

## Ophthalmic Findings in Pediatric Conversion Disorder

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### Abstract

**Aim:** Conversion disorder or hysterical neurosis is a condition in which individuals manifest with neurological deficits in the absence of organic neurological disease. The purpose of this study is to evaluate the proportion of visual conversion disorder cases among all other conversion disorder diagnoses, presenting to the pediatric emergency department of a teaching tertiary care children's hospital.

**Methods:** Retrospective chart review of all children and adolescents (0-18 years) with a documented diagnosis of conversion disorder (ICD-10-CA) from March 2002 to March 2012 after evaluation by neurology and psychiatry.

**Results:** 73 children were found presenting with diagnosis of conversion disorder: age range 8-17 years; average age 10.3 years. Four (5.5%) presented with visual symptoms of these 1 (1.4%) was diagnosed with true visual conversion disorder, 3 (4.1%) were diagnosed with systemic functional/visual symptoms, all which resolved spontaneously. All 4 patients were imaged with MRI and evaluated by Neurology and Psychiatry. Five of these were girls.

**Conclusion:** We confirm visual conversion disorder is an uncommon condition in the paediatric population, but when diagnosed the suspicion of ophthalmological pathology should be kept high. All patients presented with identifiable emotional stressors. All visual symptoms resolved without treatment. It is a difficult diagnosis to make and is a diagnosis of exclusion once full work up is concluded.

**Keywords:** Functional vision loss, Paediatrics, Conversion disorders, Ophthalmology, Neurology

### Introduction

Conversion disorder or hysterical neurosis is a psychological condition characterized by deficits in sensorimotor function, which on the surface suggest a neurological or physical condition [1]. However, on formal assessment no organic pathology is detected and symptoms cannot be explained by any physical diagnostic tests. According to the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders), criteria for conversion disorder requires that the patient has experienced a psychological or emotional stress that can be related to the onset symptoms and the patient is not deliberately feigning the symptoms [2,3].

To our knowledge, there is little data on pure visual conversion disorders in children. Historically, research on visual conversion disorder has been done through case studies before the DSM-IV when vision disturbances with no neurological abnormality were referred to as "hysterical blindness", and did not present diagnostic guidelines.

The purpose is to present a pilot study to evaluate pediatric patients presenting with acute visual conversion disorder amongst all other conversion disorders through a retrospective analysis of patients presenting to the pediatric emergency department of a teaching tertiary care hospital.

### Methods

All charts reviewed for this study were accessed from patient records at Victoria Hospital and Children's Hospital at London Health Sciences, London, Ontario. A retrospective review of all patient admissions with the ICD-10-CA diagnosis F44.9 Unspecified Dissociative and Conversion Disorder, between March 2002 and March 2012 was carried out. The study was reviewed and approved by the Research Ethics Board, Lawson Health Research Institute, Western University, London, ON.

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Relevant sections of each chart were thoroughly reviewed, including paramedic and emergency room notes, radiology reports, neurological, ophthalmological, psychiatric referrals, and nurses' dictations. The extracted data has been summarized in a comprehensive table, outlined in Table 1. Cases with visual symptoms were further assessed and investigated if the symptoms could be explained by organic pathology or were then diagnosed as visual conversion disorder.

## Results

73 patients were identified in these time periods, who were diagnosed with unspecified conversion disorder from March 2002 to March 2012. Of these 73 patients, 50 were female, 23 were male; ages ranged from 8-17 years, with an average of 13 years.

23 of these 73 (31.5%) presented with motor symptoms, 16 of the 73 (21.9%) demonstrated motor and sensory symptoms. 11/73 (15%) were found to have non-specific pain symptoms.

Only 6.8% i.e. 5 of 73 presented primarily with neuropsychiatric symptoms and 12 of the 73 (16.4%) manifested with non-specific symptoms.

Four of these 73 (5.5%), age range 8-17 years, presented with visual symptoms. Of these 4, 1 (1.4%) was diagnosed with true visual conversion disorder and 3 were diagnosed with a mix of systemic functional/visual symptoms. So, 4 of the 4 (100%) patients with visual symptoms were found to have visual conversion reaction. 3 of these 4 were females. All 4 patients underwent MRI as the primary imaging modality, complete work up by neurology and psychiatric. Details of the 4 patients are summarized in (Table 1).

