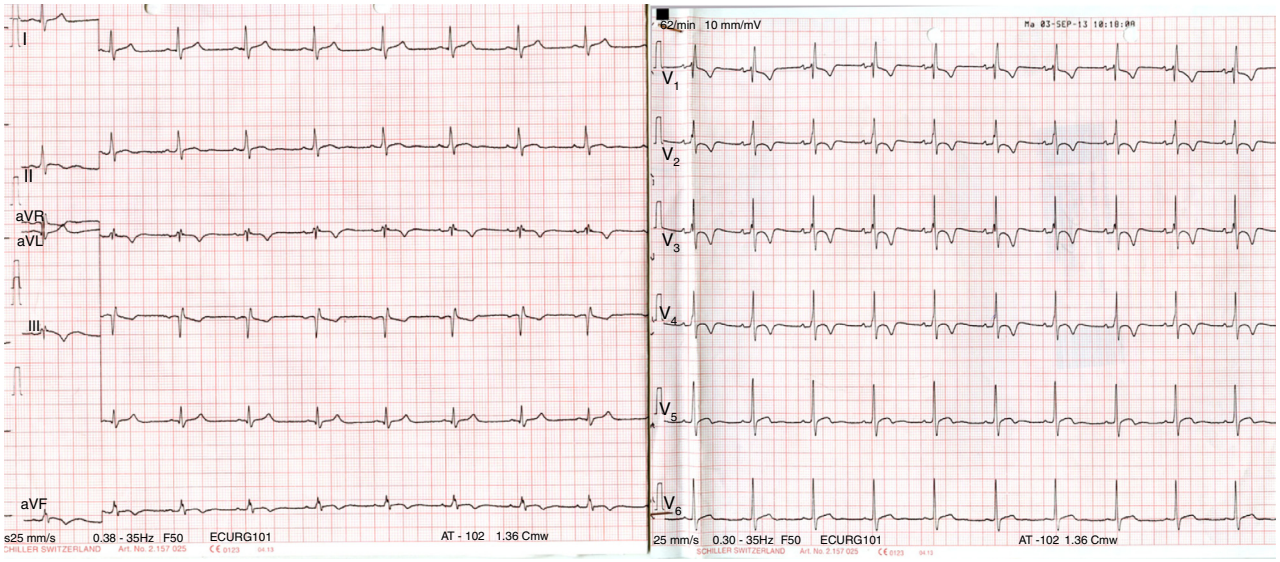

Figure 1 ECG on the patient's arrival at the emergency department showing sinus rhythm with new pattern of incomplete right bundle branch block with obvious changes in repolarisation not present on the baseline ECG.

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