

Case report

A peculiar case of neurosyphilis presenting with general paresis of the insane with concurrent untreated HIV infection

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Abstract

General paresis of insane or dementia paralytica is a rare conventional manifestation of neurosyphilis. In the era of penicillin and HIV it is a challenge to observe and diagnose typical presentations of neurosyphilis.

42-year-old single male presented with an acute behavioural disturbance with hearing voices in a background of rapidly progressing forgetfulness and functional deterioration to the extent of needing support for his activities of daily living with urine incontinence for nine months duration. His behavioural change had first started with distressing insomnia leading to consumption of alcohol 30 units a day. Gradually displayed disorganised and disinhibited behaviour with some overactivity and was treated as a mood disorder with poor response and rapid deterioration of functioning.

Investigations revealed marked impairment of frontal lobe and dominant parietal lobe functions in extended cognitive assessment. Blood investigations revealed normocytic normochromic anaemia with raised inflammatory markers: CRP, ESR, CPK with normal

thyroid function. Syphilis serology was positive. Subsequently the examination carried out by an eye surgeon detected ocular syphilis. CSF analysis was negative for syphilis and the changes were most likely related to the untreated HIV infection with a CD4 count of 104 cells/ μ L. Neuroimaging showed generalized cortical atrophy with enlarged ventricles. He was treated for neurosyphilis as well as and treatment for HIV was initiated, but there was minimal improvement.

Conclusions

Neurosyphilis remains as an important aetiology to be considered in rapidly progressing dementia in young patients. Comorbid HIV infection worsens the severity and prognosis.

Keywords: general paresis of insane, neurosyphilis, neurocognitive disorders, HIV infection and neurosyphilis

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Introduction

Neurosyphilis though still an important aetiology in rapidly progressing dementia is obscured with co-occurring HIV infection in a majority of presentations. We report a case with clinical features suggestive of general paresis of insane which presented as a diagnostic and treatment challenge due to comorbid HIV infection and advanced presentation.

Case report

A 42 year old single male, employed as a cook in a government university located about 50km away from his home town of Giri Ulla, presented with a history of progressive functional decline and memory impairment

over last 9 months duration. He had initially developed poor sleep which had been distressing and had started to consume alcohol, claiming in order to improve his sleep. His alcohol consumption had increased gradually and until he consumed 30 units of alcohol daily. He was becoming forgetful and disorganized and left his job and came to live with his sister.

His behaviours continued to worsen at home and he appeared to be disinhibited and hyperactive and was noted to be incontinent of urine as well. With deterioration of his functioning he stopped alcohol use abruptly. He was unable to independently perform his basic day to day activities such as self-care, grooming and needed prompting to feed himself. He also frequently tried to wander away from home.

Table 1. Investigations

Investigation	Result
EEG	Findings are suggestive of mild diffuse cortical dysfunction as in encephalopathy (metabolic, toxic, neurodegenerative, hypoxic, traumatic) or encephalitis.
NCCT brain	Cerebral atrophy
VDRL	Weakly reactive
TPPA	Positive
HIV - ELISA	Positive
Western blot	Positive
HIV viral load	Detectable
CD4 count	104 cells/mm ³
TSH	0.106 mIU/ml
FT4	1.00 ng/dL
Full blood count	WBC – 3.68, Neutrophils – 1.59, Lymphocytes – 1.45, Monocytes – 0.39, Eosinophils – 0.23, Hb – 9.9g/dL, HCT – 29.6, MCV – 86.5 fL, MCHC – 33.4 g/dL, MCH – 28.9 pg, Platelets – 164
Blood picture	Mild normocytic normochromic anaemia with features of infection/ inflammation
Serum ferritin	298.7 ng/mL
Total cholesterol	140 mg/dl
Fasting blood sugar	100mg/dL
Liver function tests	Normal
ESR	125mm/1 st hr – 70mm/1 st hour
Chest X ray	No evidence of TB detected
Stool culture	no salmonella/shigella species identified
Wound swab	no pathogens isolated
Urine full report	Albumin trace, Pus cells >100, Red cells – 2-3, Epithelial cells +
CRP	43.2
Gene X pert	Negative for tuberculosis
CSF analysis	CSF full report – colourless, clear, WBC – 1/mm ³ , RBC – 93/ mm ³ , Lymphocytes 0%, Neutrophils 0%, Protein – 11mg/dl, Sugar – 47mg/dl Culture – no growth Cytology – no cells with a diagnostic value was detected VDRL – non reactive TPPA – Negative CMV PCR – CMV specific DNA not detected Gene Xpert – Negative
RBS	89mg/dl

