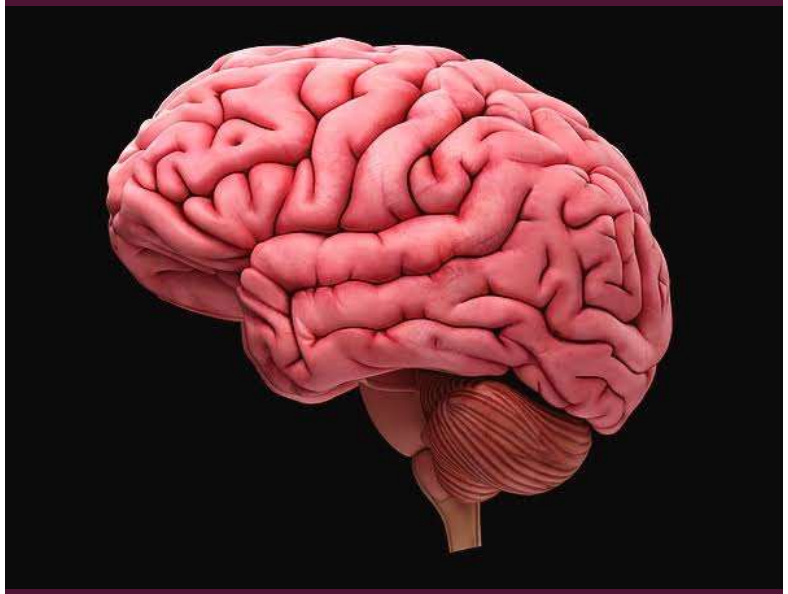
Psychiatric disorders in porphyria: A case series



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INTRODUCTION

- **PORPHYRIA** - a heterogenous group of inborn errors of metabolism that are either inherited or acquired, due to enzyme defects in the **Heme biosynthetic pathway**.

- Based on the primary site of overproduction and accumulation of porphyrin precursor, these disorders are classified as
  - **Hepatic / Acute porphyria** - **Neurological symptoms.**
  - **Erythropoietic / Cutaneous porphyria** - **Cutaneous hypersensitivity**.
- Separate genes encode distinct erythroid and nonerythroid forms of **ALA synthetase** (rate-limiting step).

INTRODUCTION

- Acute attacks are most common in **third decade** and rare before puberty; five times more common in **females** than males. Only 10-15% of gene carriers develop the clinical syndrome.
- The prevalence of acute porphyria has been estimated to be 5-10 cases /100,000 population.[1]
- The majority of attacks are precipitated by identifiable factors though some appear to arise spontaneously.
- Psychiatric manifestations occur with a high prevalence and the clinical picture is usually coloured with **clouded consciousness, paranoid features and Schizophrenia-like reactions**.
- These disorders rarely extend beyond the duration of somatic illness.

1. Bissell DM, Wang B. Acute Hepatic Porphyria. J Clin Transl Hepatol. 2015 Mar;3(1):17-26.

CASE 1

- A 37-year-old male, who recently lost his job, presented with sudden development of gross behavioral abnormalities of one-week duration.

- He was confused and disoriented.
- Spoke irrelevantly ; Restlessness.
- Unprovoked violence – 2 days
- He attacked a colleague; then hit himself on head with bottle.
- Swallowed pieces of broken glass impulsively.
- Said black magic was done by some people who wanted to kill him.
- Heard voices calling him and ordering him.
- Sleep disturbance.
- Pain in abdomen, episodes of vomiting & constipation.

CASE 1

➢ **Physical examination**

- Patient was febrile – Temp - 99°F ; Pallor.
- Confused and had altered sensorium.
- Autonomic instability in the form of
  - Profuse diaphoresis
  - Tachycardia; tachypnea
  - Labile blood pressure

    Systolic between 130-160 mm Hg
    Diastolic between 90-106 mm Hg

- Tremors.

Passing high-colored urine.

Investigations

Hb - 10 gm %
TLC – 11000/µL
Urine Positive for **Porphobilinogen.**

CASE 1

Mental Status Examination

- Ill-kempt, uncooperative male;
- Mood - anxious.
- He was perplexed, spoke irrelevantly and incoherently.
- **Persecutory delusions**.
- **2nd and 3rd person Auditory Hallucinations.**
- He was easily distractable.
- Lacked insight and judgement was impaired.

CASE 2

- 34-year-old male presented with complaints

Alcohol consumption since 5 years
- Quantity : 30-60ml English liquor
- Frequency : 1-2 times/week

- Muscle weakness,
- **Sadness of mood**
- Forgetfulness

3 months duration

- Pain in abdomen, constipation.
- Became suspicious.
- He roam aimlessly,
- Spoke irrelevantly
- Kept calling upon gods - asking them to give him divine powers.

CASE 2

➢ **Physical examination** – Autonomic hyperactivity; disoriented to time, place & person.

* Pallor * Temp - 99°F

Passing high-colored urine.

