

# “The Great Imitator”: A Case Of Neurosyphilis Masquerading as Acute Psychosis

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## Introduction

Neurosyphilis is a complication of untreated syphilis caused by *Treponema pallidum* invades the central nervous system that can present at any stages of disease. It is a global health concern, especially in men who have sex with men, and co-infection with HIV. Early recognition and treatment in emergency setting are crucial.

## Case Description

A 33-year-old male presented with acute behavioural changes and physical findings consistent with secondary syphilis. Empirical treatment with intravenous (IV) ceftriaxone and acyclovir was initiated. Laboratory tests revealed lymphocytopenia and raised C-reactive protein (CRP) levels. CT scan of head demonstrated a well-defined hypodense lesion in right cerebellopontine angle. Lumbar puncture was performed subsequently; however, cerebrospinal fluid (CSF) analysis was negative for syphilis. Despite this, serological tests confirmed diagnosis of syphilis. Clinical improvement was seen post-antibiotic initiation and the patient disclosed his high-risk behaviour.

## Discussion

- Clinical presentation ranges asymptomatic phase to late parenchymatous phase (general paresis, tabes dorsalis)
- CSF analysis tests - cell count, protein level and venereal disease research laboratory (VDRL) test aids in diagnosis
- Definitive and presumptive diagnostic criterias
- IV Penicillin G 18-24 million units daily for 10-14 days; IV Ceftriaxone may consider as alternative while awaiting confirmatory tests

## Conclusion

Neurosyphilis need to be considered in patients presenting with neuropsychiatric symptoms, especially those at risk. Early recognition and timely initiation of antibiotic therapy are keys to prevent irreversible neurological damage and improve clinical outcomes.

**Table: Clinical manifestation of neurosyphilis according to stages**

| Sites affected                   | Clinical syndrome & manifestation |  | Onset time   | Radioimaging Findings   |
|----------------------------------|-----------------------------------|--|--------------|---|
| <b>Early Neurosyphilis Stage</b> |                                   |  |              |   |
| CSF                              | Asymptomatic                      | Asymptomatic   | -            | Normal  |
| Meninges                         | Syphilitic meningitis             | Meningeal symptoms<br>Syphilitic gumma<br>Cranial neuropathies                       | < 2 years    | Meningeal enhancement<br>Hydrocephalus<br>Cranial nerve enhancement   |
| Cerebral/spinal cord vasculature | Meningovascular syphilis          | Meningeal symptoms<br>Stroke manifestations  | 5 - 10 years | Thickening of leptomeninges<br>Perivascular lymphocytic infiltrates<br>Evidence of vasculitis<br>Area of infarction |
| <b>Late Neurosyphilis Stage</b>  |                                   |  |              |   |
| Spinal cord                      | Tabes dorsalis                    | Neuropathic pain in the legs<br>Progressive sensory ataxia<br>Argyll Robertson pupil | > 10 years   | Abnormal spinal cord signal in the posterior column   |
| Brain                            | General paresis of insane         | Encephalitis<br>Dementia<br>Psychosis<br>Cognitive impairment<br>Flaccid paralysis   | > 10 years   | Cortical atrophy<br>Dilatation of lateral ventricles  |

## Reference

1. Syphilis - STI treatment guidelines, Centers for Disease Control and Prevention (CDC).
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**Figure: Non-pruritic maculopapular rash**



**Flow chart: Diagnostic criteria in Neurosyphilis**

