

Epilepsia partialis continua due to COVID-19 pneumonia

A.O. VAROGLU, B. HOSVER

Department of Neurology, Medical School, Istanbul Medeniyet University, Istanbul, Turkey

Abstract. – BACKGROUND: Epilepsia partialis continua (EPC) is an uncommon condition with several different etiological causes. In this article, we presented a case of EPC due to COVID-19 infection.

CASE REPORT: A 77-year-old woman with diabetes, asthma, hypertension, and chronic renal failure went to the emergency room with shortness of breath. The patient was awake and had slight hemiparesis sequela on the left due to a cerebrovascular incident 20 years earlier on neurological assessment. Non-contrast thorax computed CT revealed patchy ground-glass alveolo-acinar density increases in bilateral lung subzones, confirming COVID-19 pneumonia. After getting a positive COVID-19 PCR test, the patient was admitted to the department of infectious diseases. After a week in the hospital, seizures involving the right arm, leg, and part of the face appeared. The patient could not respond to questions. The patient's seizures lasted 12-24 hours. EEG was compatible with Epilepsia partialis continua. The cerebrospinal fluid examination was normal. Both clinical and EEG findings of the patient improved with treatment.

CONCLUSIONS: Several causes may contribute to the onset of Epilepsia partialis continua. COVID-19 infection might be one of the etiological explanations for the diagnosis of Epilepsia partialis continua and the prognosis may be very good too.

Key Words:

Epilepsia partialis continua, COVID-19, Epilepsy.

Background

Epilepsia partialis continua (EPC) is an uncommon disorder characterized by recurring motor and sensory epileptic seizures that are frequently centered on the face and hands, last up to one hour or more, and are usually accompanied by awareness¹. Intracranial structural lesions such as a cerebrovascular event, tumor, abscess, head trauma, and Rasmussen encephalitis are the most prevalent causes of EPC, although it can also be caused by metabolic disorders and systemic infections²⁻⁴.

In the literature, there is no case record of Epilepsia partialis continua caused by COVID-19. Therefore, we report a female patient with Epilepsia partialis continua due to COVID-19 infection.

Case Report

A 77-year-old woman with diabetes, asthma, hypertension, and chronic renal failure arrived at the emergency room with shortness of breath. On neurological evaluation, the patient was aware and showed minor hemiparesis sequela on the left due to a cerebrovascular event 20 years ago. Patchy ground-glass alveolo-acinar density increases in bilateral lung subzones were seen on non-contrast thorax computed tomography, indicating COVID-19 pneumonia (Figure 1). The patient was hospitalized at the department of infectious diseases after receiving a positive COVID-19 PCR test. Treatment included ceftriaxone 2 g/day, doxycycline 2 g/day, lopinavir-ritonavir 2 g/day, and prednisolone 40 mg/day for 5 days. In the laboratory study of the patient, Blood Urea Nitrogen (BUN): 86 mg/dl (16.6-48.5 mg/dl), Creatinine: 3.51 mg/dl (0.5-0.9 mg/dl), Na: 136 mEq/L (136-145 mEq/L), K: 4.7 mEq/L (3.5-5.1 mEq/L), Ca: 9.9 mg/dl (8.8-10.2 mg/dl), HGB: 9.9 g/dl (12.5-16 g/dl), Platelet (Plt): 291000 10³/μL (100-400 μL), White Blood Cell (WBC): 7200 10³/μL (4000-10000), CRP (C-reactive protein): 105 mg/L (0-5 mg/L) were found. Seizures involving the right arm, leg, and part of the face emerged after a week in the hospital. The patient had impaired awareness seizures. Seizures lasted for 12 hours for the patient. MRI revealed no newly established cerebrovascular event. In EEG, it was observed that continuing rhythmic spike or sharp wave discharges at the left fronto-temporo-parietal regions as an ictal activity (Figure 2). The patient was given 5 mg of diazepam intravenously, and the EEG showed considerable suppression. We acknowledged it as lateralizing

