Chest pain, dynamic electrocardiography changes and ventricular arrhythmia in a patient with thoracic disc hernia

Torasik disk herniasyonu olan hastada göğüs ağrısı, dinamik elektrokardiyografik değişiklikleri ve ventriküler aritmi

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Approximately 20% to 30% of patients, who undergo coronary arteriography for the evaluation of chest pain, are found to have normal coronary arteries (1). It has been reported that several cases of sudden cardiac death and nonfatal myocardial infarction (1) were observed during the follow up of the patients with normal coronary arteriography. This report presents a case with chest pain, electrocardiography (ECG) abnormalities and ventricular arrhythmia all of which are probably caused by thoracic disc hernia.

A 75-year-old woman was referred to our hospital with a diagnosis of acute coronary syndrome. Her initial ECG showed sinus rhythm, incomplete right bundle branch block and T wave inversion in leads V1 and V2. Heart rate was 100 bpm (Fig. 1). ST depression and T wave inversion were observed in leads V3-V6 on the follow-up ECG (Fig. 2,3). Biochemical examinations showed normal values of troponin I and other cardiac markers during the first 12 hours. Conventional therapy for unstable angina pectoris including beta-blocker, nitroglycerin, and aspirin were given. Bedside echocardiography revealed normal aortic root and left ventricular (LV) dimensions as well as a normal ejection fraction together with left ventricular diastolic dysfunction and minimal aortic regurgitation. No LV wall motion abnormality was observed. At the follow-up, a sustained ventricular tachycardia (VT) episode was revealed during in ECG monitoring in CCU. Episode of VT stopped spontaneously and did not cause any hemodynamic instability. Because there was no response to therapy, and continuation of chest pain she was referred for coronary angiography. Coronary angiography was apparently normal. Contrast computerized tomography scan was performed to

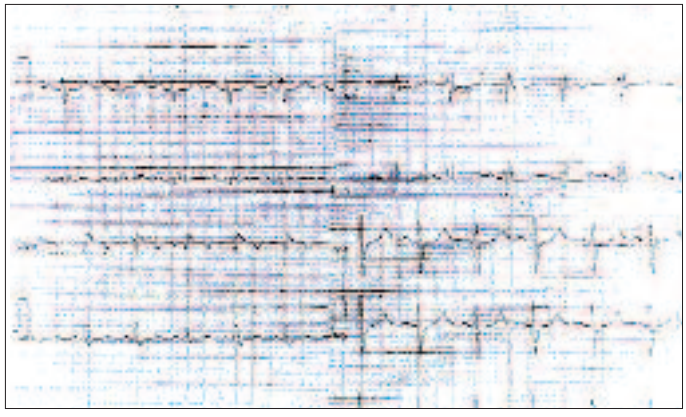

Figure 1. The electrocardiogram recorded in emergency room

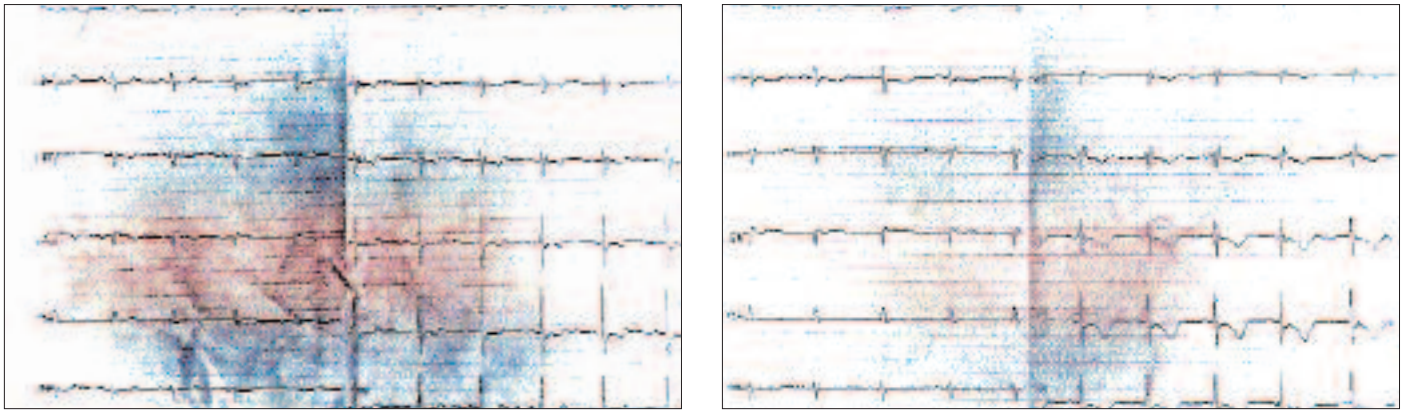

Figure 2,3. Follow-up electrocardiograms recorded in coronary care unit

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rule out the possibility of aortic aneurysm or aortic mural hematoma. Co-incidentally, a disc hernia compressing the cord at the level of 11th thoracic vertebra was found (Fig. 4). After this diagnosis, opioid analgesics and non-steroidal anti-inflammatory drugs relieved her pain dramatically. The elective myocardial perfusion scan was performed and found normal. Patient was then referred to department of neurological surgery. She remains well for 6 months after operation.

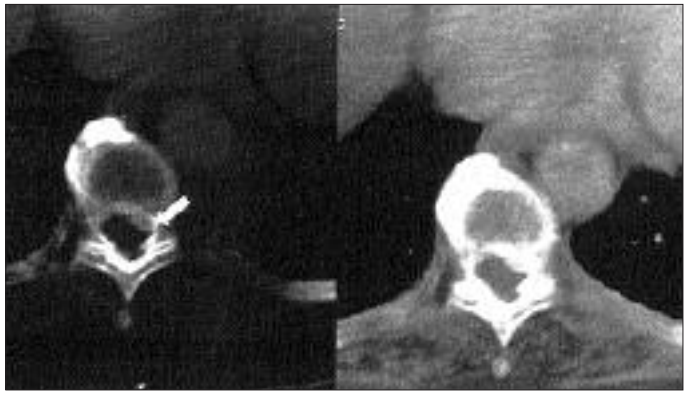

Figure 4. Computerized tomography frame of thoracic disc hernia

Chest pain and ECG changes can be observed in central nervous system disease (1). Guler et al. proposed the explanation of the pathogenesis of cervical angina as a fact that cervical neural roots from C4 to C8 contribute to the sensory and motor innervation of the anterior chest wall (1). In our case, the level of hernia is T11, which is not related with cardiac plexus or cardiac nerves. There are some evidences regarding the implication of catecholamine excess produced by central nervous system insults and other altered physiologic state (2), in the development of the myocardial changes.

We concluded that the chest pain and ECG abnormalities in our case with normal coronary angiogram were probably the result of catecholamine excess due to the severe pain caused by thoracic disc hernia.

References

1. Guler N, Bilge M, Eryonucu M, et al. Acute ECG changes and chest pain induced by neck motion in patients with cervical hernia: a case report. Angiology 2000; 51: 861-4.
2. Eliot RS, Todd GL, Peiper GM, et al. Pathophysiology of catecholamine mediated myocardial damage. J SC Med Assoc 1979; 75: 5713-8.