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Reversible Posterior Leukoencephalopathy Syndrome Complicating an Eclampsia: About a Case and Literature Review

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ABSTRACT

Reversible Posterior Leukoencephalopathy Syndrome (RPLS) is generally a rare complication, little-known, and remains probably under-diagnosed. Its causes and favorable factors are numerous. Eclampsia is widely one of those factors. The diagnosis is raised based on clinical and radiological signs and an adequate and early management usually help prevent the occurrence of irreversible sequels.

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Introduction

Reversible Posterior Leukoencephalopathy is a reversible acute or subacute neurological syndrome [1,2] described for the first time by Hinchey in 1996, who gave it the name of reversible posterior leukoencephalopathy [3]. It's a clinico-radiological syndrome sometimes observed in various diseases such as severe high blood pressure, pre-eclampsia, eclampsia, bone-marrow and organs transplantation, renal dysfunction, autoimmunity, septicemia, and chemotherapy [4]. This syndrome is responsible of neurological symptoms that lack specificity such as confusion, coma, seizures, and visual impairment. The diagnosis is raised based on cerebral magnetic resonance imaging (MRI) that shows, at an early stage, lesions typically bilateral and symmetrical of the parietal and occipital lobes, in the form of increased T2 and FLAIR signal intensity [5].

The therapeutic strategy depends on the etiology and the clinical presentation of RPLS, and should be prompt in order to prevent the occurrence of irreversible neurological lesions and permanent sequels [5].

Observation

This case is about a 40-year-old women with no significant medical history, primipara with a well monitored pregnancy estimated at 27 weeks of amenorrhea.

The patient was admitted to the reanimation department for pre-eclampsia complicated with eclampsia. The management consisted of stopping the seizures with Magnesium Sulfate, fetal extraction, and antihypertensive treatment.

During the first day postpartum, the patient suffered from headaches, confusion and incoherent speech. An initial cerebral CT scan showed a significant edema of the occipital region, followed by a cerebral MRI which objectified a signal abnormality of the bilateral parieto-occipital and left frontal subcortical white matter in the form of increased T2 and FLAIR signal intensity (figure1). The diagnosis of reversible posterior leukoencephalopathy was made based on this clinico-radiological presentation.

Under symptomatic (antihypertensive) treatment, the clinical evolution was favorable, and the patient was transferred 2 days later to the department of Neurology.

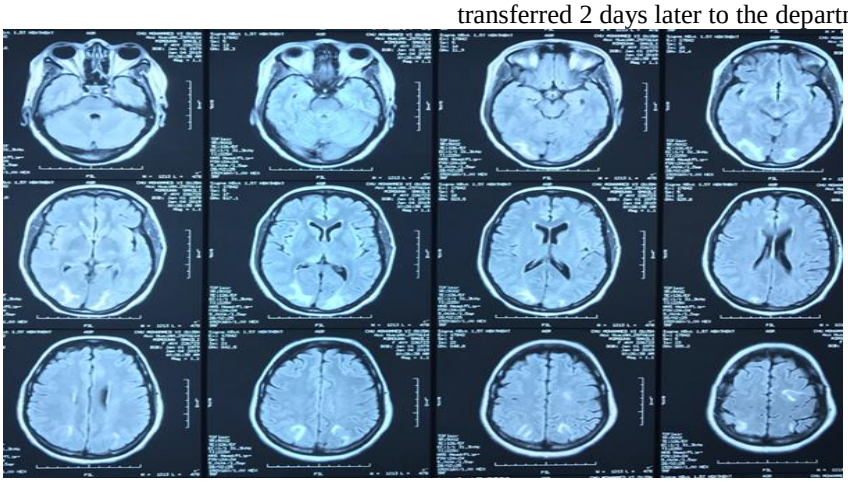

Figure 1. Cerebral MRI: Signal abnormality of the bilateral parieto-occipital and left frontal subcortical white matter in the form of increased T2 and FLAIR signal intensity.

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Discussion

Reversible posterior leukoencephalopathy is observed in various diseases, it is generally a rare complication following the brutal rise of arteria blood pressure occurring in a chronically hypertensive patient [6].

Favorable factors that are recognized and reported in the literature are high blood pressure, preeclampsia, renal failure, immunosuppressant and anti-cancer treatments [7].

The pathophysiology of RPLS is not completely clarified to this day. However, two major theories are raised. The first is the theory of cerebral hyper perfusion: a transient increase of blood pressure is typically found with a cerebral hyper perfusion as result of exceeding the limit of cerebral blood flow autoregulation, which explains the vasogenic cerebral edema, and ipso facto the neurological symptoms with rapidly favorable progression as soon as blood pleasure is under control. The second theory is that of reflex cerebral hypoperfusion (vasoconstriction, spasm, ischemia) following a systematic process (infection, transplantation, anticancer chemotherapy…). It is followed by an activation of the immune system and an endothelial dysfunction with hyper vascular permeability hence the vasogenic edema [8,9]. Other authors cite 3 theories: cerebral vasoconstriction causing brain infarctions, failure of cerebral blood flow autoregulation with vasogenic edema, and endothelial lesions with disturbance of the blood-brain barrier resulting in fluids and protein transudation to the brain [10].

The majority of patients affected by RPLS are adults. This syndrome is very rare in children. The clinical manifestations are varied and depend on the pathology to which it's associated. A high blood pressure with a diastolic arterial pressure exceeding 120 mmHg is usually observed [11].

The first neurological signs of RPLS are usually a psychomotor retardation, unusual headaches, confusion, state of lethargy, and sometimes agitation. Nausea and vomiting are present in 75% of the time. Deep tendon reflexes are hyperactive. In certain patients there can be a weakness, or even a lack of coordination of limb movements. Seizures are observed in two thirds of cases [5,11,12,13].

Lesions of posterior leukoencephalopathy can be detected by cerebral CT scan in the form of hypodensities, the magnetic resonance imaging (MRI) is considered the gold standard test. MRI provides images of very high resolution and detects focal lesions of small sizes invisible on the CT scan. Thanks to the widespread use of MRI, RPLS is more frequently diagnosed nowadays [5].

The diagnosis and fast and adequate treatment of RPLS help prevent the occurrence of neurological complications and sequels.

The treatment relying on the causal pathology of this syndrome and on stopping the triggering or aggravating factor represent the first therapeutic measure.

Conclusion

Reversible posterior leukoencephalopathy syndrome is a neurological manifestation rarely complicating an eclampsia, but it's not unusual. The favorable prognosis of RPLS, contrasting with the clinical and radiological signs, initially worrisome, justify for this syndrome to be suggested and for the management to be adequate and early.

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