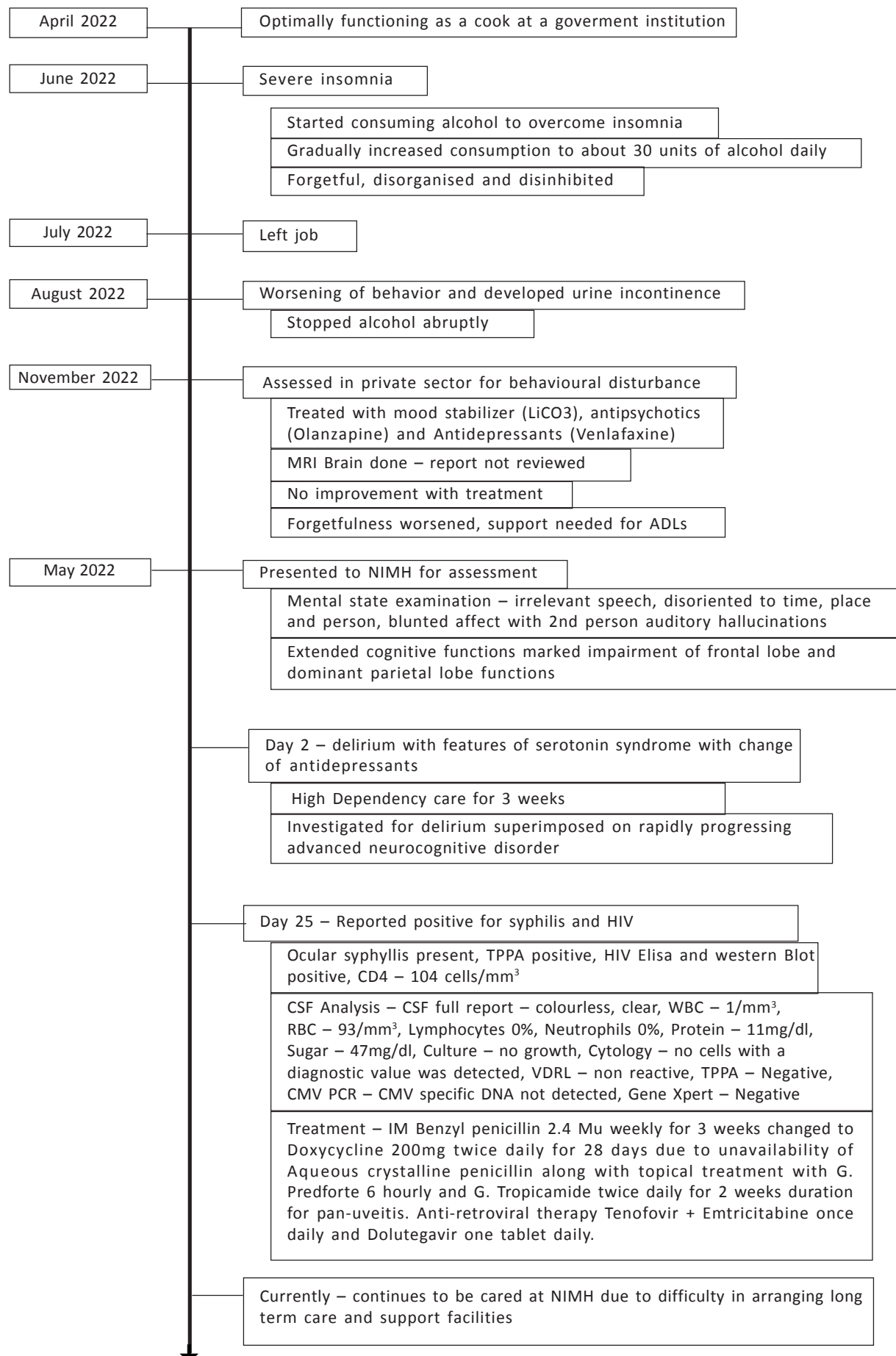


Figure 1. Timeline of events.

There is no history of mental illness in his past or in family. Sexual history which is a core element for this case was difficult to obtain from the patient due to his disabilities and family was unable to provide collateral information.

