RESISTANT EPILEPSY – CASE PRESENTATION

A. Roceanu[1], I. Mindruta[1,2], B. Ichim[1], I. Onescu[1], O. Bajenaru[1]
[1]Neurology Department, Emergency University Hospital, Bucharest, Romania
[2]Epileptology Center, University Hospital, Grenoble, France

ABSTRACT

Pharmacoresistant epilepsy is defined as the persistence of seizures despite adequate use of antiepileptic drugs, with a minimum of two first-line drugs either as monotherapy or in combination as appropriate to the epileptic syndrome.
We present the case of a 31 years old male, with extra-temporal lobe epilepsy, MRI negative who proved to be resistant to medical treatment. A benefit-and-risk assessment of all treatment alternatives should consider also epilepsy surgery in nthis case.

Key words: pharmacoresistant epilepsy, epilepsy surgery, pre-surgical evaluation

INTRODUCTION

Medically intractable or refractory epilepsy is defined as the persistence of the seizures despite treatment with at least two of the standard preparations for the particular type of seizure or epilepsy.

CASE PRESENTATION

We present the case of a 31 years old male, who is the product of a normal full-term pregnancy, who developed normally, with no febrile seizures. Education consists in 12 years of normal school.

Since the age of 17 years old he experienced 2 **types of seizures**:

- complex partial seizures - with visual aura with colored, mobile, geometric shapes, motor automatism – occurring during daytime - and
- complex partial seizures secondarily generalized – during night.

The frequency of both these types of seizures increased in time to 1-2 complex partial seizures per week and 1 generalized seizure per month.

The physical examination is unremarkable. The neurological examination is normal.

Interictal EEG demonstrates background asymmetry with slow, low-voltage activity in centro-temporal regions, mainly on the right and spikes, sharp waves on frontal, central and anterior temporal regions mainly on the right.

Video EEG monitoring reveals right frontal and anterior temporal region as seizure onset.

Neuroimaging studies were performed. Repeated cerebral IRM examination ruled out structural lesions. Mesiotemporal sclerosis (MTS) was not found

Interictal SPECT studies revealed an area of hypoperfusion of right temporal lobe.

TREATMENT

He was treated initially with phenobarbital, sodium valproate, carbamazepine in monotherapy and then in combination.

Because they failed to achieve seizure-control and there were adverse effects of AED (headache, vertigo) new AED were administrated (Lamictal with up titrating to 300 mg/day and Keppra 1000 mg/day. The number of seizures dropped to 1 every 3-4 months, but seizures doesn't cease.

Author for correspondence:
Adina Roceanu, Emergency University Hospital, 169 Splaiul Independentei, Bucharest, Romania
email: adinaroc@hotmail.com

