SYMPTOMATIC EPILEPSY IN DUAL TEMPORAL PATHOLOGY. CASE REPORT ANALYSIS

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ABSTRACT — Dual pathologies are quite often observed in patients with epilepsy during neuroimaging. In a study by V. Salanova et al. 37 (15.4%) of 240 patients with lesional temporal epilepsy had dual pathology presented on MRI. Several other authors (S. Eriksson et al.) report the prevalence of dual pathology from 5% to 30% in pharmacoresistent temporal epilepsy. In most cases seizure semiology as well as data from interictal and ictal EEG help to identify pathological process which causes seizures. However, in some cases one pathology might disguise another, thus clinical data and results of other additional investigation methods might direct a clinician the wrong way. This article is dedicated to one of those clinical cases.

CASE REPORT

A 27-year-old man with a first in his life generalized tonic-clonic seizure (GTCS) during sleeping at night 9/10 June 2010 was urgently referred to a central district hospital. A brain CT reveals a cyst of right temporal lobe and Silvian fissure (Fig. 1). In fact the first seizure of the patient dated Novem-ber 2009 when he displayed an inadequate behavior episode which was evaluated by the surrounding witnesses as a consequence of alcohol consumption. Patient didn't apply for medical assistance.

Patient is right-handed, is the only child in the family, was born from normal pregnancy, according to birth term. Early development with no abnormalities. Graduated from school with average points. After graduation worked as an auxiliary worker.

EEG was performed and focal epileptiform activity was detected. Carbamazepine was prescribed. Patient was seen by his general practitioner. In February 2013 he presented for the first time to the Regional Center of Neurosurgery and Neurology in Uzhhorod with the history of regular once or twice a week complex partial seizures. Seizure began with epigastric aura and followed by ambulatory automatisms, periodically secondary-generalized seizures appeared (4 times in 2–3 months). As an antiepileptic therapy patient took carbamazepine 400 mg twice a day. Neurologic deficit and intellectualmnestic disorders were absent.

EEG was performed; focal epileptiform activity over right frontotemporal area was detected. (Fig. 2)

According to clinical features of temporal seizures, presence of congenital brain development defect on CT — subarachnoid cyst of temporal lobe and lateral sulcus of right hemisphere, EEG data — epileptiform activity over frontotemporal area, diagnosis was determined: symptomatic epilepsy with complex partial temporal and secondary-generalized tonic-clonic seizures. An arachnoid cyst of the right temporal lobe was evaluated as possible aetiology of seizures. Antiepileptic therapy was modified.

In a period from February 2013 to January 2016 patient was taking several different anticonvulsants such as carbamazepine in maximum daily dose of 1000 mg, lamotrigine in maximum daily dose of 400 mg, levetiracetam in maximum daily dose of 1000 mg, valproate in maximum daily dose of 2000 mg, topiramate in maximum daily dose of 400 mg — all with no effect. The last scheme of medication taking included valproate 1000 mg twice a day and levetiracetam 500 mg twice a day. EEG was regularly performed and epileptiform activity over right temporal area was still detected.

Even though patient was recognized as pharmacoresistent in end of 2013, he wasn't selected as a candidate for epilepsy surgery, because surgical treatment of temporal lobe cysts of the brain is minimally effective if they don't cause mass effect (F. Van Der Meche, R. Braakman, 1983; U. Mayr, F. Aichner, G. Bauer et al., 1982; G.R. Harsh, M.S.B. Edwards, C.B. Wilson, 1986). Only after the verification of ineffectiveness of five main antiepileptic drugs (CBZ, VPA, LEV, TPM, LTG) patient was referred to high Tesla MRI of the brain, which was performed 27.04.2016 (Fig. 3).

Low-grade tumor of the medial parts of right temporal lobe was detected, lying medially from arachnoid cyst of the temporal lobe.

During the reviewing of the CT results from 2010 it was found out that tumor was present at that time but was accepted by radiologist as a cyst adjoined brain tissue. Epileptologist evaluated the case by the same way also. Considering potentially high eliptogenity of the tumor presurgical eval-uation began. 24-hour video-EEG monitoring was performed. Focal epileptiform activity was regu-larly detected over the right frontotemporal area on interictal EEG (Fig. 4).

The patient was operated on 25.06.2015, total

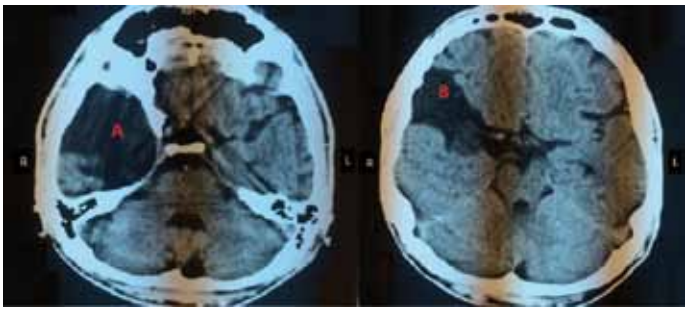

Fig. 1. *Spiral CT scan of the patient's brain dated 10.06.2010, cyst of the pole of right temporal lobe and Silvian fissure. A – cyst of the pole of right temporal lobe; B – cyst of the right Silvian fissure*