In November 2022, he was assessed in private sector and was started on lithium carbonate, olanzapine, venlafaxine and an anti-inflammatory analgesic (Nucxia). A diagnosis had not been made at the time and treatment was directed at managing a mood disorder. A MRI scan of the brain was done at a private hospital but the report was not followed up, and was continued on the same treatment for several months by the family.

As he continued to deteriorate despite treatment he was brought to NIMH for further assessment.

On presentation, he appeared well groomed and cared for but smelled of urine. There was no disinhibition or overactivity. It was observed that his speech was irrelevant with a reduced spontaneity and rate, tone and volume. His affect was blunted and reactivity was reduced. He was able to report hearing a voice of a male asking him if he has had meals but no other auditory hallucinations were reported. He was disoriented to time, place and person and lacked insight.

The extended cognitive assessment revealed impairment of frontal lobe functions of abstraction, conceptualization, lexical and categorical fluency and showed perseveration in the clock drawing test. He also had astereognosis, agraphesthesia and acalculia with left-right disorientation on testing. The neurological assessment revealed a hyperreflexia only. He needed prompting for daily activities. A tentative diagnosis of advanced neurocognitive disorder was made while evaluating for causes (Refer to Table 1 – Investigations).

He was started on IV thiamine 500mg TDS as there was a history of abrupt cessation of alcohol and was continued on olanzapine 10mg nocte from his usual drug regime and started on sertraline 50mg mane. On day two of the admission he developed delirium which was thought to be contributed by serotonin syndrome and ongoing chest infection. He was treated in high dependency care with broad spectrum intravenous antibiotics ceftriaxone and metronidazole for 10 days and was taken off all psychotropic medication.

As the initial blood investigations were positive for VDRL and HIV, he was referred for venereology opinion. Both syphilis and HIV screening and confirmatory tests were positive. He was started on anti-retroviral therapy Tenofovir + Emtricitabine once daily and Dolutegavir one tablet daily. The MRI brain which was done at the onset of his illness in private sector could not be traced as records had been removed.

For latent syphilis he was given IM benzyl penicillin 2.4 Mu weekly for 3 weeks and was started on treatment for neurosyphilis with doxycycline 200mg twice daily for 28 days due to unavailability of Aqueous crystalline penicillin along with topical treatment with G. Predforte 6 hourly and G. Tropicamide twice daily for 2 weeks duration for pan-uveitis (Figure 1 – Timeline of events).

Following the treatment course his cognitive assessment was repeated but there was no improvement of abilities. He also remained in need of continuous supervision with support for activities of daily living.

Discussion

Neurosyphilis is one cause of rapidly progressing dementia with early onset however uncommon in post penicillin era (1). With comorbid HIV infection, the severity of neurosyphilis is worsened with some changes in the presentation which facades the diagnosis (2). Improvement of functioning with treatment depends on the severity at presentation. In our patient the classical presentation of General Paresis of the insane was observed in the history with rapid progression into an advanced dementia within 9 months of onset. He also demonstrated signs of ocular syphilis however CSF analysis reported negative for TPPA and VDRL. Blood investigations which were done relatively early on the admission reported positive syphilis serology. Ceftriaxone which is a beta lactam antibiotic has been widely researched as a substitute for penicillin therapy for syphilis and also has better penetration for CSF (3). Most studies have reported comparisons between penicillin therapy and ceftriaxone 2g daily treatment for 10 - 14 days (3). Our patient was given IV ceftriaxone 2g daily for 10 days and the CSF analysis was performed about 2 weeks later after completing the antibiotic course while as the blood investigations were performed earlier in the admission. This may explain why we failed to demonstrate syphilis serology in the CSF analysis even though evidence of ocular syphilis was present. In addition, it is likely that the co-infection of HIV also complicated the results of the CSF analysis.

Despite treatment for both neurosyphilis and HIV his cognitive and physical functioning remained same which could be explained by the advanced stage of presentation with marked neuronal damage and loss.

Conclusions

Neurosyphilis remains as an important aetiology to be considered in rapidly progressing dementia in young patients. The presentation and the diagnostic process may be complicated with the presence of comorbid HIV and other opportunistic infections and treatment with broad spectrum antibiotics. Advanced and complicated presentations have a poor prognosis with standard treatment.

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Statement of contribution

All authors contributed in conceptualising the case, collection of data and interpretation, drafting of the manuscript and final revisions of the manuscript for publication.

Declaration of interest

There are no conflicts of interest.

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