Porphyria-induced Postpartum Reversible Posterior Encephalopathy Syndrome

Shri R Sharma1, Nalini Sharma2, Baikkenlang Synmon3, Yasmeen Hynniewtaya4

ABSTRACT

Acute intermittent porphyria (AIP) is a rare condition that needs to be kept in mind where its early recognition, conservative management, and removal of the precipitating factor are the key factors in its management. This “little imitator” presented with varied symptoms and is often misdiagnosed. The diagnosis requires a strong index of suspicion as choosing an antiepileptic medication in the management of seizure requires a judicial choice to avoid precipitation of the underlying illness.

Keywords: Acute intermittent porphyria, Encephalopathy, Postpartum period, Seizures.

Indian Journal of Critical Care Medicine (2022): 10.5005/jp-journals-10071-24253

An inherited defect in the heme biosynthesis pathway leads to accumulation of pathway intermediates responsible for AIP. This condition is rare affecting 1 in 75,000 people. Its diagnosis is usually missed or delayed because of its varied presentation. The disease presents with typical symptoms such as recurrent abdominal pain with focal neurological deficit or seizure. Attacks are induced by some particular medications, alcohol intake, endocrine disturbances, fasting, stress, and infections. Antiepileptic drugs and surgical interventions are the most common triggers. Posterior reversible leukoencephalopathy syndrome is a rare clinical presentation of acute porphyria. Here, we present a case of a female who suffered the first attack of AIP in the puerperium state presenting with generalized seizures, progressive paralysis, and features of PRES. Appropriate management dramatically changes the outcome in this known debilitating and potentially life-threatening condition.

CASE DESCRIPTION

A 20-year-old lady was admitted to us with the history of burning dysesthesia and tingling of her legs for the last 3–5 days. She vaginally delivered a healthy baby 40 days back. She was previously evaluated elsewhere for intermittent abdominal pain for 2 years. Nine months back, she underwent an abdominal ultrasound (USG) and computed tomography with contrast (CT) of the abdomen, which revealed cholelithiasis which was thought to contribute toward the abdominal pain. She was operated upon for this, but the pain persisted post surgery. However, she suffered two episodes of generalized grand mal seizures (GTCS) in repetitive consecutive sequences and was shifted to the critical care unit (CCU) for further management. The patient here suffered one more attack of GTCS when she was given injection lorazepam and a loading dose of levetiracetam.

The patient remained confused and an lower motor neuron (LMN) type of paraparesis was noted with absent stretch reflex. She also had intermittent episodes of aggressiveness and restlessness that were managed with benzodiazepines. Later, she developed bilateral progressive lower limb paresthesia more than the upper limbs, paraparesis, psychomotor agitation, visual hallucinations, and dysautonomia. Neuroleptics and antidepressants were prescribed initially and she developed dysarthria, dysphagia, dyspnea, and quadriaparesis. SpO2 was 82%. As respiratory failure was impending, she was promptly administered oxygen and put on mechanical ventilation under rapid sequence induction. Her SpO2 rapidly recovered to 100% after intubation. However, she was not able to breathe without supportive mechanical ventilator even after the effect of muscle relaxant had worn off. Weaning from the ventilator was unsuccessful over the next 2 weeks; henceforth, a tracheotomy was performed.

Her brain magnetic resonance imaging (MRI) was performed indicating PRES (Fig. 1). Viral markers, cerebrospinal fluid analysis, heavy metal screen like lead, arsenic and mercury, autoimmune panel like antinuclear antibodies and anti-cardiolipin were negative. Brain MRI performed in our hospital 2 weeks later revealed partial resolution of the white matter lesion. Acute intermittent porphyria (AIP) was confirmed by three times repeated Watson–Schwartz tests in urine. Subsequently, 24-hour urine quantitation of porphobilinogen (PBG) 114 mg/24 hours (normal ≤2.7 mg/24 hours), delta-aminolevulinic acid (ALA) 77.80 mg/24 hours (normal ≤6.4 mg/24 hours), uroporphyrin 746.2 μg/24 hours (normal 3.3–29.5 μg/24 hours) were significantly increased.

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How to cite this article: Sharma SR, Sharma N, Synmon B, Hynniewtaya Y. Porphyria-induced Postpartum Reversible Posterior Encephalopathy Syndrome. Indian J Crit Care Med 2022;26(6): 728–730.
Source of support: Nil
Conflict of interest: None

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Porphyria-induced Postpartum PRES

Elevated. Genetic testing identified mutation in the gene coding for hydroxymethylbilane synthase (HMBS), which manifest to development of AIP.

Neuroimaging revealed white matter scattered lesions in the bilateral parieto-occipital and frontal lobes. The patient was administered a high glucose diet and intravenous dextrose. Hematin was unavailable in hospital. However, the patient was finally successfully weaned from the ventilator with no further seizure or abdominal pain, and 1 month later, she was discharged.

**Discussion**

Acute intermittent porphyria (AIP) is one out of the seven inherited metabolic disorders of heme synthesis. Recurrent abdominal pain is its most common presenting symptom. However, these patients with recurrent abdominal pain are commonly misdiagnosed. Our patient was offered a possible diagnosis of cholelithiasis because of her recurrent abdominal pain. The presence of incidental cholelithiasis makes diagnosis more challenging. Peripheral neuropathy and seizure are the most common neurological presentation of porphyria whereas seizure is a common finding in PRES.

Posterior reversible leukoencephalopathy syndrome (PRES) in AIP is indistinct and has been found to occur due to raised blood pressure leading to autonomic nervous dysfunction.

Acute intermittent porphyria (AIP) being an autosomal dominant genetic disorder, nearly 80–90% of carriers are asymptomatic because of a mutated gene. Quantitative raised amount of PBG and ALA in urine are more trustworthy. Long-stored urine that turns resin exposure is also useful in substantiating the diagnosis.

The treatment of porphyria requires two phases: acute management and prophylactic management. Intravenous hematin is an evidence-based effective therapy during acute attack.
However, heme preparations are not available in our hospital so our patient was given conservative management and she improved with time certain antiepileptic medications—like barbiturates, valproate, diazepam phenytoin, and carbamazepine should be avoided in AIP patients presented with seizures as they are known to precipitate the disease.\textsuperscript{10,11}

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