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CONVERSION DISORDER MANIFESTING AS FUNCTIONAL VISUAL LOSS

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☐ **Abstract—Background: Children with conversion disorder experience neurological symptoms without a definable organic cause. Clinical presentation of conversion disorders is uncommon in the emergency department (ED). Case Report: An 11-year-old previously healthy girl presented to the ED for management of lobar pneumonia. She developed acute visual loss subsequent to accidental placement of an intra-arterial cannula in her arm. Clinical assessments by the emergency physician, neurology, ophthalmology, and psychiatry services, and negative neuroimaging studies established the diagnosis of functional visual loss as a manifestation of conversion disorder. Why Should an Emergency Physician Be Aware of This?: Conversion disorder symptoms are often without any specific markers and do not fit standard clinical guidelines. A comprehensive and stepwise evaluation of unusual clinical presentation by multiple specialties and ancillary test results should be considered to rule out organic causes and establish the diagnosis of conversion disorder, as seen in our patient.** © 2019 Elsevier Inc. All rights reserved.

☐ **Keywords—conversion disorder; functional visual loss; pediatrics**

INTRODUCTION

Conversion disorders are a type of somatoform disorder characterized by a number of involuntary neurological symptoms that cannot be explained by an underlying organic condition. An incidence of approximately 1/10,000 emergency department (ED) visits for conversion disorders has been reported previously (1). Somatoform disorders without any medical explanation in children are encountered more frequently in primary pediatric clinics (2). Common clinical features of conversion disorders in children include disturbances of voluntary motor function, sensory symptoms, and pseudo-seizures (3,4). Functional vision loss (FVL) is an unusual presentation of conversion disorder in children that is seen in ophthalmology clinics (5). We report the case of an 11-year-old girl who presented to the ED for treatment of lobar pneumonia and developed FVL as a manifestation of conversion disorder in the ED.

CASE REPORT

An 11-year-old previously healthy girl presented to the ED with a 1-week history of fever, cough, and dyspnea. On presentation, her vital parameters revealed: heart rate (HR) 125 beats/min, blood pressure (BP) 86/45 mm Hg, respiratory rate (RR) 25 breaths/min, oxygen saturation 92%, and temperature 38°C. Her clinical examination revealed sinus tachycardia and tachypnea. She had decreased air entry associated with rales in the right axilla. Her abdomen was soft and non-tender. She was alert and interactive and answered all questions appropriately. She had good perfusion with well-felt peripheral pulses and capillary refill of 2–3 s. Community-acquired pneumonia was considered by the emergency physician. Her laboratory studies

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revealed complete blood count: 26.1 × $10^3/\mu$L with 83% neutrophils, and a negative rapid influenza and respiratory syncytial virus antigen test. Her chest x-ray study revealed right lower lobe infiltrate. The emergency physician ordered a fluid bolus of 20 mL/kg normal saline and a dose of i.v. ceftriaxone. An i.v. cannula was placed in her antecubital fossa. During administration of i.v. ceftriaxone, she complained of pain at the i.v. cannula site with numbness and pallor in the same arm. An assessment by the nursing staff revealed that the cannula was placed in her brachial artery accidentally. The nursing staff called for help immediately and other nursing staff, emergency resident, and emergency physician arrived. The patient's mother at the bedside got very anxious and agitated and was ushered outside the room while the intra-arterial cannula was removed. Within 1 min of removal of the catheter, the patient complained of sudden loss of vision in both her eyes. The patient was reassessed by the emergency physician. Her vital parameters revealed: HR 118 beats/min, BP 96/54 mm Hg, RR 24 breaths/min, oxygen saturation 94%, and temperature: 37.8°C. She was able to follow verbal commands but appeared agitated. She did not have any facial asymmetry, or any change in her voice and was able to move all four extremities with normal deep tendon reflexes. A bedside eye examination revealed normal pupillary size with intact light reflex. The patient was, however, unable to detect any hand motion and visualized only bright light. She did not track the light source in both her eyes. Her medical history revealed anisometropic amblyopia 4 years ago, which was corrected with patch therapy. A concern for bilateral occipital infarct, central retinal arterial occlusion, or migraine headache was raised. A neurology consultation was undertaken that revealed normal mentation and speech, intact motor and sensory examination of the upper and lower extremities, and partial visualization of bright light bilaterally. A magnetic resonance imaging study of her brain and eyes was negative. An ophthalmology consultation revealed normal fundoscopy examination and the Snellen near card test revealed 20/20 vision in the left eye and 20/25 vision in the right eye. A non-organic cause of acute blindness was considered based on multiple clinical assessments by different specialists and negative results of neuroimaging study. A psychiatric evaluation of the patient revealed that the patient had become anxious during her i.v. cannula placement. The patient's realization of accidental placement of the cannula in her artery coupled with separation from her mother in the ED increased her anxiety, leading to symptoms of acute bilateral vision loss. Her detailed social history revealed environmental stress related to her recent placement in a magnet school. Her family history revealed depression in her mother with symptoms as recently as 1 week prior. She was diagnosed with conversion disorder manifesting as FVL based on her clinical assessment and negative ancillary testing. She had complete recovery of her vision within 6 h. She underwent cognitive behavioral therapy and was followed by the psychiatry service on an outpatient basis. She did not have any conversion disorder manifestations in the next 4 months.

