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Reappraisal of epileptic pain as a rare symptom of seizures

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ABSTRACT

Purpose: To draw attention to epileptic pain which is a rare seizure symptom mostly causing wrong diagnosis and delayed treatment. We present nine patients in whom pain was a prominent initial or early ictal symptom.
Methods: We reviewed the records of 4736 patients, and found nine patients who had pain as an aura or an early prominent symptom of their seizures. Seizure semiology, EEG, and cranial imaging features were evaluated retrospectively.
Results: Age at seizure onset ranged from 6 months to 50 years, and the mean age during the study was 37.7 ± 11.9 years. Pain was predominantly peripherally localized in four patients, whereas cephalic pain was detected in three patients, and abdominal pain was detected in two patients. Electroencephalography (EEG) revealed epileptic abnormalities on the temporoparietal and frontotemporal regions in three patients each. Photosensitive generalized epileptic discharges were detected in one and diffuse background slowing in the remaining two other patients. Electroencephalography abnormalities were lateralized to the contralateral site of the pain in four patients with strictly localized pain. Three patients revealed no abnormality on the cranial MR imaging, whereas others showed different types of abnormality such as heterotopias (n:1), mesial temporal lobe atrophy (n:1), white and gray matter sequela lesions (n:1), diffuse white matter lesion (n:1), chronic encephalomalacia and gliosis (n:1), and perivascular space dilatation (n:1).
Conclusion: Epileptic pain is a neglected, but important, semiologic symptom with localization and lateralization value in the patients with somatosensorial seizures of parietal as well as temporal lobe origin. It occurs mainly as peripherally localized, cephalic, or abdominal pain and is usually associated with a symptomatic etiology. Awareness of epileptic pain is important to avoid misdiagnosis and delayed treatment.

1. Introduction

Pain as an aura or an early prominent symptom of seizures has been described as a subjective symptom by patients and is defined as "ictal or epileptic pain" in the relevant literature. Ictal pain is a specific somatic sensation that can easily be described by the patients; various characteristics such as sensation type, localization, and evolution of the sensory features and subsequent seizure manifestations may contain valuable localizing information with regard to the seizure-onset zone [1].

Although ictal pain is an underrecognized symptom of seizures, it could be rather frequently found among somatosensory seizures. Mauguiere and Courjon reported ictal pain in 23.6% of the 127 cases who had seizures with somatosensorial components [2]. Ictal pain is one of several types of somatic sensations felt during focal seizures and usually accompanied by other sensations like tingling paresthesia and thermal and sexual sensations [3–6]. The reported frequency of painful sensations in series of patients with epilepsy varied significantly between 0.3% and 23.6% [4–8]. In our series, frequency of ictal pain was found to be 0.2%. Epileptic pain can be experienced anywhere in the body and is arbitrarily divided into three categories based on the location: lateralized peripheral, cephalic, and abdominal. Most patients complained of unilateral sensation, but bilateral pain has also been described [3]. Sometimes, epileptic pain can be the only manifestation of epilepsy; this situation is often misdiagnosed, and patients go through unnecessary diagnostic procedures until the correct diagnosis is made. We, therefore, aimed to investigate epileptic pain in our series and to shed light on its importance in terms of correct diagnosis and treatment.

2. Methods

We reviewed the records of 4736 available patients who experienced pain as an aura or an early prominent symptom of their seizures. Nine patients had pain as part of their seizures.

Seizure semiology, EEG, and cranial imaging features of these nine patients were evaluated retrospectively. Patients were grouped as having unilateral, cephalic, and abdominal pain according to their predominant pain location. Psychiatric profiles and seizure outcomes were also investigated. Patients with only postictal pain were not

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Table 1
The demographic, clinical, electrophysiological, and radiologic characteristics of the study group.

