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# The disappearing brain lesions

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ABSTRACT

A 66-year-old Caucasian female presented with headaches. MRI brain revealed white matter changes confined to her hindbrain that completely resolved within two weeks. Various case reports have been published attributing multiple causes for reversible posterior leukoencephalopathy syndrome (RPLE), a condition that this patient had. No obvious causes except for mild hypertension were responsible for her presentation. Even in absence of reported causes, diagnosis of RPLE should be entertained in right clinical scenario and suggestive radiologic findings. Such patients should be closely followed since on rare occasional the condition may be irreversible.

## 1. Introduction

Reversible posterior leukoencephalopathy is a rare disorder with only a handful of cases described in the literature. Several risk factors including hypertensive emergency and cytotoxic drugs have been attributed as causative agents. Here we describe the case of a Caucasian female who was diagnosed with RPLE in absence of any previously described risk factors.

## 2. Case report

A 66-year-old female presented to the emergency department (ED) complaining of headaches of five days duration. The headaches were sudden in onset and followed bouts of coughing. They were associated with photophobia, nausea and vomiting. There were no symptoms of weakness, seizures or loss of consciousness. She did not have any previous history of headaches. She did not drink, smoke or take illicit drugs of abuse. There was no family history of similar problems. Her relevant past medical history included migraine headaches 20 years prior to this presentation and cured breast cancer in 10 years prior to this presentation The patient underwent a lumpectomy and radiation therapy for breast cancer. Her other past medical history included hypertension, hyperlipidemia and iron deficiency anemia. Patient's home medications included Metoprolol, Aspirin, Niacin, Letrozole, Rosuvastatin, Iron sulfate, Calcium and Multivitamins.

### *2.1 Examination*

On physical examination in the ED, the patient was an averagely built female who was afebrile and had a blood pressure of 160/90 mmHg with pulse rate of 66 beats/min. The physical examination, including fundoscopy and neurological examination, were normal.

### *2.2 Investigations*

Spinal fluid analysis and CT scan of the head were normal. CBC revealed mild anemia; erythrocyte sedimentation rate was 25, thereby making the diagnosis of temporal arteritis

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less likely. Her serum electrolytes, renal function tests, liver function tests and glucose levels were normal.

### 2.3 Hospital course

In the ED she clinically improved with analgesics. A diagnosis of migraine headache was considered and the patient was discharged home on analgesics (acetaminophen and oxycodone).

## 3. Results

The patient presented again 7 d later with similar headaches, this time her symptoms were accompanied with confusion.

### 3.1Examination

Patient was noted to be afebrile and her blood pressure was was 120/58 mmHg with pulse rate of 64 beats/min. Her fundoscopic examination and systemic examination was normal. Her neurological examinations was non focal.

### 3.2 Investigations

MRI of the brain performed that revealed hyperintense T2 signals in the occipital and parietal lobes (Ref: Figures 1 & 2). EEG revealed moderate amount of slowing from hindbrain. On this presentation again the patient had normal metabolic screen and serum electrolytes.

