

Recurrent abdominal pain as a type of epilepsy among children in Diyala province/ Iraq

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Abstract

Background: Abdominal epilepsy is a rare condition mostly found in children, consisting of gastrointestinal disturbances caused by epileptiform seizure activity.

Objective: To study chronic abdominal pain in relation to epileptiform activity.

Patients and Methods: A cross sectional study conducted in Albatool teaching hospital with a total number of 450 patients enrolled in the study suffering from chronic abdominal pain with signs and symptoms suggestive of either abdominal migraine or abdominal epilepsy and the sample selected according to electroencephalogram findings and the response to antiepileptic drugs.

Results: The incidence of abdominal epilepsy was 34 patients (7.5%) most of them were of age group between 6-12 years, which was 23 patients (67.6%). All had common symptoms of paroxysmal abdominal pain, pallor after attack observed as a common feature (32 patients), tendency to sleep after attack seen in 25 patients (73.5%). Constipation and bloating together seen in 32 patients (94.4%) while diarrhea seen in 4 patients. All of these patients investigated thoroughly for their gastrointestinal symptoms to rule out any organic diseases. All patients had constant abnormality on electroencephalogram suggestive of seizure disorder. These patients given anticonvulsants with a good response in a follow-up period of two years.

Conclusion: Abdominal epilepsy was a common health problem.

Keywords: Abdominal epilepsy, abdominal pain, children

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Introduction

Abdominal epilepsy (AE) is a rare condition mostly found in children, consisting of gastrointestinal disturbances caused by epileptiform seizure activity [1]. The pain described as characteristically

periumbilical or epigastric, of short duration of a minute or two or lasting several hours. Associated gastrointestinal symptoms such as nausea, vomiting, and diarrhea found to be quite common, as well as pallor, dizziness

and slight to marked disorientation [2]. Following such an episode, many of the patients were apathetic and lethargic for about an hour; others seemed completely exhausted and sank into a deep sleep [2].

It characterized by abdominal symptoms, electroencephalogram [EEG] abnormalities and favorable response to anti-epilepsy drugs [3]. Recurrent attacks of abdominal pain are common in childhood. In a minority of patients in which an abdominal pathology excluded, a neurological cause should be considered. Among the diagnostic possibilities are migraine and AE [4].

Gastrointestinal presentation include recurrent abdominal pain, bloating and diarrhea nausea, vomiting, and the CNS symptoms include confusion, fatigue, headache, dizziness and fainting [5].

According to International League against Epilepsy, abdominal epilepsy considered part of simple or complex partial seizures [6]. The condition first described by Trousseau in 1868 in a boy with paroxysmal GI symptoms culminating in grand mal epileptic seizures. M.T. Moore gave in 1944, the first record of abdominal epilepsy with EEG tracings support [7]. The disease to be differentiated from AE is abdominal migraine. It is very difficult to differentiate AE and abdominal migraine especially in patients presenting with headache, because the presentations are similar. Duration of the symptoms may be used to differentiate the two; being longer in migraine than in AE [9]. Most of the patients with abdominal epilepsy usually respond to single-drug therapy but some time

combination therapy may be required [10]. Temporal lobe origin must be considered when the abdominal pain presents as a short paroxysmal episode followed by either awareness disturbance or automatism, [13].

Patients and Methods

This study conducted in Albatool teaching hospital in Baaquba city, Diayla, Iraq. As cross sectional study from January 2015 during September 2019 in pediatric clinic and the ward. All severe recurrent abdominal pain whom considered as epilepsy enrolled in this study also patients whom have this signs and symptoms and diagnosed by a pediatrician. A special questionnaire used including age, gender, complaint, history of the illness, life style, food staff, physical examination, investigations (general urine exam, general stool exam, stool for H. pylori, complete blood picture, history of drug taken, abdominal ultrasound, abdominal tomography and EEG to confirm the diagnosis.

