



Gait Disturbance as Conversion Reaction Accompanying Anorexia Nervosa in a Young Adult: A Case Report and Literature Review

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Authors' contributions

This work was carried out in collaboration between all authors. Author EB designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors RB and MC managed the analyses of the study. Author MC managed the literature searches. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Aim: Conversion disorder is a situation where psychological stress is expressed physically. This health problem is usually triggered by a stressful or a mental crisis. When involving a physical problem it is named as 'conversion disorder'. Psychogenic gait disturbance is a common conversion disorder. Anorexia nervosa is a totally different disease than conversion disorder by its clinical presentation and characteristics.

We present a patient suffering from anorexia nervosa and developing conversion disorder in form of a gait disturbance.

Presentation of Case: A 35 year-old woman was suffering from excessive obsessions about her body. She had avoidance of eating and loss of 18 kilograms. She was admitted to our hospital for obtaining a disabled certificate for her walking disability that continued for 6 months. Her gait disturbance was indeterminate as to being neurological or orthopedic and was aggravated by stress.

Discussion: Even though anorexia nervosa and conversion disorder are two different pathologies, they may be seen together, meaning that patients with one disease may

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develop symptoms of another disease as means of secondary gain. However, a psychogenic movement disorder is a rare presentation in this situation.

Conclusion: Psychogenic gait disturbances are relatively rare psychogenic movement disorders. Conversion disorder may be the underlying problem. In our case, patient was masking, involuntarily, her primary problem (anorexia nervosa) by attracting attention to her gait. Such situations complicate the diagnosis and treatment of both diseases, which should be kept in mind.

Keywords: Psychogenic gait; conversion disorder; anorexia nervosa; movement.

DEFINITIONS, ACRONYMS, ABBREVIATIONS

DSM-IV-TR: Diagnostic and Statistical annual of Mental Disorders, Fourth Edition, Text Revision

1. INTRODUCTION

Conversion disorder is a state of physiological stress that is due to psychological stress. This mental health problem is usually triggered by a stressful event and is called by this name when involving a physical issue. As mentioned on Diagnostic and Statistical annual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) and conversion disorder includes deficits and symptoms of voluntary motor and sensory functions. Detailed neurological examination and appropriate laboratory and radiological studies reveal no organic pathology to explain the symptoms [1].

Most common examples of conversion symptoms are blindness, diplopia, paralysis, dystonia, psychogenic non-epileptic seizures, anesthesia, aphonia, amnesia, dementia, apathy and difficulties of swallowing, motor tics, hallucinations, false pregnancy and walking disability.

More rare conversion disorders found in literature are camptocorbia, dystonic fist syndrome, walking on leaning, bizarre vocalizations and pseudo-foreign accent syndrome [2-6]. 30-60% of patients with conversion disorders admitted to the hospital have considerable symptoms such as a walking disorder [7]. Walking disabilities with no organic reason are considered as a conversion disorder or psychogenic gait [8-11]. Gait disabilities are common manifestations of conversion disorders [12,13]. They sometimes occur as lower extremity monoparesis, ataxia, or random contractions of different muscle groups [14,15].

Diagnostic criterion for psychogenic gait has been defined by Lempert, et al. [10].

Anorexia nervosa is a complex and usually chronic illness [16]. Even though it's rare in the general population, it is amongst the most common psychiatric disorders affecting adolescent girls [17,18].

Anorexia nervosa is a very different illness then conversion disorder in many aspects, such as clinical presentation and characteristics. There's a group of patients having complaints very similar to anorexia nervosa but who don't have essential criteria for anorexia nervosa. Even though these patients are called atypical anorexia nervosa patients, [19] some of them are thought to have conversion disorder. Few of conversive patients have chronic vomiting

and loss of weight [18].

Here we'll present a case of conversional (psychogenic) gait disability that distracted attention from underlying anorexia nervosa.

2. PRESENTATION OF CASE

A 35 year-old woman had a history of obsessions about her body, avoidance of eating and loss of 18 kilograms in 13 years. Her actual weight was 45 kilograms and height was 1.68 cm. The patient was hospitalized with a provisional diagnosis of anorexia nervosa.

Patient claimed that her meagerness was against her will. She did not have a known habit of vomiting. She denied her meagerness and fear of gaining weight. She didn't consider herself a skinny person, and didn't want to gain weight. Her first complaint was sudden disability of walking and crawling in 2000. She was admitted to Sakarya State Hospital and she was given pharmacotherapy with mirtazapine 30 mg/day. Fear of gaining weight had kept her from using any drug therapy. Later on, she didn't go to routine medical examinations. Her gait disturbance was continuing since 2000, appearing for six months within a year and then disappearing the other half, without regard to the season. Her gait disturbance was most severe initially, then grew milder over time.