Previous psycho-social stressors with psychological trauma was found in all 4 patients with visual conversion reaction.

In this study cohort, it is encouraging to note that all visual symptoms resolved without treatment intervention in patients with visual conversion disorder.

**Table 1:** Summary of patients with visual symptoms diagnosed with unspecified conversion disorder, March 2002–March 2012 (n = 6).

Patient #	Gender	Age (Years)	Duration of symptoms to presentation	Presenting complaints	Neurologic symptoms	Visual symptoms	Eye findings	Psycho-social triggers	Resolution/Persistence
1	F	13	12 hrs	Acute loss of peripheral vision Migraine resolved 1 hr prior to onset of vision loss (pounding pain, bilateral frontal). Phonophobia Pain with extremes of lateral vision Did not take prescribed Digoxin 2 days prior	Headache Peripheral vision loss	Peripheral vision loss 30%	Pupils dilated, peripheral vision loss progressed to tunnel vision	Behaviour issues Anger Inappropriate touching of other children False sexual harassment accusations Foster care Role models: 2 acquaintances faked visual symptoms by report	2-3 month follow up with neurology
2	F	13	4 days	Confusion Auditory hallucinations, Odd behaviours Lethargy Anxiety	Confusion Auditory hallucinations	Double vision, decreased visual field bilaterally	Double vision, right lateral gaze, decreased visual fields bilaterally especially lateral and inferior quadratus	Father's job terminated Friends left for high school Depression	Ativan prescribed upon discharge 1 month follow up with neurology Readmission with similar symptoms: voices, buzzing
3	F	17	1 month	Light-headed with episodes of blacking out	Loss of consciousness Seeing black	"Blindness" lasting 2 min-5 hrs	N/A	Previous sexual harassment Depression, anxiety, low self-esteem, eating disorder	4 wks involuntary movements Resolved over time
4	M	15	2 months	Headache, constant pressure behind eyes; Ataxia, unsteady gait Right sided weakness 10 lb weight loss over summer Decreased focus in school Fatigue Decreased appetite Occasional nausea Vertigo Phonophobia, photophobia Color vision different between eyes. Inconsistent with description of symptoms between examiners	Headache Color vision issues	Differential color vision in each eye Left eye sees red, right eye sees purple	N/A	Argues with father Mother has mental health issues Attached maternal relationship; worries about mother Bullied at school for 2 years Sexually assault several years ago	Patient/family encouraged to return if condition worsens Follow up with community mental health

ADEM: Acute Disseminated Encephalomyelitis

## Discussion

This is a preliminary pilot study to look at visual symptoms in children with conversion disorders in the 10 years (2002 to 2012) at our tertiary centre. Our study finds these cases to be quite uncommon (5.5%) amongst other functional conversion disorders. Though visual conversion reaction is rare, the possibility of true pathology in these cases is significantly high and merits detailed evaluation. Girls seem to be affected by the disorder more than boys, both with generalised conversion disorders and definitely with visual conversion reaction 83%.

Those with visual symptoms presented with a wide range of complaints which complicates the diagnosis of conversion disorder over organic ophthalmic pathology. These complaints consisted of blurred vision, blacking out, followed with “seeing black”, “blindness” lasting 2 min - 4 hours, double vision, deterioration of visual fields, both eyes seeing different colors (right eye seeing purple and left eye seeing red), seeing bluish hues and intermittent blurred vision.

Conversion disorder was diagnosed mainly in the absence of any identifiable neurological/psychiatric lesions. Therefore, it is primarily a diagnosis of exclusion. Regardless of the nature of visual symptoms, all 4 patients who complained of visual disturbances received an MRI as an imaging modality; three patients underwent CT scans as well to rule out neurological or ophthalmological lesions as the cause of complaints. It is important for clinicians to rule out any organic pathologies for the patient’s symptoms.

Visual conversion disorder is a diagnosis that should be suspected once visual symptoms and emotional trauma are found in combination as presenting features and detailed history. It is important to note, as mentioned earlier, that patients in this cohort who had organic pathology in the visual pathways did not report any associated emotional stressors. This emphasizes the need for rapid and effective psychiatric assessments of patients suspected with non-organic visual symptoms to aid an accurate diagnosis of conversion disorder. In the absence of prior psychological stressors in the history, our findings suggest that clinicians should focus on thorough investigations to rule out organic pathology [3].