Criteria of diagnosis:

1. Unexplained, paroxysmal gastrointestinal complaints
2. An abnormal EEG with findings specific for a seizure disorder
3. Improvement with anticonvulsant medication

Exclusion criteria:

1. Those with H. pylori infection positive
2. Those with GSE and GUE positive finding
3. Any finding in the U/S and X ray and tomography
4. Patients with abdominal migraine whom responded to migraine therapy

The EEG recorded by an EEG machine (Nihon Kohden) which made in Japan. The EEG interpreted by a neurophysiologist and the electrodes placed on the scalp according to 10-20 international system. These patients given anticonvulsant like sodium valproate, carbamazepine and phenytoin sodium and followed in a period of two years with a good response to therapy.

Statistical analysis

The data were analysis through using softwre for stastical analysis version 20 for calculating descriptive statistical analysis (freqncyu) percentage & rader.

Results

A total number of 450 patient enrolled in this study suffering from severe recurrent abdominal pain with signs and symptoms suggestive of abdominal epilepsy and the sample selected according to electroencephalogram (EEG) finding and the response to antiepileptic drugs.

The percentage of abdominal epilepsy (AE) among the studied group was 34 patient(7.5%) most of them were of age group between 6-12 year, which was 23 patient(67.6) Table (1).

Table (1): Distribution of age and gender among the studied group

Age/gender	Female No, \(%)	Male No.(%)	Total No. (%)
<5 year	6(17.6)	5(14.7)	11(32.3)
5 -9 year	5(14.7)	7(20.5)	12(35.9)
>10 year	7(20.5)	4(11,7)	11(32.3)
Total	18(52.9)	16(47)	34(100)

As shown in Table (1), the number of patients below five year is 6(17.7%) in female group and 5(14.7) in male group. This is the reverse in age group between five and nine years in which the female is 5 (14.7%) and male is 7(20.5%) to return again for female predominance as 7(20.5%), 4(11.7%) in female and male respectively in age group above ten years. The male to female ratio is 1-1.25. Table (2) shows the clinical presentation of the studied group in which all

had symptoms of recurrent abdominal pain, which was centrally located in 16 patient. Headache after the attack present in 31 (91%) while dizziness occurred in 19(55.8%). Paleness after attack observed as a common feature in 32(95 %/) also the tendency to sleep after attack seen in 25patient (73.5%).constipation and bloating together seen in 32 patient (94.4%) while diarrhea seen in four patients (11.7%).confusion after or during the attack occurred in 4(11.7%).

Table (2): Distribution of clinical finding of the 34 patients with abdominal epilepsy

Clinical feature	Positive number (%)	Negative number (%)
Head ache	31(91)	3(8.8)
dizziness	19(55.8)	15(44.1)
vomiting	16(47)	15(44)
confusion	4(11.7)	30(88)
Abdominal pain	34(100)	0
nausea	9(26.4)	26(76.4)
Constipation	15(44)	19(55.8)
bloating	17(50)	17(50)
Diarrhea	4(11.7)	30(88)
Sleep after attack	25(72)	9(26.4)
Paleness after attack	32(95)	2(6)

Table (3): Distribution of the abdominal pain among the 34 patient with abdominal epilepsy

Location of abdominal pain	No. %
Periumbilical	16 (46)
Both sides	7 (20)
Epigastric	1 (2.9)
Total	34 (100)

As shown in Table (3) the location of abdominal pain located centrally (periumbilical) in 16(46%) while it was 7(20%),1(2.9%) in both sides and in epigastric region respectively. The

association of family member diseases with abdominal epilepsy was in two diseases only (motion sickness 14 patient and migraine in 7 patient as shown in Table (4).

Table (4): The association of family diseases with abdominal epilepsy in studied group

Disease	No. %
Motion sickness	14 (41)
Migraine	7 (20)

All patients had constant abnormality on EEG suggestive of seizure disorder and as shown in Table(5).

Table (5): Distribution of electroencephalogram finding in the 34 patient with abdominal epilepsy

EEG finding	No.	%
Generalized spike and sharp wave	14	41
Generalized abnormal epileptic discharges	16	47
Scattered spike wave discharges suggestive of epilepsy	2	6
High voltage with generalized slowing	2	6
Total	34	100

As shown in Table (5), the generalized abnormal epileptic discharges seen in 16 patients, generalized spike and sharp wave in 14 patients, scattered spike wave discharges suggestive of epilepsy in 2 patients and high and high voltage with generalized slowing in 2 patients. The medication used to treat these

patients was the ordinary anti-epileptic drugs, as shown in table6 which was sodium valproate used with 20 patients(59%),carbamazepine in 12 (35%),phenytoin in 1(6%) and both sodium valproate and carbamazepine in 1 (6%).