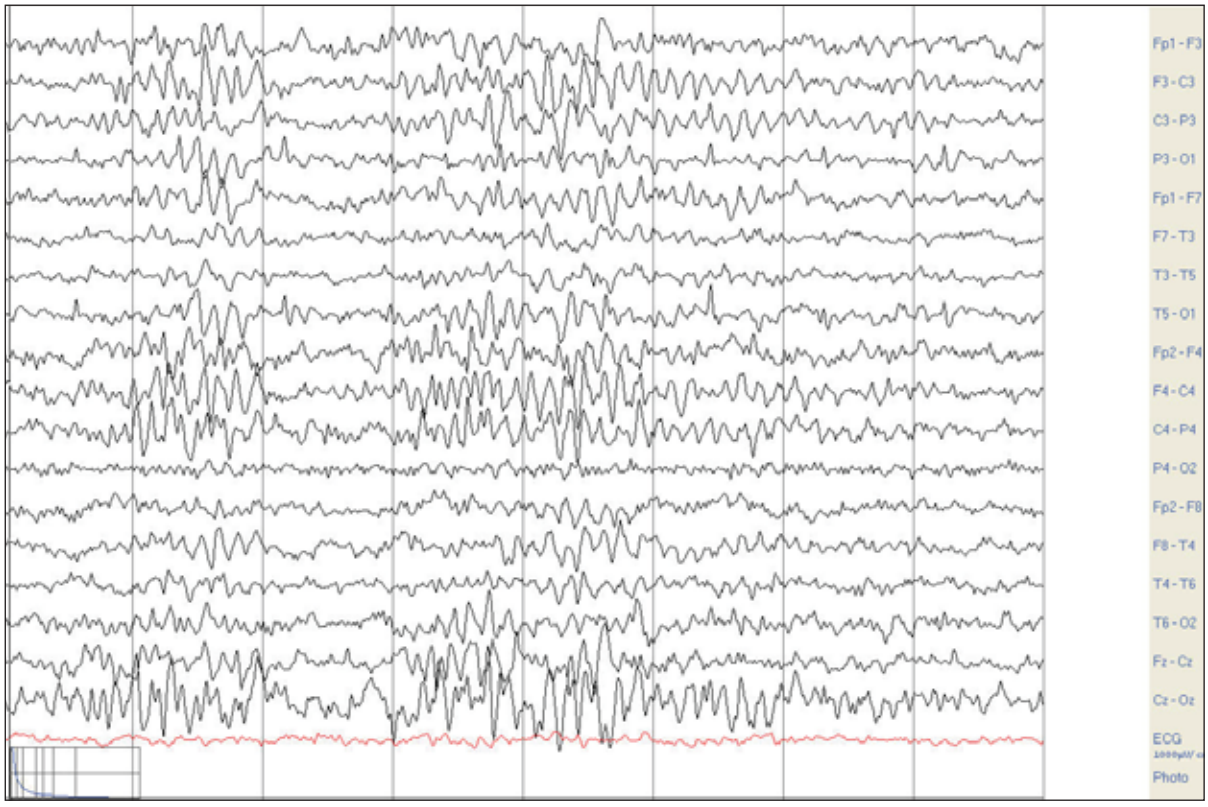

Figure 1. Interictal EEG: *University Hospital of Bucharest – Neurology Department - EEG laboratory: background asymmetry with slow, low-voltage activity in centro-temporal regions, mainly on the right and spikes, sharp waves on frontal, central and anterior temporal regions mainly on the right.*

