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Cyclic Vomiting Syndrome as a Migraine Variant in Adults: A Case Report

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Background: Cyclic vomiting syndrome (CVS) is a complex medical disorder characterized by debilitating attacks of nausea and vomiting lasting hours to days. CVS often acts as a migraine precursor or variant in the pediatric population, but its relationship with migraine in adults is not well established.

Case Report: Here, we report a case of adult-onset CVS with recurrent attacks of nausea, vomiting, and malaise for several years causing significant morbidity and work loss. Atypical migraine was suspected, and the disorder was controlled with effective antimigraine therapy.

Conclusions: Our study contributes to the increasing body of evidence that underscores CVS as a migraine variant. This recognition enhances our comprehension of CVS and guides the development of more efficacious treatment approaches.

Key words: Cyclic vomiting syndrome, migraine, migraine variant

BACKGROUND

Cyclic vomiting syndrome (CVS) is a complex medical disorder characterized by debilitating attacks of nausea and vomiting lasting hours to days (1,2). CVS is mostly seen in children but can affect nearly all age groups. The exact prevalence of this syndrome in adults remains unknown (1). CVS often acts as a migraine precursor or variant in the pediatric population, but its relationship with migraine in adults is not well established (1). Some migraine variants present with marked gastrointestinal symptoms raising suspicion that CVS could be essentially one of these variants in adults (3).

We report a case of adult-onset CVS with recurrent attacks of nausea, vomiting, and malaise for several years causing significant morbidity and work loss. Although these attacks were sometimes associated with mild headaches, the latter have not been the main complaint, and therefore, migraine was not initially considered in differential diagnosis. Atypical migraine was suspected, however, and the disorder was controlled with effective antimigraine therapy.

CASE PRESENTATION

Our patient is a 44-year-old right-handed Caucasian man with a history of obesity (body mass index = 30 kg/m2) and mild obstructive sleep apnea. He initially presented with recurrent episodes of nausea, vomiting, malaise, and sense of imbalance. Each episode started with "hard to describe" abnormal feelings (i.e., tiredness, floating head, and feeling disconnected from the world with difficulty to focus or perform complex cognitive tasks) followed by nausea, vomiting, and epigastric discomfort, lasting 2-3 days. Episodes often recurred every 2-4 weeks and were sometimes associated with headaches and disturbed sleep. This syndrome resulted in signs of anxiety and a mildly depressed mood. Family history was positive for migraine in his cousins. Review of other systems, including physical and neurological examinations, were all insignificant.

His workup was unremarkable, including labs (c-reactive protein, rheumatoid factor, antinuclear antibody, rapid plasma reagin, and heavy metals panel in the blood), brain magnetic resonance imaging with/

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without contrast (seizure protocol), electroencephalogram monitoring for 24 hours, and lumbar puncture with cerebrospinal fluid studies.

The patient was diagnosed with CVS and was initially treated symptomatically with antinausea medications (e.g., ondansetron, promethazine, and diphenhydramine), which were of limited help. CVS was subsequently managed as a potential migraine variant and he was tried on verapamil, propranolol, and amitriptyline, but without noticeable improvement. He was placed on rizatriptan 5 mg as needed for acute attacks and divalproex 500 mg twice daily for disease prevention, which resulted in complete resolution of his attacks within 6 weeks of treatment. The dose was decreased to 500 mg once daily after 3 years of treatment as the patient was hesitant to decrease the dose earlier due to the severity of his previous attacks, and the symptoms remained in remission afterward.

DISCUSSION

Our study sheds light on the potential relationship between CVS and migraine in adults. Studies (4,13) have already explored the association between CVS in children and migraine and demonstrated that CVS can serve as a precursor to migraine development later in life. The International Classification of Headache Disorders (ICHD) in its ICHD III beta version considered CVS as a pediatric migraine variant (5). On the other hand, the relationship between CVS in adults and migraine is poorly defined, partially due to the rarity of CVS in this population. The diagnosis of adult-onset CVS is often delayed by months or even years from symptoms onset, and the etiology remains elusive (2,6).

The homology in clinical presentation between CVS and migraine brought attention years ago (7). CVS manifests with recurring incapacitating episodes of nausea, vomiting, and malaise lasting hours to days (1,2). Similarly, migraine patients usually suffer from nausea and vomiting along with headache as the main symptom (3), and both have a negative impact on patients' quality of life.

It is increasingly recognized that diverse migraine variants can present with prominent gastrointestinal symptoms, blurring the boundaries between migraine and some functional gastrointestinal disorders (8,9). Abdominal migraine (AM), for instance, is characterized by recurrent episodes of unprovoked central abdominal pain associated with migraine symptoms. It is mostly seen in the pediatric population and now considered as a childhood migraine variant (10). Although perceived primarily as a childhood disorder, there is growing evidence of its occurrence in adults (11). The commonalities between CVS and AM are noticed in the unprovoked attacks of gastrointestinal symptoms, gastric dysmotility, and the presence of personal or family history of typical migraine (11,12).

It is not surprising that both migraine and CVS can be triggered by common factors, such as physical or psychological stress, certain food, and hormonal fluctuations (2,13). Furthermore, genetic studies (14,15) have identified common genetic markers, such as polymorphism of mitochondrial DNA affecting mitochondrial metabolism, between CVS and migraine. Interestingly, functional neuroimaging studies (6,13) have revealed functional disruption in common brain regions, such as the chemoreceptor trigger zone in the brain stem, in both CVS and some atypical migraine variants. It was also reported that 24% to 70% of adults with CVS have concurrent typical migraine and/or a family history of migraine (16). These shared pathogenicity observations lend further credence to the idea that both conditions may be just different manifestations of the same disorder.

As for the similarity in treatment responses, studies (17) have shown that abortive therapies commonly used for migraines, such as triptans, demonstrated noticeable efficacy in managing acute CVS episodes. Additionally, migraine prophylactic drugs (e.g., valproate, topiramate, and amitriptyline) can effectively prevent CVS episodes, reducing the frequency and severity of nausea and vomiting attacks (18-20). However, such as in migraineurs, there is interindividual variation in therapeutic responses to these medications. Notably, our patient experienced noteworthy improvement on a relatively low dose of divalproex, though he failed other tried migraine preventative therapies. The consistent therapeutic outcomes noted between both conditions further bolster the argument for CVS being considered a variant of migraine.

CONCLUSIONS

Our study adds to the growing body of evidence supporting the concept of CVS as a migraine variant in adults. Establishing this association is helpful in advancing our understanding of CVS, and informing more effective treatment strategies. Further research is warranted to explore the precise mechanisms linking CVS and migraine, and to optimize the management of this debilitating disorder.

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