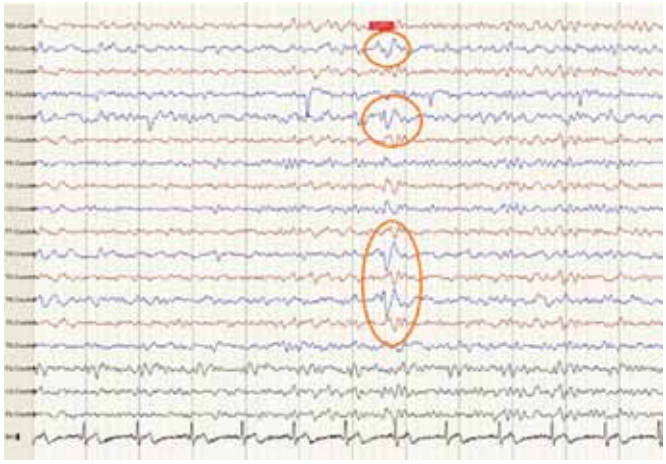

Fig. 2. *EEG of patient dated 06.02.2013, monopolar average montage, focal epileptiform slow spike-wave activity over right frontotemporal area (C4, F8, T4, and minimal expression in Fp2. Artifact in F4.)*

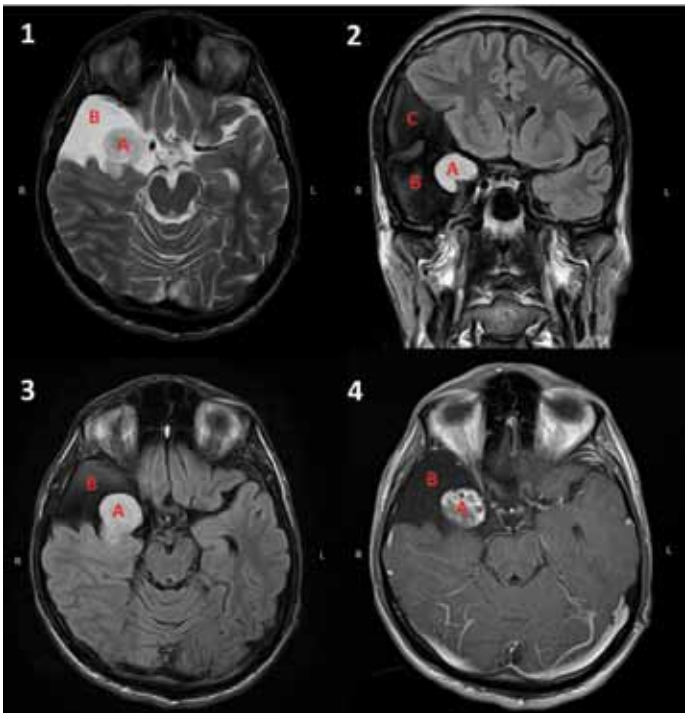

Fig. 3. *High Tesla MRI of the brain dated 27.04.2016. It was revealed a few pathological pro-cesses: cyst of right temporal lobe (A) and Silvian fissure of right hemisphere (C), low-grade in-tracerebral tumor (B). 1 – T2 axial; 2,3 – FLAIR coronal; 3 – FLAIR axial; 4 – T1c*

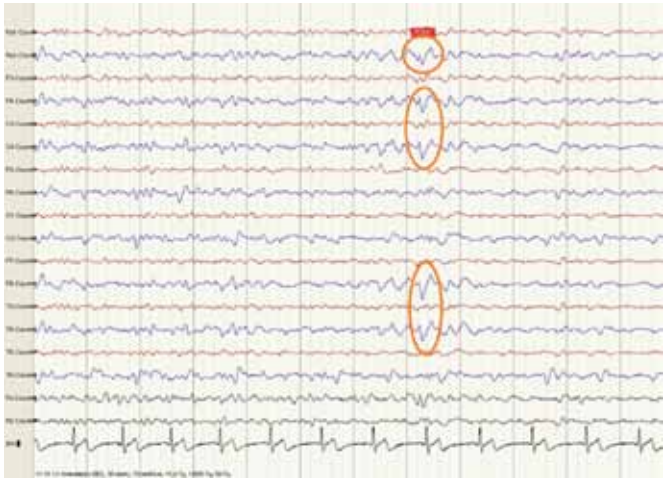

Fig. 4. *EEG dated 12.05.2016 (fragment of video-EEG monitoring). Monopolar average mon-tage, focal epileptiform slow spike-wave activity over right fron-totemporal area (C4, F4, F8, T4, minimal expression in Fp2). In comparison with monitoring in 2010 the onset of general non-specific changes was admitted*

removal of the tumor was performed. Postoperative period without complications and additional neurological deficit. Pathology conclusion — astrocytoma, grade II. There was no seizures in post-operative period.

