Pseudo-seizure, an Atypical Presentation of Attention-Deficit Hyperactivity Disorder in a Female: A Case Report

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ABSTRACT

BACKGROUND: This paper describes pseudo-seizure as an atypical presentation of attention-deficit hyperactivity disorder (ADHD) in an adolescent female in the context of psychosocial difficulties. We present the case, which explains the clinical dilemma in such situations, along with selective literature review.

CASE PRESENTATION: An adolescent female, who is an academic high achiever, living with parents, presented with unresponsive spells which were initially treated with antiepileptics by the paediatrician without any significant improvement. Later, after further assessments and revision of her diagnosis to conversion disorder, she was referred to the child and youth mental health service team. Further evaluation revealed her symptoms to be a result of multiple psychosocial stressors in the context of her having undiagnosed ADHD. Individual therapy, treatment with stimulant, resulted in significant improvement in her school and home adjustments.

CONCLUSIONS: This case demonstrates the diagnostic challenges that high-functioning girls with ADHD coloured by psychosocial stressors can pose and raises the need for reviewing our diagnostic approaches in these situations.

KEYWORDS: Attention-deficit/hyperactivity disorder, adolescent, female, pseudo-seizures, case report, psychogenic nonepileptic seizure

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ABBREVIATIONS: ADHD – attention-deficit hyperactivity disorder; CYMHS – child and youth mental health service; DSM-V – Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; MRI – magnetic resonance imaging; ICD-10 AM – International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification; BPD – borderline personality disorder; ED – emergency department; EEG - electroencephalogram; CBT – cognitive behaviour therapy

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Background

In many countries, the reported prevalence and incidence of attention-deficit hyperactivity disorder (ADHD) appears to be increasing in recent years despite differences in rates between these countries.[1] Usually, males have a higher prevalence than females, though the gap in rates appears to be decreasing.[1] Gender-related ADHD rates in clinical and population samples also appear to differ, with less gender variation in population rates.[2] There appears to be gender differences in how ADHD manifests; it seems that females need a higher genetic and environmental load to produce the same amount of ADHD-related impairment when compared to males.[2] In the absence of a reliable biological marker for ADHD, the diagnosis relies on thorough neurodevelopmental history, longitudinal history of the client's functioning over time in multiple situations from the available and reliable sources and teacher- and parent-reported behaviour rating scale scores (based on ICD-10 and DSM-5 criteria), along with clinical suspicion.[3,4] It also appears that parents and teachers have different gender-related thresholds for reporting ADHD, where females need more emotional and behavioural problems to get referred.[4] DSM-5 stipulates the presence of multiple inattentive and hyperactive-impulsive symptoms to be present before the age of 12 years for a diagnosis of ADHD, though the possibility of adolescent or adult-onset ADHD has also been proposed.[3,5] However, if gender is an influential variable in parents and teachers reporting, there is more chance of problems getting missed in females. ADHD is often comorbid with other disruptive behaviour disorders (e.g., conduct disorder and oppositional-defiant disorder), mood disorders, anxiety, and substance use disorder. Presentations are often complicated by environmental issues including parental discord, family situation and exposure to abuse or trauma.[6]

Here, we describe the case of an adolescent female who presented with pseudo-seizures in the context of untreated symptoms of ADHD and psychosocial stressors. The patient and her family provided a written informed consent for the publication of medical data. There were no particular ethical concerns regarding reporting this case.

Case Presentation

A fourteen-year-old adolescent female of Anglo-Australian background, living with her biological parents and attending grade eight high school, was referred to the child and youth mental health service (CYMHS) team for assessment and management of her pseudo-seizures.

Her problems started around one and half years before the CYMHS referral, when she was unresponsive to external stimuli for 2-3 minutes in the context of knee pain, with minimal recollection after recovery. A few months later, she had another episode while sitting in her classroom. She was again unresponsive to stimuli, slid from her seat to the floor and required an emergency department (ED) visit. Subsequently, her episodes became more frequent, occurring almost once a month. Triggers were variable including throbbing headache and body ache, feeling lethargic and exhausted, difficulty with vision, numbness, describing a sense of impending doom, depersonalization and derealization. Some episodes were also preceded by nose bleeds.

During the episodes, which occurred in various locations and lasted from 5 minutes to few hours, she would become unresponsive with her eyes closed and would have intermittent jerking or thrusting of the shoulders with associated neck extension, back arching, pelvic thrusting and side-to-side head movements. Hyperventilation, up-rolling of the eyeball and twitching of the eye lids were part of the presentation in some episodes.

The headaches did not have migrainoid quality. The unresponsive episodes were not associated with frothing from mouth, tongue biting, physical injury due to fall or bladder or bowel incontinence. Usually, she appeared tired after the episodes and required up to an hour to get back to baseline; she never appeared disoriented during these periods.

Detailed evaluation revealed low haemoglobin (115 gm/L), normal MRI of the brain and normal EEG (standard activation protocols like hyperventilation and photic stimulation were used during the study). She was treated for absence seizures with oral and intravenous levetiracetam (optimized to a dose of 1500 mg/day over several months) with ongoing episodes even on medication. Her family members were trained to use recovery position and intra-nasal midazolam whenever she had these episodes. Later, when her video EEG during episode did not reveal any epileptiform activity, her diagnosis was changed to conversion disorder, medications were tapered and stopped, and she was referred to CYMHS for further management.