2.1. Evaluation

The patient was admitted to our hospital seeking a handicapped report for walking. She had disability that continued for six months within a year. The patient's gait fit the pattern defined by Lempert as 'excessive slowness or hesitation of locomotion incompatible with neurological disease [10] with simultaneous contraction of agonist and antagonist muscles, and did not appear to be consistent with an organic neurological or orthopedic causes and was aggravated by stress. Her upper extremities were usually in hyperextension posture, and lower extremity postures differed according to her mood and the number of people around her. Also, while she was walking, her lower extremities were usually in hyperextension as if she was having increased spasticity or rigidity, alternating with a hyperflexion posture. Her muscle tonus was decreased in passive movement and she did not have any movement disorder such as chorea, athetosis or ballismus. When she was standing up from sitting position firstly she was having an hyperextension on her neck then on upright position she was having an hyperflexion on her neck muscles but this also differed according to her mood and the number of people around her. A couple of times she came in the therapy room crawling on the floor and claimed this position was out of her control. She also complained of migrating pain all over her body and hyperflexion posture of her lower extremities were becoming normal while she walking with high heel shoes.

The patient denied being under normal weight and the importance of obtaining a healthy weight. She described amenorrhea for longer than three successive menstrual periods. At the end of our evaluation, we diagnosed the patient with anorexia nervosa according to DSM-IV criteria. She fulfilled all four criteria of DSM-IV for anorexia nervosa (very low body mass index, fear of weight gain, disruption in body perception and amenorrhea).

The patient was evaluated by physical medicine and rehabilitation physicians and neurologists for organic pathology. Cranial MRI was interpreted as normal. A spinal MRI was not considered necessary as there were no spinal pathologies that could be the explanation

of our patient's complaints. The patient's symptoms differed from dystonia in many ways. None of her muscle groups had a persistent abnormal posture. Muscle tone of same muscles could be increased and then decreased unexpectedly. She did not have the quality of a *geste antagoniste* (i.e., a "sensory trick" which interrupts or stops the dystonia temporarily) that can be seen along with dystonias. Electromyography was also normal. Orthopedic exam demonstrated normal knee and hip joints.

2.2 Treatment

Electrolyte values were evaluated at the beginning of her hospitalization, and a high calorie diet program was begun. Paroxetine 20 mg/day and mirtazapine 30 mg /day treatment were also commenced. She was banned from weighing out. Minnesota Multiphasic Personality Inventory demonstrated features of anxiety. She was considered having somatization disorder on Axis 1 and passive-addicted personality characteristics on Axis 2. Daily speech therapy (cognitive behavioral therapy) was performed. Patient's main pathology was considered as anorexia nervosa and she was treated mainly for anorexia.

During her stay at hospital, she received daily socialization and her diet and gait improved day by day. After 30 days of hospitalization, the patient and her parents did not accept further stay in hospital, and she was discharged with remaining, albeit milder postural abnormality. During her hospital stay she put on 2 kilograms. Our patient did not return for her suggested post-hospital follow-up appointments.

3. DISCUSSION

Conversion disorder is a situation where psychological stress is expressed through symptoms of voluntary muscle or sensory functions as detailed in DSM-IV. In spite of their physical expression, conversion symptoms are results of psychological factors. In their pathophysiology, conversion symptoms are due to unconscious repressing of emotional conflicts [20]. At behavioral models, conversion symptoms are considered as acts of misbehavior learned and reinforced by society.

Conversion disorder is seen more often in rural populations, individuals with low socio-economic status, low educational level, with low psychological sophistication and poor coping strategies [21] and is seen more frequently in those with a history of sexual or physical trauma [22,23]. The incidence of conversion disorder was noted to be 22/100 000 in USA and 1111/100 000 in Iceland [24]. Conversion disorder is seen more often in females [1].

Psychogenic motor disorder is a common disease seen by psychiatry and neurology doctors [25]. The term "Psychogenic motor disorder" is used for disturbances comprised by an underlying psychiatric disorder [26]. Only 10% of psychogenic motor disorder patients have psychogenic gait disturbance [27-30]. At a study made in 2009, gait disturbance was detected at 12.3% of psychogenic motor disorder patients [31]. This special case has been termed psychogenic gait disturbance [10,32,33]. According to DSM-IV criteria [34], 80-86% of patients diagnosed with psychogenic motor disorder have conversion disorder as an underlying psychiatric disorder [35].

Conversion disorders appear to emerge in order to suppress another pathology or to attract attention from another pathology. We believe that our patient developed a bizarre gait

pattern so as to distract attention away from her underlying anorexia nervosa. We considered her gait pattern to be consistent with a 'psychogenic movement disorder'.

Gait disturbance stands out as a common first symptom of conversion disorders [12,13]. In one study, 69% of patients with conversion disorder had gait disturbances [14]. Approximately half of these patients had gait disturbance due to widely distributed pain in the legs or difficulty walking. At a study made by Grattan-Smith et al. gait disturbance was seen at 30% of conversion disorder patients with the most common subtypes of gait disturbance being monoparesis and paraparesis [14]. This situation of functional walking disability can reveal itself in different aspects at different times within the same patient. Walking characteristics may differ from one patient to another, although within an individual, a distinctive manner may be predominate [15]. Three published series determine similar walking characteristics [10,32,33]. The most common type is monoplegic-like [15]. Lempert, et al. further defined other common psychogenic gait disability characteristics (Table 1) [10].