03.10.2016 patient presented for the follow-up (4,5 months after surgical procedure). No seizures, including auras, admitted. Continues taking valproate 1000 mg twice a day and levetiracetam 500 mg twice a day. Patient also presented high Tesla MRI of the brain (Fig. 5), which shows total

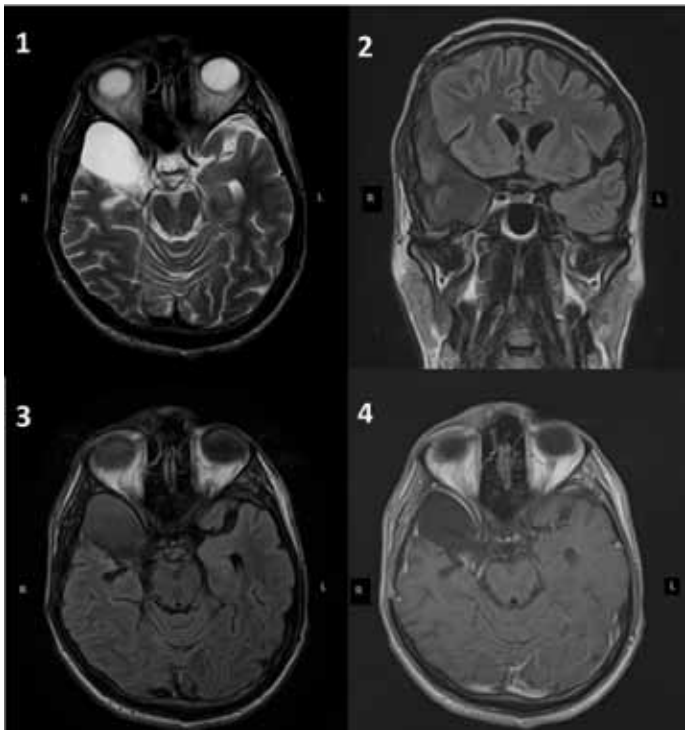

Fig. 5. High Tesla MRI of the brain dated 07.09.2016. Presents the condition after the surgical procedure because of the tumor in medial parts of right temporal lobe. Signs of left masses are ab-sent. 1 – T2 axial; 2,3 – FLAIR coronal; 3 – FLAIR axial; 4 – T1c

re-moval of the tumor. Follow-up EEG was also performed (Fig. 6). It presents positive clear dynamics, though a few single epileptiform occurrences keep over the right frontotemporal area.

Gradual dose reduction of valproate to 500 mg twice a day was started. Repeat EEG and consultation after 3 months with the aim of possible discontinue of anticonvulsants and follow-up MRI of the brain with IV contrast after 12 months were proposed.

Patient presents the combination of two potentially epileptogenic CNS disorders: a — cyst of the pole of temporal lobe and lateral sulcus of right hemisphere; b — low-grade tumor of the medial parts of right temporal lobe. The uniqueness of this case is not in its rare combination of dual pathology but in coincidence of localization of both pathological processes, that was the reason of late discovery of the tumor, as a main etiological process of epilepsy of this patient.

The conclusion of this case might work as a recommendation — always recheck the etiology of epilepsy after recognizing the patients as pharmacoresistent and perform high Tesla MRI, regardless other factors. This patient, even having concordance of all signs and symptoms: temporal seizures, cyst of the pole of temporal lobe and lateral sulcus of right hemisphere, focal epileptiform activity over right frontotemporal area — presented with different etiology of epilepsy. This mistake influenced

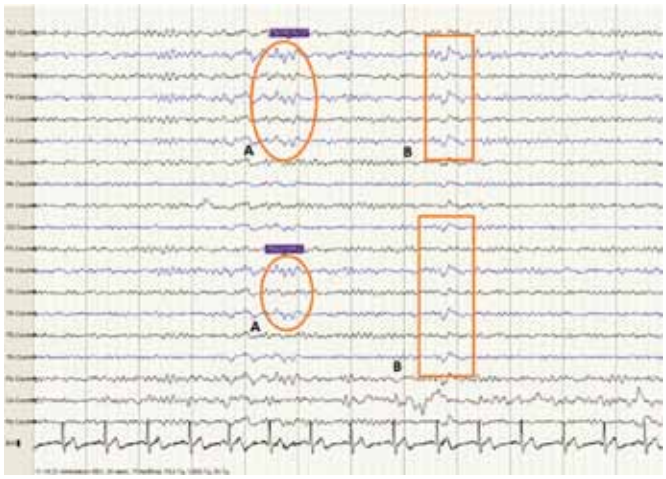

Fig. 6. EEG dated 03.10.2016 (post-op). Monopolar average montage. Positive dynamics are expressed but minimal focal slow spike-wave activity (A) and local slowness (B) over right fronto-temporal are still present

treatment strategy and took away the time of surgical procedure.

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