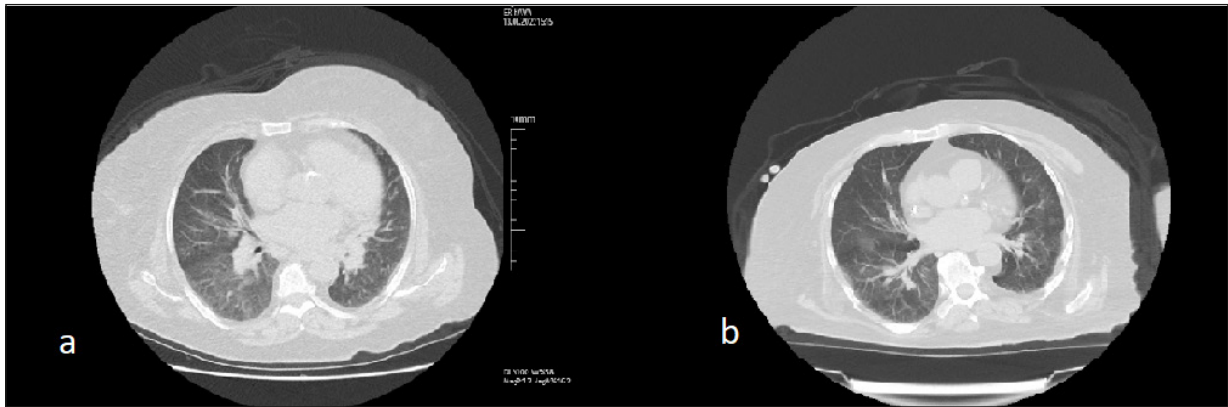


Figure 1. Thorax CT: Patchy ground-glass alveolo-acinar density increases in bilateral lung subzones were seen on non-contrast thorax computed tomography, indicating COVID-19 pneumonia.

Epilepsia partialis continua since the patient's seizures were in the right half of his face, arm, and leg, and the ictal activity in the EEG started in the left hemisphere. To avoid seizure recurrence, diphenylhydantoin (200 mg/day) was added to the medication. No epileptiform pathology was recorded in the EEG and no return of seizures two days later (Figure 3). The cerebrospinal fluid ex-

amination found protein 35 mg/dl and glucose 70 mg/dl (simultaneous serum glucose value 110 mg/dl). Both the autoimmune encephalitis, paraneoplastic panels, and meningitis panels were found to be negative. Tumor markers in the blood were negative. After the patient's general condition improved and there were no more seizures, the patient was discharged.

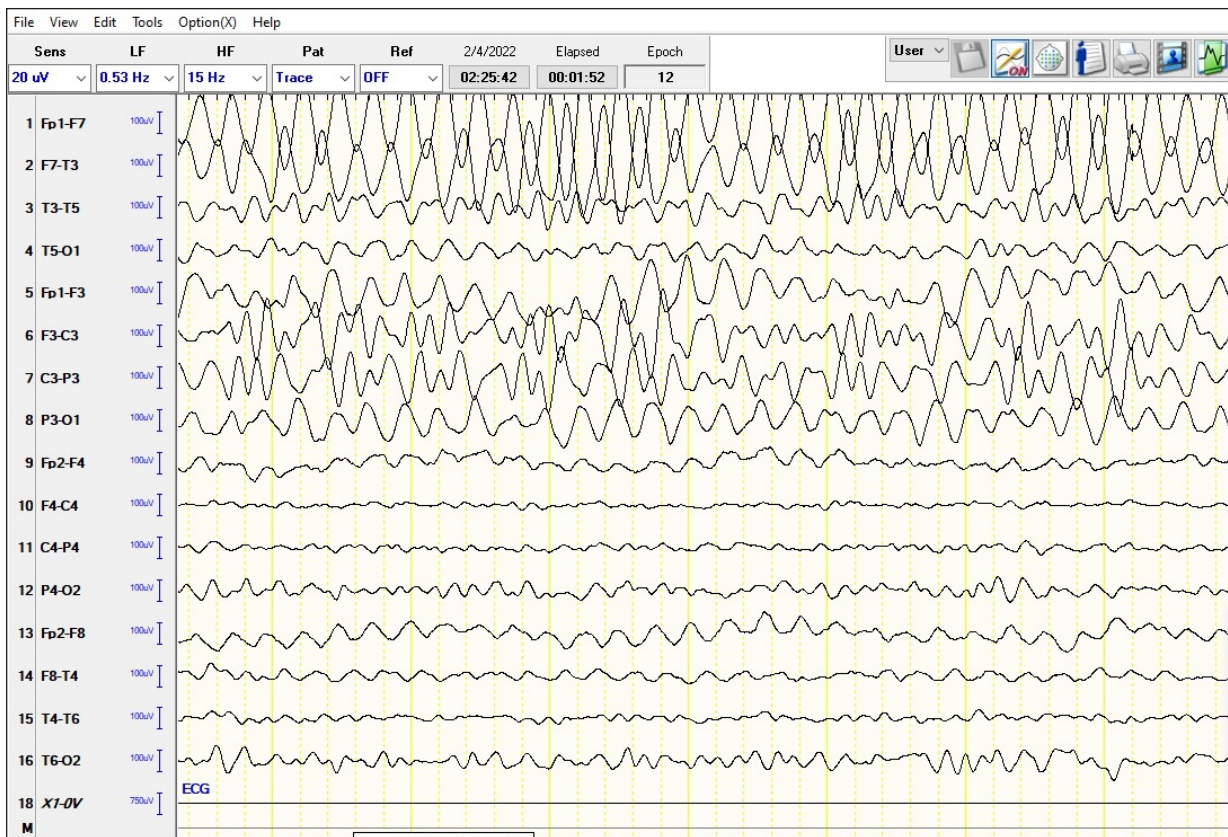


Figure 2. EEG was observed continuing rhythmic spike or sharp wave discharges at the left fronto-temporo-parietal regions as an ictal activity.