Patients and gender	Age at onset	Seizure duration	Seizure characteristics	MRI	EEG/VEM	Pain localization	Type of seizure	Neurological examination	Treatment (per day)	Seizure control	Psychiatric evaluation
Lateralized pain 1/M	6 months	34	Pain sensation in left side of neck, nodding, confusion, and preserved consciousness	N	R frontotemporal active epileptic focus	Left side of neck	DPS and EBCS	Slight left leg paresis	CBZ 1200 mg	Twice a year	OC personality disorder
2/M	52 years	15	Pain sensation on left ankle → left wrist → left shoulder; stiffening on the left side, EBCS	Sequela to bleeding following operation of midline posterior fossa cyst and right acoustic neurinoma	Diffuse slowing on right hemisphere	Left ankle → left wrist → left shoulder	DPS and EBCS	Left homonymous hemianopsia, left hemiparesis	DPH 600 mg, GBP 600 mg VPA 1000 mg	Three/four times a year	Anxiety disorder
3/M	17 years	9	Pain sensation on left hand, followed by clonic jercs and stiffening on left arm, EBCS	Diffuse white matter lesions on bilateral frontal, right temporoparietal lobe and corpus callosum; bilateral venrticular dilatation due to cerebral atrophy	Diffuse slowing	Left hand	DPS and EBCS	Slightly hyperactive deep tendon reflexes	OXC 1800 mg DPH 200 mg PGB 600 mg LEV 1000 mg	More than twice a year	N
4/F	24 years	24	Sudden burning pain sensation on right leg, EBCS	N	Left temporoparietal sharp wave	On the surface of right tibia	FM/AS and EBCS	Hypertrophia of left face, arm, and leg soft tissue; hyperactive DTR; and difficulty on TW	CBZ 400 mg	Once in nine months	N
Abdominal pain 5/F	18 years	17	Severe knife-like pain sensation on left abdominal side → left leg → left arm, EBCS	Subependymal heterotopia: from left posterolateral amygdala to lateral ventricle temporal horn	VEM: hypersynchrony on bilateral temporoparietal regions predominmant on right side; CPS with the same symptoms on sleep	Left abdominal side → left leg → left arm	FM/AS, DPS, and EBCS	N	CBZ 800 mg	Twice every night	N
6/F	2 years	32	Abdominal pain sensation, nausea, and vomiting → headache, EBCS	Perivascular space dilatation on parietal cortical regions	Right frontotemporal spike–wave	Abdominal pain and headache	FM/AS, DPS, and EBCS	N	CBZ 400 mg VPA 600 mg	Seizure freedom under AEDs	Anxiety disorder
Cephalic pain 7/M	13 years	23	Sudden and severe bilateral frontal pain sensation, and vertigo; sometimes shining lights; preserved consciousness	Chronic encephalomalacia and gliosis involving left parietal subcortical white matter and bilateral parieto-occipital cortico-subcortical regions	Bilateral (especially left side) temporal, parietal, and occipital epileptic foci	Bilateral frontal pain	DPS	N	DPH 300 mg VPA 1500 mg	Noncompliance with treatment	N
8/F	9 months	34	Pharyngeal pain, nausea, vomiting → left hemiconvulsion	Bilateral hippocampal atrophy (right: 1.35 cm^3, left: 1.24 cm^3)	Left frontotemporal sharp wave with low amplitude	All of head	FM/AS	N	CBZ VPA	Seizure freedom under AEDs	Psychotic disorder
9/M	16 years	15	Headache → EBCS	Normal	Photosensitive generalized epileptiform discharges	Left frontal and back of the neck	FM/AS, myoclonies, EBCS	N	VPA 1500 mg	Seizure freedom under AEDs	

AED: Antiepileptic drugs, CBZ: Carbamazepine, DPS: Dyscognitive Partial Seizure, DTR: Deep tendon reflexes, DPH: Diphenylhydantoin, EEG: Electroencephalography, F: Female, GBP: Gabapentin, LEV: Levetiracetam, M: Male, MRI: Magnetic Resonance Imaging, N: Normal, OC: Obsessive compulsive, OXC: Oxcarbazepine, PGB: Pregabalin, FM/AS: Focal Motor/Autonomic Seizure, EBCS: Evolving to Bilateral, Convulsive Seizure, TW: Tendem walking, VEM: Video Electroencephalography Monitoring, VPA: Valproic acid, y: Year.