DISCUSSION

The assessment of a child's unexplained somatic symptoms and diagnosis of conversion disorder in the ED is challenging (2). Patients in the ED perceive their problems as being urgent and related to true medical problems. Conversion disorders are uncommon and are often without specific markers, which makes their clinical assessment challenging, as they do not easily fit standardized clinical care guidelines. In conversion disorders, typically one or more symptoms or deficits affect a sensory or voluntary motor function (e.g., blindness, paresis), suggesting a medical or neurological condition, yet the findings are not consistent with any known neuroanatomic/pathophysiologic explanation. The key diagnostic features of conversion disorder include at least one neurological symptom of altered voluntary motor or sensory function, clinical findings incompatible with patient's clinical presentation, the symptoms or deficits are not explained by another medical or mental disorder, and the symptoms cause significant distress, psychological impairment, or warrant medical evaluation (6). The diagnosis of conversion disorder requires a methodical approach to the patient's symptoms to rule out organic causes (7). The emergency physician needs to evaluate and reassess the patient's symptomology repeatedly to see if they corroborate any organic disease. The diagnosis of conversion disorder is often one of exclusion. The emergency physician should undertake an appropriate medical evaluation, including a detailed medical and physical examination and further diagnostic testing based on any suspicion of organic disease (2). In the absence of clear etiology, it is prudent to make specialty consultation to rule out uncommon diseases, including conversion disorder, as seen in our patient management. A step-wise, systemic evaluation by the multidisciplinary team including ED, neurology, ophthalmology, and psychiatry for assessment of acute visual loss, along with negative ancillary testing, facilitated the diagnosis of conversion disorder in our patient.

Conversion disorders in children occur between 10 and 15 years of age and more often in girls than boys (3). Acute physical injury, like the painful insertion of an arterial cannula in our patient, can precipitate onset of conversion disorder in one-third of patients (8). School and family stresses, like placement in a magnet school and high expectations as seen in our patient, are

associated with conversion disorders in one-third of pediatric patients (9). Family factors, such as the history of maternal depression in our patient, also play a prominent role in the expression of conversion disorder in 30%–50% of pediatric patients (10). FVL may manifest as blurred vision in one or both eyes of the patient (11). It may be associated with diplopia or headaches in children (11).

Conversion disorder is often associated with stressful life events and maladaptive personality traits. Psychological factors are frequently observed in patients with conversion symptoms, but this is not always the case (6). Two terms tend to be used in connection with the causes of conversion disorder—*primary gain* and *secondary gain*. Primary gain refers to the lessening of the anxiety and communication of the unconscious wish that the patient derives from the symptoms (12). In our case, primary gain was an attempt to resolve the conflict of her recent placement in a magnet school. Secondary gain refers to the interference with daily tasks, removal from the uncomfortable situation, or increased attention from significant others that the patient obtains as a result of the symptoms (13). In our case, secondary gain was increased attention seeking related to anxiety of i.v. cannula placement and separation from her mother. Conversion symptoms are frequently but not always accompanied by *la belle indifference*, an attitude of disinterest in the evaluation of clinical symptoms, which was also appreciated in our patient (12). There was complete resolution of FVL symptoms in our patient. A full recovery has been reported in 85–97% of conversion disorders (14). Our patient had favorable prognostic features, including recent onset of symptoms, monosymptomatic manifestation, and good premorbid personality (14).

WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS?

Our case demonstrates that conversion disorders in children can develop and manifest in the ED. Signs and symptoms of conversion disorder may be nonspecific, which can make their diagnosis challenging. Initiation of a comprehensive assessment in the ED, including ruling out an organic disease or mental illness, identification of psychosocial dysfunction, and recognition of stressful triggers that might have precipitated the event, can facilitate the diagnosis of conversion disorder.

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