Table (6): Distribution of the patient with epilepsy whom were responding to antiepileptic drugs by study group

Antiepileptic drug	Number of patients	%
Sodium valproate (Depakote)	20	59
Carbamazepine (Tegretol)	12	35
Phenytoin	1	6
Depakote and Tegretol	1	6
Total	34	100

The duration from the onset of the symptoms to confirmation of final diagnosis was short(less than 6 month) in3 patients (8.8%) while it was long in 16 of the cases

(more than 12 month) .It was 15 patients in between 6 month and 12 month as in Table (7).

Table (7): The duration of the history of recurrent abdominal pain in the study group

Duration of the symptoms	Number of patients	%
<6 month	3	(9)
6-11 month	15	(44)
12-23 month	4	(12)
24 month and above	12	(35)
total	34	(100)

Discussion

This is the first study to AE in diyala province in Iraq. From 450 cases in this study we found that 34 (7.5%) had abdominal epilepsy (AE) this is similar to a study done by Zinkin [11] which found about 36 patient had abdominal epilepsy. While K shirsagar et al [9] found that in 150 children with chronic recurrent abdominal pain 74% of them had abdominal epilepsy. Rakesh et al found six patients with AE. in which the incidence of the disease was 0.07%. [16] Dutta et all [3] reported four cases from India including adolescents. The most age group range from 5-13 years, which was similar to other studies [12, 16]. The distribution of disease is the same between both genders (male –female ratio) 11.25 this was similar to other studies [12, 16]. The most common gastrointestinal symptoms include abdominal pain, nausea,

and vomiting, as in this study the main symptoms were abdominal pain (34)100%, bloating(17) 50%, constipation(15) 44% and vomiting(16) 47%.these are similar to other studies [11, 12, 16]. The common neurological presentation include headache 31 (91%), sleep after attack 25 (72%) and paleness after attack 32 (95%) lethargy and confusion4(11.7%), dizziness 55.8% which goes nearly with a study done by Zinkin and Peppercorn which found the most common gastrointestinal symptoms to be abdominal pain, nausea and vomiting, while the most common neurological symptoms include lethargy and confusion. [12]. Disorientation during an episode of pain followed by exhaustion and sleep suggest AE in most of cases [3, 4]. Peppercorn and Herzog reviewed gastrointestinal and central nervous

system complaints in 10 adult patients with abdominal epilepsy. They found the following abdominal symptoms: paroxysmal pain, nausea, bloating, and diarrhea. Nervous system manifestations included dizziness, headache, confusion, syncope and transient blindness, [14] and these differences probably may be due to environmental and social condition and the method studies in different countries. Hoefler et al.' [15] reported that 16 of the 31 children in their study experienced paroxysmal abdominal pain followed by post-ictal sleep as it was in our study. George H. Schade, and Helen Gofman, described 46 patients with the complaint of paroxysmal bouts of abdominal pain within 18 years [2].

The EEG findings were generalized spikes and epileptic discharges in majority of patients but it was different from other studies when the EEG findings was focal in inter temporal region. [12, 2].and this difference could be due to that the symptoms of epilepsy in the other studies was complex partial seizure symptoms. The abdominal pain was periumbilical in 46% this is the same in other studies [2, 12]. The medication used to treat these patients was sodium valproate, carbamazepine and phenytoin sodium and this was the same treatment in other studies [16, 12] all the patients received one antiepileptic drug except one case which responded to combination of two drugs.

Conclusions

Abdominal epilepsy was a common health problem and it recommended that the pediatricians should be more aware about this

disease. The abdominal epilepsy should put in mind in every patient with recurrent episodes of severe abdominal pain after other common conditions excluded.

Recommendations

Any patient with prolonged and recurrent abdominal pain should sent for EEG especially when the investigations were negative.

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