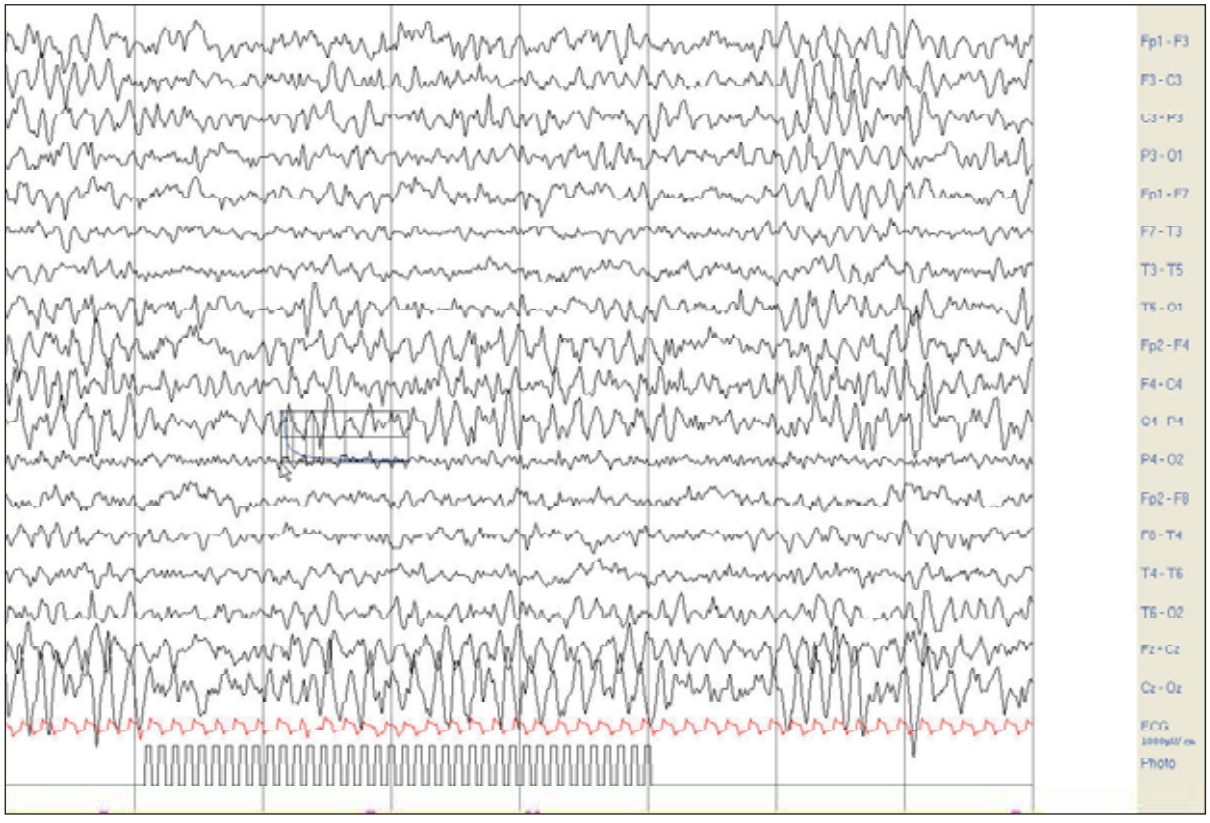

Figure 2. Video EEG monitoring: *University Hospital of Bucharest – Neurology Department - Epilepsy Monitoring Unit: reveals right frontal and anterior temporal region as seizure onset.*

