

Patients with Acute Stroke Presenting Like Conversion Disorder

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Abbreviations:

CT: computed tomography
 ED: emergency department
 EMT: emergency medical technician
 ICU: intensive care unit
 MRI: magnetic resonance imaging

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Abstract

Conversion disorder is a form of somatoform disorders which has a high prevalence among women, individuals with lower socioeconomic status, under-educated populations, and in developing countries. However, up to one-half of patients who had been initially diagnosed with conversion disorder were eventually shown to have an underlying organic pathology—mostly neurological or non-psychiatric conditions. In this article, two patients are presented who accessed the emergency department (ED) with an initial diagnosis of conversion disorder in the ambulance that turned out to be stroke.

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Introduction

Conversion disorder is a form of somatoform disorders which has a high prevalence among women, individuals with lower socioeconomic status, under-educated populations, and in developing countries. Conversion disorders are encountered commonly in emergency departments (EDs) in developing countries, including Turkey. However, up to one-half of patients who had been initially diagnosed with conversion disorder were eventually shown to have an underlying organic pathology—mostly neurological or non-psychiatric conditions.¹

Acute stroke and conversion disorders are commonly confused with each other in the ED setting.¹ Medical literature reveals that possible intracranial pathologies can be overlooked and misdiagnosed as conversion disorder.^{2,3} Although rare, some cases present to EDs with symptoms mimicking acute stroke and are diagnosed as conversion disorder.^{4,5} In this article, two patients are presented who accessed the ED with an initial diagnosis of conversion disorder in the ambulance which turned out to be stroke eventually. Diagnostic clues to which emergency physicians must pay close attention during physical examination and differential diagnosis were discussed with respect to literature data.

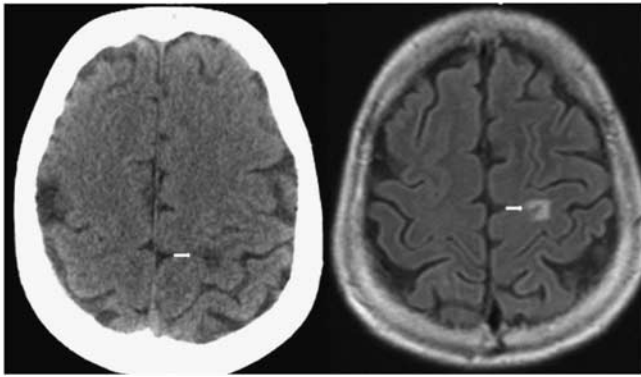
Case 1

A 51-year-old woman was transported to the university-based ED by ambulance with the initial diagnosis of conversion disorder. Her family members stated that the patient got ill suddenly and began to shake right after a domestic dispute. The patient's history was unremarkable and she had no drug use, except for oral contraceptive use. Paramedic personnel who responded to the call reported that the patient's vital signs were normal and blood glucose level with finger-prick was 104 mg/dL. She was shaking, clenching her teeth, and mute all the way to the hospital.

On arrival, her vital signs were as follows: blood pressure 105/68 mmHg; heart rate 66 bpm; respiratory rate 22 bpm; and SaO₂ 97%. The patient was both uncooperative and unresponsive without any pathologic reflexes or anisocoria on her neurological examination.

The patient withdrew all four extremities in response to painful stimuli and 5.00 mg diazepam was administered after an initial diagnosis of conversion disorder had been established. When the patient was re-evaluated 15 minutes later, she was somewhat relaxed.

Seizures and teeth clenching had ceased. Her eyes were closed and she was unresponsive to verbal stimulation. The patient was neurologically reassessed and an absence of lateralizing deficit and pathological reflexes were confirmed. The patient's response was interpreted as positive on the Face-Hand Test (examiner lifts patient's arm above head and



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Figure 1. a) Axial CT Image Displaying the Area of Infarction, Reduced Density on the Precentral Gyrus Region of Left Frontal Lobe. **b)** T2 FLAIR Axial Image Revealing Hyperintensity on Left Lobe Precentral Gyrus Consistent with Ischemic Infarction.

releases; truly unresponsive patients do not avoid and the hand hits their face) on the right arm and the emergency physician requested cranial computed tomography (CT) scan. The CT scan demonstrated focal low-density area on the precentral region of left frontal lobe, suggestive of ischemia. Cranial magnetic resonance imaging (MRI) confirmed hyperintensity consistent with infarction in the same area (Figure 1a and 1b). The patient was transferred to the intensive care unit (ICU) with a presumptive diagnosis of ischemic stroke. Further investigations showed no risk factors, except oral contraceptive usage.

