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Cyclical Vomiting Syndrome with Bilateral Epileptiform Discharges

SAURABH S CHOPRA, SHILPA D KULKARNI, ANAITA U HEGDE AND KRISHNAKUMAR N SHAH
From MP Shah Medical College, Jamnagar; and BJ Wadia Hospital for Children, Mumbai, India.

Correspondence to:
Saurabh S Chopra, B-8 Mahavir Appt, Opp Pratap Villas, Jamnagar 361 008, India.
saurabh_dr1@rediffmail.com
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Cyclical vomiting syndrome is a paroxysmal, condition characterized by recurrent severe episodes of vomiting lasting for hours to days, with variable intervals of normal health in between with no apparent cause of the vomiting. We hereby report a 10yr old girl with cyclical vomiting syndrome with multiple, bisynchronous occipitally predominant, bilateral epileptiform discharges representing a diagnostic confusion.

Key words: *Cyclical vomiting, Occipital spike, Panayiotopoulos syndrome.*

We report a girl with cyclical vomiting syndrome with multiple, occipitally predominant, bilateral epileptiform discharges representing a diagnostic dilemma. Although there are multiple reports of epileptiform discharges with migraine, we believe that cyclical vomiting syndrome with epiletiform discharges represents an unusual clinical situation.

CASE REPORT

A 10-year old girl born of a non-consanguineous marriage presented with complaints first noticed since 5 years of age. She had paroxysmal stereotyped episodes starting with feeling of uneasiness, nausea and abdominal pain, followed by repeated episodes of non-bilious, non-projectile vomiting about 40-50/day. The episodes usually continued for few hours to 3-4 days (ranging from only transient feeling of nausea relieved by anti-emetics to vomiting episodes lasting for 10-15 days). She had multiple episodes of dehydration due to vomiting warranting parenteral fluid resuscitations. Occasional mild non-specific headache occurred after prolonged episodes of vomiting. These paroxysms were precipitated by

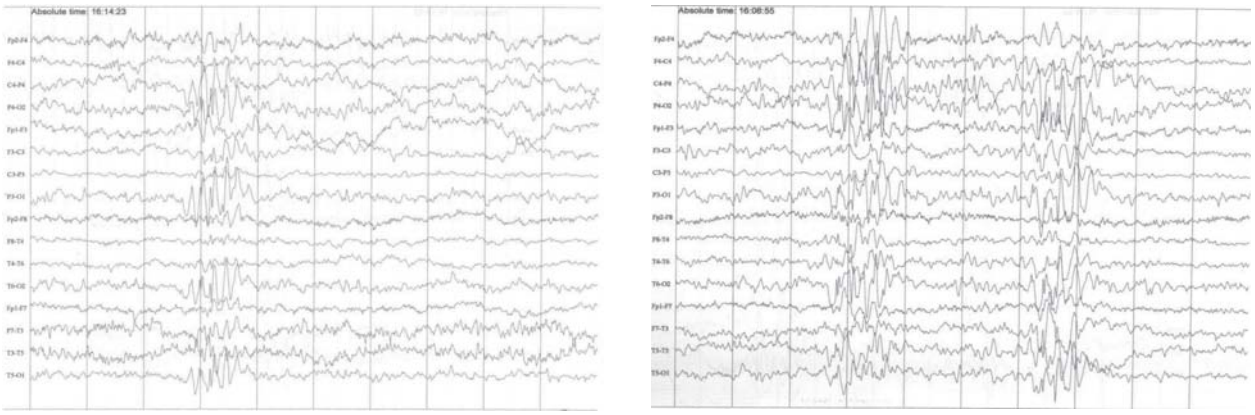

FIG. 1 *Sleep EEG of the patient showed multiple brief bi-synchronous spike and wave discharges with occipital predominance.*

psychological stressors related to academics, extra curricular activities etc. and were partially or completely relieved by sleep. Paroxysms averaged around 3-4/year.

There was no history of visual hallucinations or of any seizure episodes. The child was otherwise totally normal in between episodes, well nourished, above average in school and good at extra curricular activities.