CYMHS evaluation found this adolescent girl to be in emotional distress in the context of longstanding family conflict, characterized by parental discord and ongoing emotional and financial abuse by her father. Emotional neglect was also noted with the father described as emotionally distant and dictatorial towards the patient, resulting in frequent arguments.

There was temporal association of the death of her maternal grandmother, who was emotionally close, movement from primary school to secondary school and the onset of pseudo-seizures. The patient was described as a high achiever in school by her teachers. However, she reported to have difficulty coping with both the conflictual family situation and academic demands. On occasion, she coped by superficial cutting, which were misinterpreted by the mother as scratches by the pet dog and ignored. She felt disconnected and isolated from her family.

She had genetic loading for mental health and neurological problems, depression and schizophrenia on the maternal side, a distant relative with epilepsy on the paternal side and multiple relatives with substance use disorder. Her developmental challenges included being a poor sleeper including irregular sleep routines. Despite having high academic aspirations, she struggled with inattention in class where her mind regularly wandered, and she was described as talkative and fidgety. She also reported significant effort required to focus on her studies and spent a lot of time trying to finish her schoolwork. At school, she had engaged in fights with peers and was bullied, which had worsened in the context of her pseudo-seizures. However, her academic performance remained reasonable, and her teachers were happy with her progress.

ADHD workup included collateral information from parents and the school, psychiatric assessments, and scores of Conner's and Vanderbilt questionnaires[7] (parent and teacher ratings). The client, who was observed to be having average intelligence, was diagnosed with comorbid conversion disorder and ADHD – combined type, nonorganic insomnia and childhood emotional disorder unspecified. She also qualified for the Z codes (ICD-10-AM): other specified problems related to primary support group (Z63.8) and emotional neglect of child (Z62.4). Secondary gain was also noted, given her pseudo-seizures made her family members more caring and sensitive to her needs. Though she reported anxiety symptoms and low mood at different times, she did not meet criteria for any separate mood or anxiety disorder.

She was instructed to follow sleep hygiene, and was started on methylphenidate and individual psychotherapy using CBT principles. Family meetings were held to explore family members' understandings of the problem and to provide them psychoeducation. On follow-up, she reported to be compliant on the medication, which was optimized to 20 mg/day and converted to long-acting preparation; she reported better productivity regarding her schoolwork, feeling calmer and less angry than before; and her family members and teachers also noted improvement in her behaviour and relationships which

were reflected in her follow-up Vanderbilt scores.[7] Her pseudo-seizures stopped, sleep improved and she felt her coping had improved too.

Discussion

Typical of many child and adolescent mental health presentations, this case was complex in the mix of family adversities, genetic load, and individual and developmental challenges. Consistent with this, diagnosis is often initially unclear. The differences in gender-related ADHD rates in clinical and population samples, as mentioned earlier, could be due to missed diagnosis of ADHD in young females. Lower self-esteem, difficulties in peer relationships and impaired social behaviour could often be manifestations of ADHD in girls who often develop coping mechanisms to mask their performance problems and underachievement.[8] Hence, a biopsychosocial approach to understand the problems could be very helpful in making appropriate diagnosis and planning appropriate management.[8,9]

The association of ADHD and epilepsy is well known,[10] so is the dilemma of using stimulants in clients presenting with ADHD and seizures.[11] However, the association of ADHD and pseudo-seizure appears to be less explored. In our patient, who had difficult psychosocial circumstances, whose ADHD was undiagnosed and untreated, pseudo-seizures appeared to be her 'cry' for help. Factors like good academic achievements and good relationships with teachers might be barriers for teachers to refer her earlier. Psychogenic seizures are known to be higher in patients with family conflict, in families with poor communication or when patients feel that family members are less interested in their activities and values,[12] key factors in her presentation. It is interesting to note that 60% of patients with psychogenic seizures report learning problems as well,[12] although our client was not described to have any specific learning disability.

Self-harming behaviour and emotional dysregulation, reported by our patient, are not uncommon in ADHD. The overlap of ADHD symptoms and those of borderline personality disorder (BPD) can be confusing. For example, symptoms like emotional dysregulation, impulsive behaviour, unstable interpersonal relationships and problems in controlling anger could be present in both conditions.[13] Interestingly these could be the presenting symptoms in adolescent girls with ADHD who often could compensate for their deficits till late until the physiological and environmental demands of adolescence have an unmasking effect.[4,5,14] It was found that 41.5% of adult women with BPD met the criteria for childhood ADHD, and 16.1% met current criteria for the combined subtype,[13] whereas amongst adults diagnosed with ADHD, 27.2% of them met criteria for BPD.[13] Interestingly, emotional dysregulation responded to stimulant or other ADHD medications if the primary condition was ADHD, unlike that due to BPD.[13]

Conclusion

To summarize, females with ADHD often get missed or their diagnosis is delayed and can have different presentations compared to boys.[4,15] Increasing awareness about the differences in presentations amongst the medical experts, school-teachers and parents might be helpful in early detection and prevention of unnecessary suffering. To enable more timely support, alternative approaches like objective measures[16] might also be considered.

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Maddison Fredericks was involved in follow-up of the patient

Author contributions

TYQL, RS, BB and MY were involved in assessment and management of the client, and all of the authors (TYQL, RS, BB, MY, MM, BM and MM) were involved in literature review, writing of the case report, reading and approval of the manuscript.

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