

## Epilepsy 2019: Temporal epilepsy causing recurrent abdominal pain in adults – Hassan Al-Hail – Hamad Medical Corporation

Gonzalo Alarcón<sup>1</sup>, Hassan Al-Hail<sup>1,2</sup>, Stacy Schantz Wilkins<sup>1</sup>, Boulenouar Mesroua<sup>1,2</sup>, Gayane Melikyan<sup>1,2</sup>, Nabil Azar<sup>1</sup>, Naim Haddad<sup>1,2</sup>, Basim Uthman<sup>1,2</sup>, Maria Siddiqi<sup>1</sup>, Ameer Jan<sup>1</sup>, Rana Babur<sup>1</sup> and Dirk Deleu<sup>1,2</sup>

<sup>1</sup>Hamad Medical Corporation, Qatar

<sup>2</sup>Weill Cornell Medical College in Qatar

### Introduction:

Abdominal epilepsy is an unusual syndrome in which paroxysmal symptoms resembling abdominal pathology result from seizure activity (1, 2). Although abdominal sensations are common manifestations of seizures, symptoms resembling gastrointestinal conditions (such as abdominal pain, vomiting or diarrhoea) are rare ictal symptoms, particularly in adults. Ictal pain is an uncommon ictal symptom, seen in as few as 2 per 1,000 patients (3), and ictal abdominal pain is seen in only 33% of patients with ictal pain (4). The syndrome of abdominal epilepsy is characterized by: a) Otherwise unexplained, paroxysmal gastrointestinal complaints, mainly pain and vomiting; b) Symptoms arise from a central nervous system disturbance; c) Abnormal EEG with findings specific for a seizure disorder; and d) Improvement with anticonvulsant medication (5; 6). A review of the history of this syndrome yielded 36 cases reported in the English literature in the previous 34 years (5).

### Background Studies:

Abdominal epilepsy is well documented among children, but is infrequently recognised in adults (7). The clinical presentation of abdominal epilepsy is characterised by paroxysmal episodes with both gastrointestinal and central nervous system (CNS) manifestations (8, 9). The gastrointestinal manifestations include all or a combination of the following: recurrent abdominal pain, nausea, vomiting, bloating or diarrhea. In our case, we found that the most common presenting ictal symptoms were paroxysmal abdominal pain, speech arrest and visual aura. Although abdominal symptoms may be similar to those of irritable bowel syndrome, abdominal epilepsy may be distinguished from the latter by the presence of altered consciousness during some of the episodes. The key to diagnosis in the present case was provided by symptoms suggestive of functional abdominal pain in association with definite EEG and video-EEG abnormalities. We report here ictal recordings in abdominal epilepsy (figure 2B), which to our knowledge has only been reported once before (10).

Previous reports suggest that the most common interictal EEG abnormalities in patients with abdominal epilepsy are bursts of sharp waves or spikes over one or both temporal lobes (1; 7). A video-EEG is a standard non-invasive investigation which may be crucial for the differential diagnosis between gastrointestinal conditions and abdominal epilepsy, as patients with abdominal epilepsy often have ictal EEG abnormalities. Abdominal ictal

symptoms such as retching, flatulence and urge to urinate are usually interpreted as insular symptoms arising from the non-dominant hemisphere. However the lateralising value of abdominal pain is less clear. Most series describing abdominal epilepsy do not report the laterality of brain abnormalities. Many patients show bitemporal independent discharges (5). There is one case report of ictal diarrhea arising from the left hemisphere (9).

A sustained response to anticonvulsants has been accepted as one of the diagnostic criteria for abdominal epilepsy (7). However, there are no recommendations on the choice of anticonvulsants. Our patient was improved on lamotrigine and lacosamide.

### Results:

The patient is a 26 year-old, Arabic speaking, right handed female. Her birth and initial development were normal. She suffered febrile convulsions at 9 months. She did well at school until grade 6, after which her school performance deteriorated. At age 10, she suffered several complex partial seizures and later started to suffer episodes of head turning to the left and then right, with right arm tonic-clonic convulsions followed by generalization, episodes that later subsided. At present, she suffers the following episodes:

- 1) Episodes of aggressive behaviour associate with visual perceptions consisting of seeing a black colour and/or figures of “ghosts”.
- 2) Abdominal pain described as pinching, lasting for approximately 30 seconds, often associated with inability to speak and followed by post-ictal confusion with excessive eating for which she has no recall. This is the most frequent seizure type, occurring almost every day.
- 3) Episodes of confusion and disorientation.