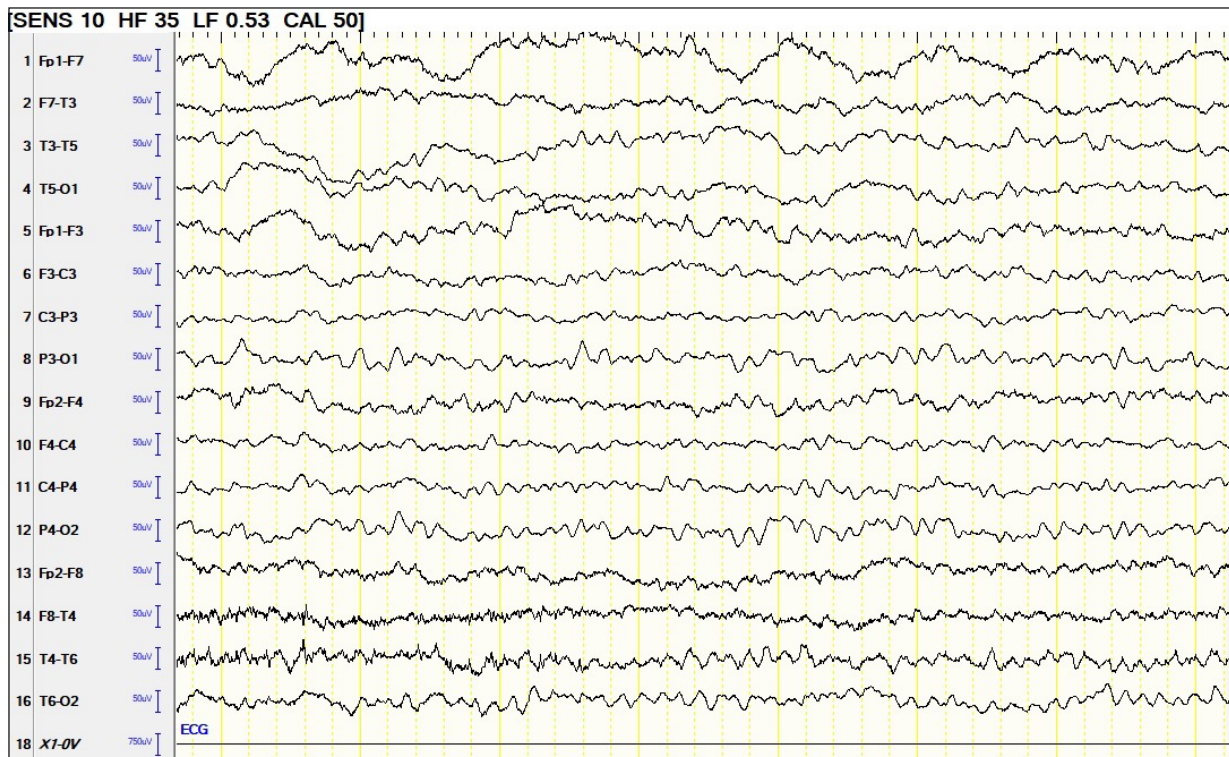


Figure 3. Two days after treatment of the seizure, EEG was found normal limits.

Discussion

EPC is a rare condition characterized by focal-onset recurring somatomotor seizures usually with impaired awareness. Only a few studies have looked at the causes of EPC in adults and children⁵⁻⁷. Because EPC is so uncommon, few studies give prognostic information⁸. False lateralizing EEG abnormalities, PLED (periodic lateralized epileptiform discharge), and interictal lateralizing EEG findings, according to authors¹, are related to poor prognosis in EPC patients.

In hyperglycemic patients, prognostic variables were the etiology, number of AEDs, and length of EPC⁹. The authors¹⁰ reported that the length of the hyperglycemia episode is the most crucial aspect of the EPC's prognosis. In individuals with EPC caused by a hyperglycemia attack, the occipital lobe is the most likely source of focal seizures¹¹. Our patient's EPC was caused by a systemic infectious illness, such as a hyperglycemia phase, not a focal disorder, and the source of seizure was the fronto-temporo-parietal lobe, not the occipital lobe.

Why hyperglycemia causes a unilateral EPC is yet unclear. In our instance, EPC was caused by systemic COVID-19 pneumonia; however, lateralized EPC developed. Not just anatomically, but also biochemically, in terms of neurotransmitters and other factors, there may be disparities between the hemispheres.

It is accepted that the prognosis of EPC is generally poor⁸. In the present case, EPC improved rapidly following the medication, and the patient's follow-up revealed no more seizures. The underlying pathophysiological causes, we believed, were the most critical predictor of prognosis in the EPC.

Conclusions

Early diagnosis and treatment can result in complete recovery in the EPS due to COVID-19 infection despite it being known that EPC has a poor prognosis.

Informed Consent

Written informed consent was obtained from the patient.

Conflict of Interest

The authors declare that they have no conflict of interests.

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