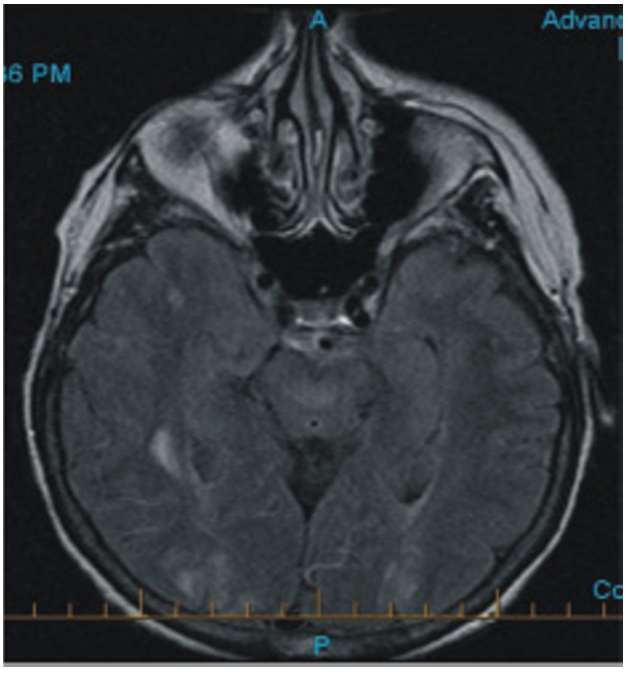


**Figure 1.** MRI Brain T2 image- shows hyperintense T2 signals in bilateral occipital and right parietal lobe regions .

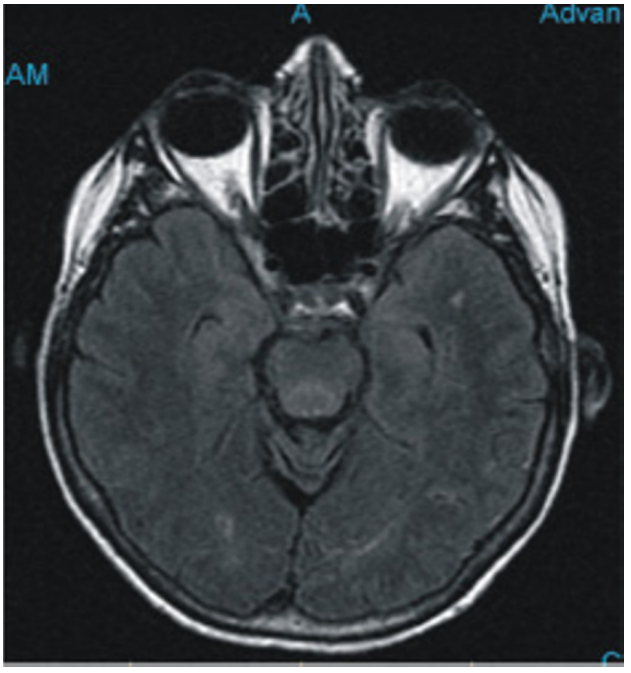


**Figure 2.** MRI Brain done 2 weeks later: T2 image shows complete resolution of white matter changes seen in Figure 1.

### 3.3 Hospital course

She was admitted and treated with Divalproex sodium. Her headaches improved and she was discharged home within 24 h. Head MRI was performed at 2 weeks after her hospital discharge. MRI revealed complete resolution of her brain lesions. A diagnosis of "Reversible Posterior Leukoencephalopathy Syndrome" (RPLE) was made.

## 4. Discussion

RPLE is a rare entity. Hinchey et al. in 1996 first described 15 cases of RPLE[1]. Most commonly it is associated with hypertensive encephalopathy, pre-eclampsia, cytotoxic agents (eg. Cyclosporin), in addition to various other reported cases[2]. It may present with a wide variety of clinical manifestations such as headaches, altered mental status, visual changes, and seizures[3]. In our patient the initial presenting complaint was headache and hypertension. However subsequently she also developed confusion. The confusion may had been from the narcotic use (oxycodone) or from RPLE. The MRI findings in our patient were consistent with the findings classically described in RPLE i.e. white matter changes confined to the hindbrain region that completely resolved within two weeks[4]. Although the exact mechanism remains unknown, disregulation of autoregulatory mechanisms due to hypertension or cytotoxic immunosuppressive agents is thought to cause vasogenic

edema in the hindbrain, which has less sympathetic adrenergic innervation[5-9]. Like most reported cases, our patient recovered almost completely within 24 h[10-18].

Though several risk factors have been attributed to development of RPLE, our patient did not have any such risk factors except for moderate hypertension on first presentation[19-24]. RPLE must be considered a differential in a patient with similar presentation and white matter changes confined to hindbrain (parietal and occipital lobes) on MRI even in absence of reported risk factors. Such patients should be closely followed to ensure resolution of their brain lesions since on rare occasions RPLE may be irreversible.

## Conflict of interest statement

The authors declare that there is no conflict of interest.

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