Since investigations for gastrointestinal conditions were normal, epilepsy was suspected. The frequency of episodes reduced by 30% on lamotrigine (400mg/day) and lacosamide (200mg/day). A brain MRI showed left mesial temporal sclerosis. An EEG showed mild diffuse slowing of the background activity and left anterior temporal epileptiform discharges.

At present she does not work and spends her time at home with her family. She enjoys reading. Her sleep wake cycle is reportedly reversed, sleeping during the day and remaining

awake until late at night, partly due to fear of “ghosts” and the dark. Neuropsychological assessment was not localizing and the patient demonstrated slow processing, with low average performance in both visual and verbal memory, low average visuospatial integration skills, and mild symptoms of depression.

The patient was referred to the epilepsy monitoring unit for continuous video-EEG recording and monitored for 4 days. The interictal EEG showed intermittent left temporal slowing and frequent left anterior and posterior temporal epileptiform discharges during sleep and wakefulness, in addition to rare independent right temporal discharges. Three complex partial seizures were recorded which were of similar semiology and consistent with her habitual attacks. During the attacks, she would refer to an aura of abdominal pain, lose awareness and show a distressed look, engage in repetitive moaning and body rocking, followed by motionless staring lasting for approximately one minute. The episodes were followed by brief confusion and relatively quick recovery. The concomitant ictal EEG recordings demonstrated that the attacks were epileptic seizures. Two of the seizures showed a left temporal onset and evolution, whereas the third one appeared to start on right temporal region, evolving later to the left side. The patient also experienced one event with subjective feelings of fear, derealisation and abdominal pain without alteration of language or awareness. There were no concomitant EEG changes during this event which likely represented a simple partial seizure.

#### Conclusion:

The present case demonstrates that diagnosis of abdominal epilepsy is particularly challenging: not only ictal symptoms can be vague and non-specific, but also some simple partial seizures may not show clear ictal EEG changes. In addition, the condition is rare and often not thought of, particularly in adults. We suggest that in patients with paroxysms of abdominal pain, nausea or vomiting, with or without CNS manifestations, the possibility of abdominal epilepsy should be considered after exclusion of the most common aetiologies for gastrointestinal conditions. The investigation in these patients should proceed with an EEG and probably ictal video-EEG. Treatment typically begins with anticonvulsant drugs. Lacosamide and lamotrigine appear to be effective anticonvulsants in our case.

#### References:

- 1-Franzon R C, Lopes C F, Schmutzler K M. et al(2002) Recurrent abdominal pain: when should an epileptic seizure be suspected? *ArqNeuropsiquiatr.Sep*;60(3-A):628-30.
- 2-Ostwal P (2013).Abdominal epilepsy: Is it so common? *J PediatrNeurosci*.8(3):253.

- 3-Kuloğlu Pazarcı N, Bebek N, Baykan B, Gürses C, Gökyiğit A.(2016) Reappraisal of epileptic pain as a rare symptom of seizures. *Epilepsy Behav*. 55:101-7.

- 4-Bulacio J, Klem G, Lüders HO.(2000) Painful auras. Published in *Epileptic Seizures.Pathophysiology and Clinical Semiology*.Luders HO and Noachtar S. Churchill Livingstone, New York.

- 5-Zinkin N T and Peppercorn M A.(2005) Abdominal epilepsy. *Best Pract Res ClinGastroenterol*. 19(2):263-74.

- 6-Dutta SR, Hazarika I and Chakravarty BP.(2007) Abdominal epilepsy, an uncommon cause of recurrent abdominal pain: a brief report. *Gut*. 56(3): 439–441.

- 7-Peppercorn M A and Herzog A G.(1989) The spectrum of abdominal epilepsy in adults.*Am J Gastroenterol* 84(10):1294-6.

- 8-Zarling E J.(1984) Abdominal epilepsy: an unusual cause of recurrent abdominal pain. *Am J Gastroenterol* 79(9):687-8.

- 9-Murai T, Tohyama Tand Kinoshita M.(2014) Recurrent diarrhea as a manifestation of temporal lobe epilepsy. *Epilepsy Behav Case Rep*. 19;2:57-9.

- 10-Shihabuddin BS and Harik SI. (2007) Episodic nausea and abdominal sensations as sole manifestations of simple partial seizures. *Neurosciences (Riyadh)*. 12(4):327-9.