The initial symptoms of overall patients who presented are classified in Tables 2 and 3. Of these 73 patients diagnosed with unspecified conversion, 23 presented with motor symptoms alone and 16 had motor symptoms in combination with sensory deficits. Some motor complaints included limb weakness, ataxia, tremor, and syncope. 12 patients who presented with unexplained symptoms including nausea, vomiting, chronic cough, difficulty breathing, confusion, fatigue, and memory loss, were also diagnosed with unspecified

**Table 2:** Characterization of initial symptoms at presentation with unspecified conversion disorder diagnosis, March 2002-2012 (Further details in Table 3).

Symptom/Deficit Category	Percentage of patients (n-73)
Motor	23 (31.5%)
Motor + Sensory	16 (21.9%)
Pain	11 (15.0%)
Visual	4 (5.5%)
Neuropsychiatric	5 (6.8%)
Nonspecific	12 (16.4%)

**Table 3:** Details of initial symptoms at presentation with unspecified conversion disorder diagnosis, March 2002-2012.

Symptom/Deficit Category	Symptoms Reported
Motor	Syncope/presyncopal episodes Diffuse shaking Numbness in hands/arms/legs Shaking legs Loss of limb strength/movement Tapping foot Limb twitching Leg restlessness Unilateral limb weakness Ataxia Unsteady gait Leg spasms
Sensory	Blurred vision Gradual vision loss Acute loss of peripheral vision Photophobia Phonophobia Altered color vision
Pain	Headache Sore throat Abdominal pain Sore knees Limb pain Back pain Rib pain
Seizures and seizure-like activities	Paroxysmal non-epileptic events (PNEs)
Neuropsychiatric	Dizziness, vertigo Slow speech Cough Loss of voice, virtual mutism Disorientation Confusion Slow speech Aphonia Fatigue Lethargy Auditory hallucinations Visual hallucinations Anxiety Panic attack Decreased smell/taste Decreased appetite Urinary hesitancy Difficulty breathing Hyperventilating
Nonspecific	Amnesia (short term memory loss) Nausea, vomiting Vomiting, weight loss Diarrhea

conversion disorder in the emergency department. In addition, 11 patients presenting with pain were also diagnosed with unspecified conversion disorder. Four patients were admitted to the emergency department more than once between 2002 and 2012.

The recent edition of DSM-5 has deemphasized the potential for non-medically explainable conditions, revising the somatic symptom and related disorders subsections. Nonetheless, conversion disorder remains a diagnosable psychiatric condition in the DSM-5, with cases typically arising in pre-pubertal childhood and adolescence. Hypothesized reasons for conversion disorder in this age group include the manifestation of psychological trauma or abuse experienced in childhood [4,5], coupled with the stressful transition into adulthood [6]. Both reasons may be applicable to explain sensory conversion disorders, in particular a loss of vision without abnormal neurologic or ophthalmologic pathology [7,8].

This study analyses visual conversion reaction in children when very little concrete information is found in literature in recent times to depend on, when such cases are encountered in practice. We also have looked at a study period of ten years, which is very long in comparison to existing literature on this topic. Our study has its limitations - case ascertainment was carried out in a tertiary care centre and therefore possibly missed cases that were not reported to the emergency department and management might have been carried out in the peripheral communities. Importantly, the diagnosis is not easy to make, which further complicates a straight forward functional diagnosis which increases the level of interpretation the physician must make to ensure an accurate diagnosis of conversion disorder. It may be possible to survey this through the Canadian Pediatric Surveillance Program (CPSP) in a prospective manner involving all paediatricians. Prior surveys conducted through this program have produced highly valid data.

## Conclusion

Visual conversion disorders are uncommon in the pediatric population. But when encountered, the possibility of ophthalmologic pathology is high. Girls seem to be affected more than boys. The relative rarity of the disorder suggests that the onus is on the physician to consider organic pathology and imaging should be used to rule out neurological basis to the symptoms. If conversion is suspected, past psychological trauma should be addressed first, before the patient is subjected to

extensive and expensive invasive testing. Newer paediatricians and ophthalmologists in the emergency need to be aware of these helpful and interesting findings.

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