Table 1. Common varieties of functional gait disorder

| Clinical features | Description |
|---|--|
| 1 "Monoplegic dragging" gait | A leg that drags behind the patient, often with rotation at the hip or inversion/eversion at the ankle. Leg often hauled on to bed with both hands. |
| 2 Fluctuation of impairment | Variability during a 5–10 minute period, either spontaneously or provoked by distraction, for example finger-nose testing while standing. |
| 3 Excessive slowness of movements or hesitation | Simultaneous contraction of agonist and antagonist muscles—not related to pain in this sample. Hesitation refers to delayed or failed initiation of gait; small forward and backward movements of the leg while the feet "stick" to the ground; does not improve after the first step like parkinsonism. |
| 4 "Psychogenic Romberg" test | (1) Constant falls towards or away from the observer, irrespective of position. Fall avoided by clutching physician. (2) Large amplitude body sway. (3) Improvement with distraction. |
| 5 "Walking on ice" pattern | The gait pattern of a normal person walking on slippery ground. Cautious, broad based steps with decreased stride length and height, stiff knees and ankles. Arms sometimes abducted as if on a tightrope. |
| 6 Uneconomic postures with waste of muscle energy | A gait with an eccentric displacement of centre of gravity such as standing and walking with flexion of hips and knees. |
| 7 Sudden knee buckling | Patients usually prevent themselves from falling (8/10) before they touch the ground, requiring excellent muscle function. NB, knee buckling can occur in Huntington's chorea and cataplexy. |

Some patients reveal already defined movement disorders like tremor or ataxia, while some manifest bizarre and difficult to characterize movements that are not consistent with an organic form of pathology. Psychogenic gait disturbance is considered as a subgroup of psychogenic movement disorders. Psychogenic motor disorder represents a special

subgroup within psychogenic movement disorders. Conversion disorder is found to be the third underlying psychological cause of psychogenic motor disorder after depression and anxiety [28]. According to a study made by Baik, et al. at 2007, the mean age of initiative symptoms is 43, mean duration of symptoms is 18 months and female/male ratio is 2.1/1 [28]. The most common characteristics of a psychogenic motor disorder were found to be slowness of motion, tremor and dystonia [28]. Gait disturbance was detected as 5.7% [28]. Incidence of conversion disorder as underlying pathology was seen at only at 4 of 198 patients. Most common underlying pathologies were detected as depression and anxiety [28].

Conversion disorder is a relatively rare cause of walking disability. The exclusion of organic pathologies demands a thorough work-up. The diagnosis of a psychogenic disorder is made through elimination of other organic diagnosis like tremor, dystonia, myoclonus, Parkinsonism or tics. Bizarre motor behavior can also be a feature of organic movement disorders and psychiatric abnormalities are common in all forms of neurological disease, so the diagnosis should be made with appropriate caution and only following exclusion of organic neurological or orthopedic problems.

Anorexia nervosa is a complex and mostly chronic illness with specific diagnostic criteria and treatments [16]. It is well known that the treatment of eating disorders is difficult. Eisler, et al. reported promising results with the Maudsley family based treatment method [36], although some methods of treatment may worsen somatic symptoms of conversive patients [37]. In our case, we believe our patient's gait disturbance was a largely subconscious means of secondary gain, masking her anorexia nervosa and thus avoid specific diagnosis or or treatment for anorexia nervosa. We assumed that she wanted to draw our attention away from her anorexia and to have a secondary gain from her gait disability. She didn't reveal typical characteristics of factitious disorders.

4. CONCLUSION

Psychogenic gait disturbance is a rare group of movement disorders. Conversion disorder may be the underlying pathology and while rare, demands for resource-intensive diagnostic assessment and tests for accurate diagnosis. Some patients with conversion subconsciously appear to be attempting to mask their underlying pathologies with secondary gain, which complicates accurate diagnosis and treatment of both diseases.

CONSENT

Patient named Alev Gaye Ozdemir is instructed about our study. She has been informed that no information will be shared with third persons against her will but information considering our study can be published in national or international literature, yet her picture or personal information will not be published against her will. Consent paper regarding this matter was signed by her in 06.06.2013 with number of 2013/1235.

ETHICAL APPROVAL

This study was evaluated by Haydarpasa Training and Research Hospital ethical committee with number of 2013/7513. In this study, which was planned to be accomplished in one center, we aimed to examine a case of conversion disorder in form of gait disturbance with complaints of eating disorder (anorexia nervosa). Patient had only received treatment for

her eating disorder. No funds of money had been used and only routine treatment procedures were applied. All researches claimed to act according to ethical rules and declared their acceptance of Helsinki Declaration.

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

All authors disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Authors have declared that no competing interests exist.

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