Before being referred to us, the child was extensively investigated. Hemogram, electrolyte, liver and kidney functions, ultrasonography of the abdomen, upper GI endoscopy, Barium-studies and work-up for *H. pylori* all were normal. At our center Video-EEG for 4 hour was performed and two minor vomiting episodes were captured. Inter-ictal EEG showed brief bi-synchronous spike and wave discharges with occipital predominance and anterior spread, mainly during sleep. EEG did not show any ictal correlate during vomiting except for bisynchronous posterior spike and wave complexes lasting briefly on one occasion, not starting and ending with the event. MRI brain was normal. The patient was started on topiramate and counseling was provided for better management of stress and regular routine daily activities. Significant improvement in symptoms was noted over the next 15 months, with no episodes of nausea or vomiting during the last 12 months.

DISCUSSION

Cyclical vomiting syndrome (CVS) is a paroxysmal condition characterized by recurrent severe episodes of vomiting lasting for hours to days, with variable intervals of normal health in between and no apparent cause of the vomiting. CVS is a condition of unknown etiology and pathogenesis, however, support exists for it to be a migraine equivalent [1,2]. EEG changes documented include abnormal delta waves that disappear when the patient is asymptomatic [2]. Another report documents brief epileptoform discharges in form of sharp wave complexes that were seen during hyperventilation and once during the episode itself but not starting and ending with the event [3].

Before diagnosing CVS other possible etiologies of episodic vomiting need to be considered. In our patient gastrointestinal causes like malrotations, *H.pylori* infection, renal and hepatic causes were ruled out. The symptom complex also did not suggest inborn errors of metabolism, urea cycle disorders, mitochondrial diseases or porphyria. A normal neuroimaging and absence of visual symptoms made symptomatic occipital epilepsyand Gastaut's epilepsy unlikely. The prominence of vomiting as compared to abdominal pain or headache in our patient prompted us to classify her as CVS instead of abdominal migraine [1]. Thus our patient fulfilled all essential clinical criteria for CVS [1]. However, paroxysms of vomiting with epileptiform discharges predominantly in the occipital region made Panayiotopoulos syndrome (PS) a definite possibility [4,5].

Clinically PS seemed less likely because the duration of autonomic status is usually not more than seven hours, but prolonged duration of symptoms in our patient lasting days is well known in CVS [1,6]. Other points against PS were the absence of any other ictal manifestations and complete preservation of orientation, which are unusual in PS (10% and 6% respectively). PS has an active seizure period of 1-2 years only [5].

Video-EEG captured two vomiting episodes, one of which revealed bisynchronous posterior spike and wave complexes lasting briefly not starting or ending with the vomiting episode. Thus they could not be considered to be ictal correlates. Few reports of ictal-EEG in PS report rhythmic theta or delta activity usually intermixed with small spikes [4,5]. The reports that such EEG changes could occur during developmental stages without clinical manifestations raised the possibility that they were just incidental findings [6]. Family history of headache and vomiting was initially considered non-specific but could point towards a migraine disorder.

Studies done to differentiate the electroclinical features of migraine versus epilepsy in patients with occipital epileptiform EEG abnormalities have concluded that bilateral abnormalities correlate with migraine whereas unilateral abnormalities correlate with epilepsy. Although no such studies could be found for CVS versus epilepsy, CVS being a migrainous disorder- extrapolating the finding to our case, indicate that since our patient had bilateral EEG abnormalities she is more likely to have a migrainous disorder [7].

Thus, in spite of the apparent diagnostic confusion, it was decided that the patient fitted more into CVS. Instead of the conventional drugs like cyproheptadine and flunarizine, citing a previous report with similar findings, Topiramate having both anti-migrainous and anti-epileptic action was started with good results [3]. In concordance with the case reported by Olmez, *et al*. [3] our case demonstrates that EEG/video-EEG should be considered in patients of cyclincal vomiting syndrome. Topiramate may be considered in managing the subset with abnormal epileptiform discharges.

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