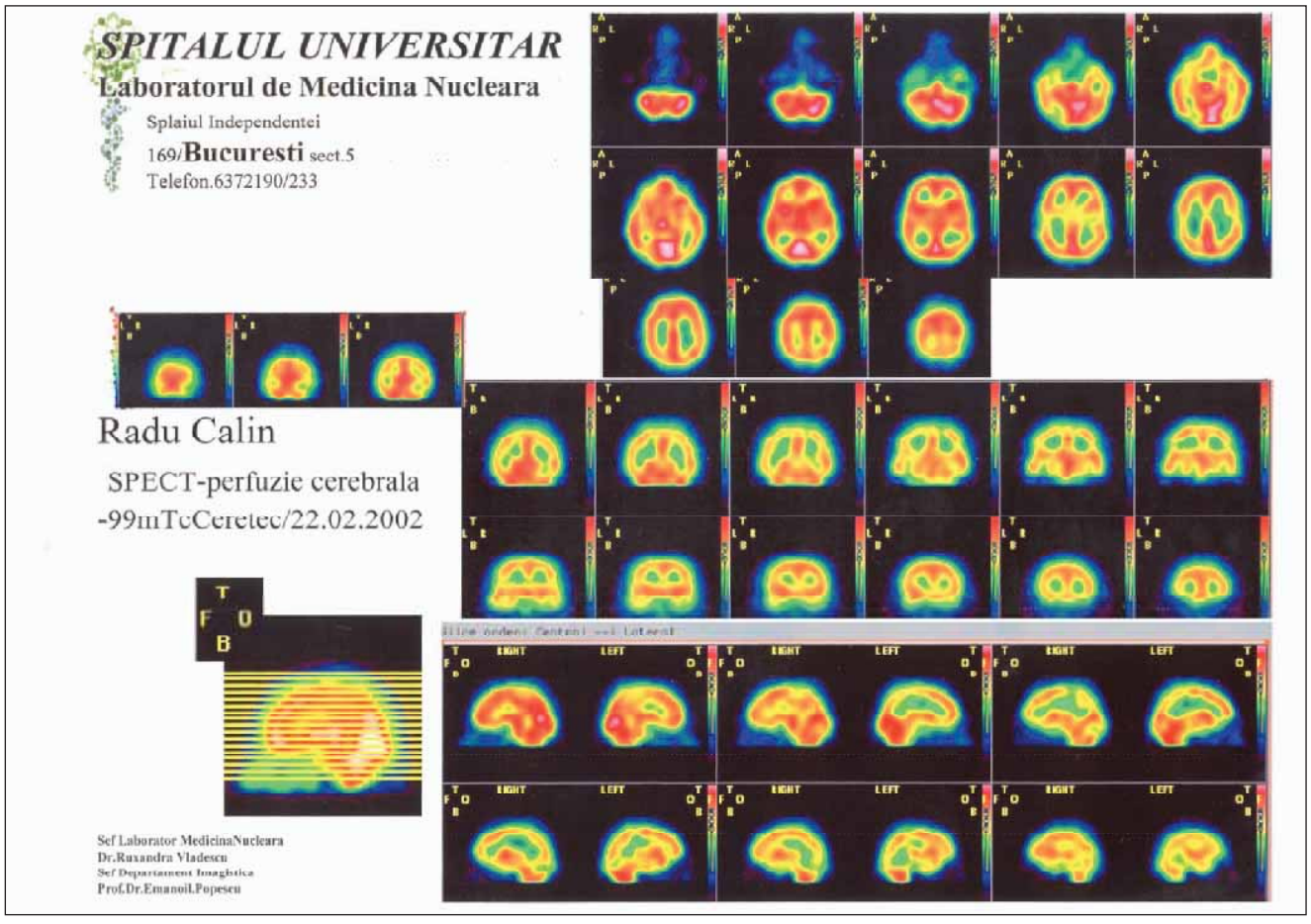

***Figure 3. Interictal SPECT**: University Hospital of Bucharest – Radiology Department: hypoperfusion area of right temporal lobe.*

In this case the definition of pharmacoresistant epilepsy is accomplished. A benefit-and-risk assessment of all treatment alternatives should consider also epilepsy surgery.

DISCUSSION

Epilepsy is a chronic neurological disorder that affects 0,5-1% of the world's population.

Proven drug intolerance or resistance is defined as the persistence of seizures despite adequate use of antiepileptic drugs, with a minimum of two first-line drugs either as monotherapy or in combination as appropriate to the epileptic syndrome.

The recommended duration is at least 2 years of treatment in adults; however, this may be too long for children when considering the consequences of continuing seizures on their development.

Epilepsy surgery is defined as any neurosurgical intervention whose primary objective is to relieve intractable epilepsy.

In resective epilepsy the aim is the elimination of the primary epileptogenic tissue (the seizure onset zone). Only if is not possible alternative surgical procedures should be used: disconnective epilepsy (callosal section, multiple subpial transactions in particular cases) and vagal nerve stimulation.

The concept of surgically remediable epileptic syndrome defined by Engel refers to:

- Mesial temporal lobe epilepsy with hippocampal sclerosis (hippocampal epilepsy)
- Certain temporal or extratemporal neocortical symptomatic focal syndromes with discrete easily resecable structural lesions
- Epilepsies of infants and small children that can be treated with heispherectomy.

In our patient with extra-temporal lobe epilepsy, MRI negative is proven to be resistant to medical treatment. In this case epilepsy surgery should be considered after a pre-surgical evaluation with the electrophysiological evaluation of the "epileptogenic zone" with intracranial recording techniques.

A palliative procedure such as VNS (vagal nerve stimulation) could be an option – if the surgery fails. Electrical brain stimulation devices with the

capacity to detect or prevent seizures and who respond to abort these events could be also an alternative.

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