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SUMMARY
We report a case of a prolonged postictal hemianopsia occurring after a focal extraoccipital seizure. A 55-year-old man with a history of neurosyphilis, treated with penicillin, presented to our epilepsy monitoring unit (EMU) for diagnostic evaluation of his spells occurring for 2 years. The spell semiology was stereotypical, described as oral and manual automatisms, speech difficulty and unresponsiveness. During the EMU stay, after his typical seizure was recorded, he experienced right hemianopsia lasting for 2 hours. Electrographically, the ictal pattern was prominent over the left temporal derivation and propagated to the left occipital derivation as the seizure progressed. Interictal epileptiform activity was over the left temporal derivations. We support the view that postictal phenomenon may represent merely a seizure termination zone and not be necessarily localising to the seizure onset zone. Furthermore, prolonged isolated postictal symptom of hemianopsia could also be noted in rare situations.

BACKGROUND
Clinical seizure semiology in focal epilepsy depends on the area of brain involved during the seizure. Some of the common postictal signs include postictal aphasia, postictal amnesia, postictal hemiparesis, postictal nose wipe and postictal headache. Postictal hemianopsia has also been described in the setting of occipital lobe seizures. Prolonged symptom of postictal hemiparesis (Todd’s) was initially described more than one and a half century ago, other postictal symptoms have been well described in the literature, and prolonged symptom of postictal hemianopsia has been described with occipital onset seizures. Here, we describe the first rare case of an isolated prolonged hemianopsia as a postictal manifestation following an extraoccipital onset seizure.

CASE PRESENTATION
A 55-year-old right-handed man was admitted to the Henry Ford Epilepsy Monitoring Unit (EMU) for diagnostic evaluation of his spells that started 2 years prior. These were brief episodes of staring, speech difficulty, loss of awareness and unresponsiveness that lasted for up to 1 min, as described to him by the witnesses. The patient reported that he did not experience any warning or any visual phenomenon before the spell or any visual symptoms of blindness after. He lived alone and the frequency was unclear. He also reported one episode of a convulsive seizure that occurred a year ago. At the time of EMU admission, his antiseizure medications included levetiracetam 1000 mg two times per day and lacosamide 100 mg two times per day, as per his referring neurologist. His medical history was significant for a diagnosis of neurosyphilis 5 years ago, when he exhibited short-term memory problems. At that time, lumbar puncture showed positive Venereal Disease Research Laboratory (VDRL) test, and MRI of the brain reportedly showed findings in keeping with neurosyphilis. His condition improved after the treatment with intravenous penicillin.

INVESTIGATIONS
During the EMU evaluation, scalp electroencephalography (EEG) showed interictal epileptiform activity in the form of occasional, moderate amplitude, sharp wave discharges over the left temporal derivations. His recorded typical spell was consistent with a focal seizure with impaired awareness, clinically characterised by oral automatisms in the form of lip smacking and mouth chewing movements, intermittent bimanual automatisms with loss of awareness. On assessment, he did not report any warning prior to the seizure or recall having the seizure. However, on examination, he was noted to have right hemianopsia during the postictal state that lasted for up to 2 hours. He did not experience such symptom of right visual field defect after his seizure ever before the admission and reported it for the first time. EEG recorded at the clinical onset seizure was obscured by brief glossokinetic artefact. As the seizure progressed, the ictal pattern was prominent over the left temporal derivations and propagated over the left occipital derivations, with repetitive spikes over the left occipital derivations (O1) that continued until the seizure ended (figure 1). The ictal pattern lasted for a total duration of 144 s. The diagnosis of focal epilepsy was confirmed.

TREATMENT
The dose of levetiracetam was optimised to 1500 mg two times per day and lacosamide was optimised to 200 mg two times per day, before the patient was discharged home.

OUTCOME AND FOLLOW-UP
At 1-year follow-up, after the EMU evaluation, the patient’s seizures remained under control, and he denied having any recurrence of postictal hemianopsia.

DISCUSSION
We report the first and rare case of prolonged postictal hemianopsia noted in the setting of an
extratemporal lobe seizure onset. In this patient, initial symp-
tomatogenic zone or the area of brain producing ictal signs and
symptoms seemed to be over the temporal region, however the
seizure progressed and terminated over the left occipital lobe
clinically correlating with the right hemianopsia.

Postictal hemianopsia is rarely encountered, and in a systematic
review and meta-analysis of postictal findings, such manifesta-
tion was not even described. Positive symptoms like hallucina-
tions during ictal phase and negative symptoms of blindness/
hemianopsia in postictal phase have been described with seizure
onset over the contralateral occipital lobe. In our patient, right
hemifield visual defect was noted as a postictal manifestation of
the seizure, with initial electrographic ictal pattern over the left
temporal derivations and not over the left occipital regions. In
addition to his typical seizure semiology that is similar to that
commonly seen with temporal lobe seizures, interictal epilep-
tiform discharges were also noted over the left temporal deri-
vations. Right hemianopsia was noted in the postictal state,
possibly due to significant dysfunction and exhaustion of the left
occipital lobe that was involved late in the seizure.

We argue that postictal signs help in localising the seizure
onset, and allude to the notion that postictal signs or symptoms are
indicators of cortical dysfunction over the brain area unfa-
vourably involved during that seizure. It is possible that this area
was substantially involved to experience prolonged refractory
period or prolonged local inhibition from surrounding area, as
a protective mechanism and/or decreased blood flow leading to
oxygen deprivation, causing transient neuronal dysfunction in
that region.

Our patient did not experience the symptoms of right hemi-
anopsia with his earlier seizures, although he experienced
numerous of his stereotypical seizures prior. It is possible that
he was not aware or could not recognise the symptoms in post-
ictal phase as he usually lived alone, however he did confidently
report this being an isolated event and that even the witnessed
seizures in the past were never followed by visual field defect
over the right side of his visual field.

It is known that postictal clinical findings may alter due to
age-related physiologic changes that include cerebral blood flow,
metabolism and neurotransmitter function. In addition, with
a prior history of neurosyphilis, the patient’s brain networks
possibly altered for seizure propagation and termination. Anal-
ogous to postictal paresis as described with Todd’s paresis that
could occur occasionally during some seizures in a patient and
subside within a few hours, our patient had his first such post-
ictal manifestation of prolonged right hemianopsia that subsided
in 2 hours. The phenomenon seems to be self-limiting with
supportive treatment and resolution without any intervention.

Learning points

► Postictal hemianopsia in focal epilepsy can occur after an
extraoccipital onset seizure.
► Postictal phenomenon should be interpreted with caution
with regard to seizure onset zone. Seizure propagation
pattern may vary, depending on the individual’s brain
network. Understanding the seizure semiology in
chronological order of clinical presentation may help reflect
in approximating the seizure onset, seizure propagation and
seizure termination areas involved during the seizure.
► Postictal hemianopsia in focal epilepsy could represent a
seizure termination region in the contralateral occipital lobe.
► Additionally, prolonged postictal hemianopsia could occur,
analogous to Todd’s paresis, and should be managed
accordingly.

Acknowledgements The authors would like to thank nursing staff and EEG
technologists at Henry Ford Epilepsy Monitoring Unit who were actively involved in
delivering efficient care for this patient during his EMU stay.

Contributors VSW planned for the submission of case report and prepared for the
submission. Both authors were together involved in the clinical care of the patient
and reporting the case.

Funding The authors have not declared a specific grant for this research from any
funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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