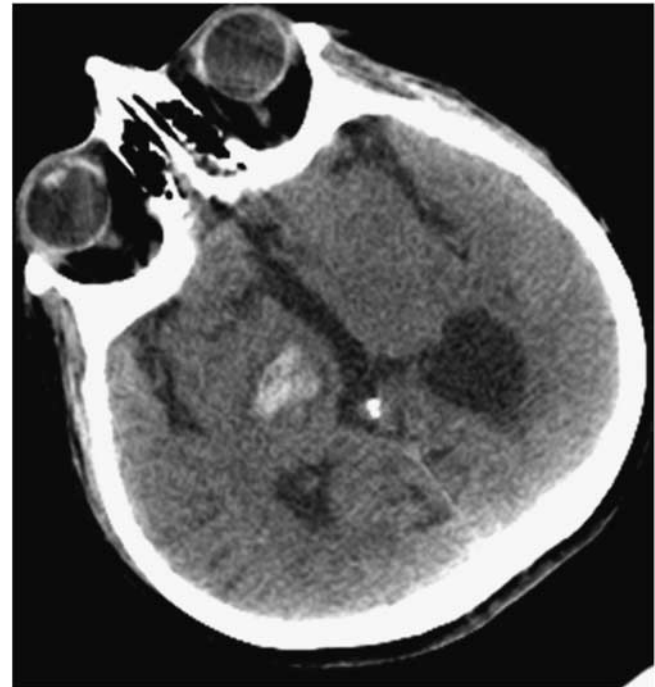
Case 2

A 43-year old woman presented to the ED due to syncope and confusion following an argument with her husband. Her medical history was significant only for hypertension, which was treated with Amlodipine 5.00mg and Carvedilol 6.25mg. She had no other known comorbidities and drug use. According to her family, she had experienced similar fainting episodes time to time and no specific pathology had been identified. That day, the emergency room was hectic because of a food poisoning outbreak at a workplace cafeteria close to the hospital. During the examination, the patient was conscious but uncooperative and disoriented. Her eyes were shut and she resisted attempts to open them, and there was no anisocoria. On presentation, the patient had a heart rate of 87 bpm, blood pressure of 155/100 mmHg, respiratory rate of 28 bpm, and SaO₂ of 98%. No neurological pathology was considered on her examination in the ED and 4.00mg diazepam infusion was administered with a presumptive diagnosis of conversion disorder.

However, the patient had muscle weakness on her left upper and lower extremities (both 3/5) and pathological Babinski reflex on the left side when she was reassessed 20 minutes later. Emergent CT scan revealed acute corticospinal tract hemorrhage extending from basal ganglia level to the mesencephalon (Figure 2). There were no signs of aneurysm on her CT angiogram. The patient was admitted to the ICU.

Discussion

Conversion disorder is usually associated with severe stress, emotional crisis, and/or pre-existing psychiatric disorder. These patients are often brought to EDs with various neurological symptoms which may strongly suggest presence of severe organic disease.



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Figure 2. Acute Hemorrhage Extending from Basal Ganglia Level to the Mesencephalon.

Differential diagnosis of conditions such as acute stroke, bilateral thalamic infarction, transient ischemia attack, and brain tumors are challenging in ED settings.^{5,6} As it is seen in the present report, the tendency of emergency medical technicians (EMTs) and ED doctors to treat the patient with neurological symptoms as conversion disorder is remarkable, especially when the onset of symptoms are associated with a stressful experience or a life crisis. This situation becomes more apparent if the patient and/or relatives don't report any underlying organic disease that could have led to the symptoms. It should be kept in mind that conversion disorder is a diagnosis of exclusion, which requires exclusion of any other medical conditions.

Conversion episodes are self-limiting. If the patient's symptoms are indeed a result of conversion disorder, investigation of the underlying causes is important, even if not urgent. Long-term psychotherapy and drug therapy in outpatient psychiatry services is the mainstay treatment for conversion disorder, along with educating the patients about their condition.

The literature reveals many instances of central nervous system pathologies which can easily be confused with conversion disorder.^{1,6} If EMTs and emergency physicians approach the situation as conversion disorder hastily and overlook underlying pathology, it could lead serious mortality and morbidity. Surely, evaluation made by inexperienced health professional also has a part in these consequences. Therefore, physician's experience, knowledge, and skill in physical examinations, laboratory, and radiological testing are of vital importance to manage the patients. The Face-Hand Test (also known as the Drop Test) is a simple bedside neurological test which is useful (although not adequate, per se) to differentiate between conversion disorder and organic mental pathologies. In conversion disorder, patients deflect their hand from hitting their own face. The sensitivity of this test has not been investigated so far.

In ED settings, MRI may be superior to the CT with higher sensitivity in distinguishing ischemic lesions, especially in early stages. From a different point of view, there are many instances of conversion disorder with a clinical presentation suggesting stroke and/or seizure episode. Occasionally, this situation results in unneeded prolonged hospital stays and invasive procedures. On the other hand, the fact that a patient has had a referral with conversion disorder in his/her history doesn't mean he/she would never present with seizure or stroke.^{7,8} All of these are just some of the challenges EMTs and emergency physicians are facing while trying to make quick decisions.

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Conclusion

Conversion disorder is commonly encountered in the emergency setting in developing countries, which sometimes leads physicians to misdiagnose. Therefore, physician's experience, knowledge, and skill in physical examinations, laboratory, and radiologic testing are of vital importance in decision making. Detailed physical examination and adequate experience are a must to differentiate conversion disorder from organic disorders.

Unfortunately, malpractice lawsuits regarding this matter are not so rare. Thus, emergency physicians and EMTs should think twice before ruling out neurologic diseases and diagnosing conversion disorder.