Investigations

Hb - 11 gm %
Total Bilirubin – 2 mg/dL
SGOT – 73 U/Lt
SGPT – 64 U/Lt
Urine Positive for **Porphobilinogen.**

Ultrasound Scan abdomen

- Minimal ascites
- Intestinal loops - thick hypoechoic walls with ill-defined outlines
- Mild Hepatomegaly – 15 cm

CASE 2

➢ **Mental Status Examination**

- Ill-kempt, uncooperative male;
- Mood – fearful.
- Irrelevant speech.

On serial MSE :

- Had **Persecutory delusions**.
- Altered sensorium and disorientation.
- Lacked insight and judgement was impaired.

CASE 3

- 28-year-old male, working in a strenuous . environment as a traffic police, came with complaints of

Passing high-colored urine.

- Low mood,
- Lack of energy to work,
- Hopelessness, and suicidal ideation - 3 weeks duration.
- Pain in abdomen, nausea & vomiting.

Investigations

Hb - 10 gm %
Sodium – 132 mmol/L
Urine Positive for **Porphobilinogen.**

CASE 3

Mental Status Examination

- Ill-kempt and cooperative male.
- Mood - depressed.
- Reaction time was increased. Spoke in a low tone and slowly.
- He had hopelessness and suicidal ideations.
- Insight and judgment were intact.

- All three cases did not have any past history of psychiatric illness.
- Family history did not reveal evidence of genetic loading.
- Case 2 had a history of **Alcohol Consumption**.
- All three cases had a reduced Hb level,
  - ✓ Case 1 had mildly raised TLC,
  - ✓ Case 2 had deranged LFT and USG abdomen changes,
  - ✓ Case 3 had mild reduction in Sodium levels.

❖ **Porphobilinogen (PBG)** was detected in urine by **Watson Schwartz test** in all the cases.

❖ **Acute Intermittent Porphyria** was diagnosed by Physician.

DIAGNOSIS

- The following psychiatric diagnoses were made :

CASE 1 – Organic Schizophrenia-like disorder

CASE 2 – Organic Delusional disorder

CASE 3 – Organic Mood (affective) disorder

MANAGEMENT

- Physician advised a high carbohydrate diet, intravenous glucose infusion, tab pyridoxine 100 mg daily, and various supportive measures.

- Case 1 and 2 were treated with Antipsychotics.
- Case 3 was treated with Antidepressants.

- All the individuals showed gradual but adequate responses to treatment.
- Upon remission of psychotic symptomatology, they were discharged on medications at maintenance doses.

DISCUSSION

- Hepatic / Acute porphyria usually presents with the **classical triad** of **abdominal symptoms, neurological features, and psychiatric manifestations**.
- All the 3 cases had symptoms of abdominal pain, vomiting and constipation; muscle weakness was noticed in Case 2, however, psychiatric symptoms were dominating the clinical picture.
- Psychiatric symptoms accompany the acute attacks in 25-75% of cases.[1]
- Spectrum can range from emotional disturbance to acute depression, anxiety, insomnia, restlessness, and acute confusional state progressing to **delirium**, with **hallucinations, delusions, and disorganized behavior**.

1. Narang N, Banerjee A, Kotwal J, Kaur J, Sharma YV, Sharma CS. Psychiatric manifestations in three cases of acute intermittent porphyria. Medical journal, armed forces india. 2003 apr;59(2):171.

DISCUSSION

- Psychotic developments may obscure other aspects of the disorder and lead to a primary diagnosis of depressive illness or acute schizophrenia. [2]
- The revelation of **dysautonomia** and **confusional state** at the height of the psychotic presentation in these patients led us to launch an exhaustive search for an underlying organic pathology.
- All 3 cases were passing **high colored urine.**
- Presence of **photosensitive porphyrins** or excess **alpha aminolaevulinic acid** and **porphobilinogen** in the urine is diagnostic.

2. Ellencweig n, Schoenfeld n, Zemishlany z. Acute intermittent porphyria: psychosis as the only clinical manifestation. Israel journal of psychiatry. 2006;43(1):52.

DISCUSSION

- **Precipitating factors** - reduced caloric intake, stress, infections, alcohol ingestion, hormonal changes and various psychotropic drugs like barbiturates, anticonvulsants, diazepam, valproic acid, sulphonamide, etc., exacerbate the acute attacks.[3]
- **Alcohol intake** in case 2 and **overwhelming stress** in cases 1 and 3, were the apparent precipitators in our case series.
- Recognition and avoidance of such precipitating events is a key part of the treatment program for porphyria.

3. Ware KS. Acute intermittent porphyria with psychiatric manifestations: A case report. Mental health clinician. 2013 nov;3(5):256-7.

CONCLUSION

- Porphyria is vital in psychiatry as it may present with only psychiatric symptoms; may be **disguised as psychosis**, and the patient may be treated as Schizophrenia for years.

- Aim of the presentation is to highlight the possible diagnostic dilemma in patients presenting with abdominal symptoms and psychiatric manifestations.


Thank You