

## INTRODUCTION

Syphilis is known as the "great masquerader," due to its variable clinical presentation. We describe the case of an immunosuppressed patient amidst the COVID-19 surge presenting with headache.

## CASE DESCRIPTION

A 40-year-old male with AIDS, on antiretroviral therapy, and prior cytomegalovirus colitis presented with a four-week history of headache during the peak of COVID-19 surge at our institution. Symptoms described as gradual in onset but progressively worsening, intractable, sharp, constant bifrontal headache radiating to both eyes. He reported no aggravating factors or relieving factors, no neck stiffness, photophobia, phonophobia, positional and diurnal variation. Additionally, review of systems was negative for fever, chills, diarrhea, nausea, or changes in smell or taste. Sexual history was significant for men who have sex with men (MSM), currently monogamous.

On presentation vital signs were stable, including afebrile and maintaining oxygen saturation on room air. Physical examination findings included normal ocular, cranial nerve, fundoscopic, and visual fields exams. His neck was supple with full range of motion, without tenderness or meningeal signs. Motor and sensory examination, as well as cerebellar function was intact. No skin or genital lesions were present.

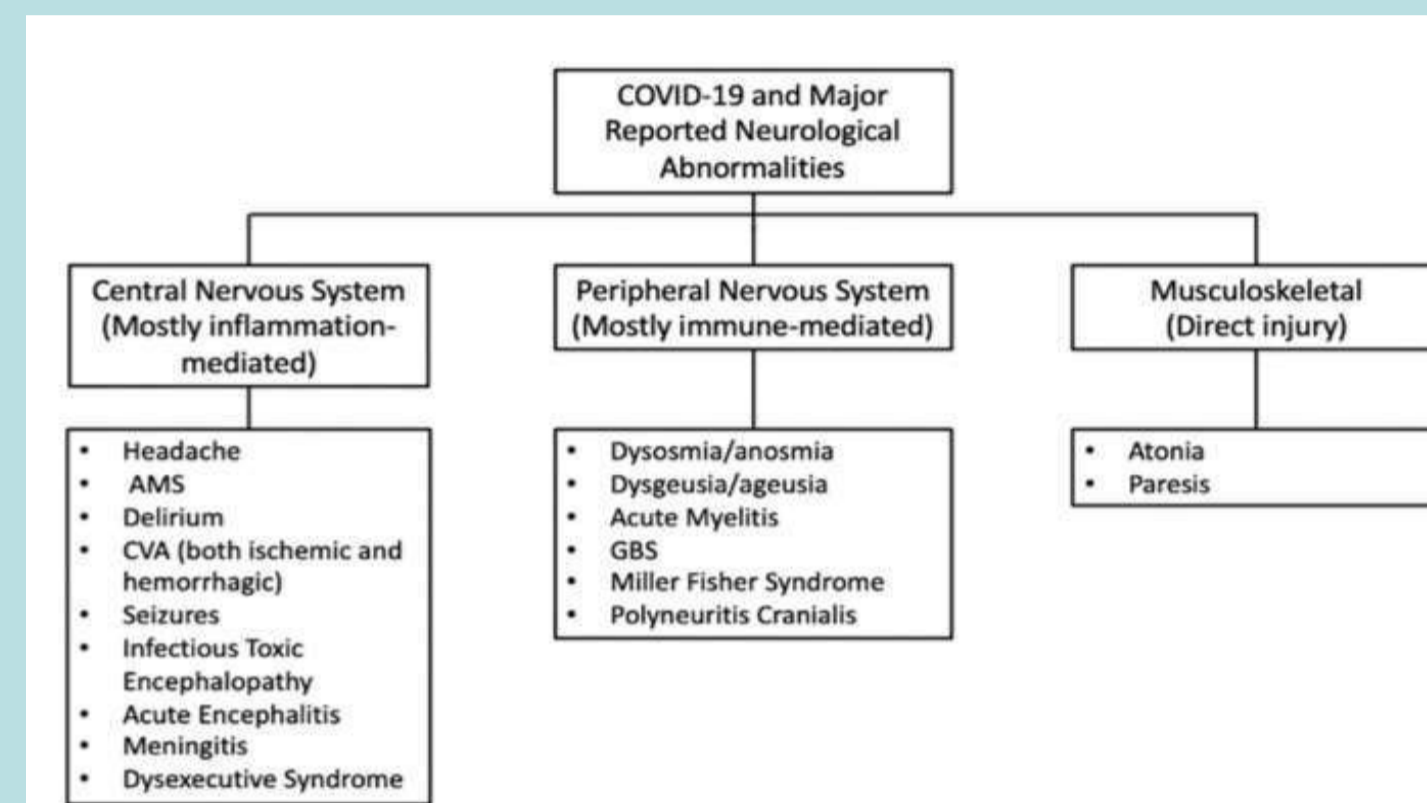
Lab work revealed CD4 of 227, HIV Viral Load 23 copies/ml, but otherwise normal CBC, hepatic, and renal function. Inflammatory markers were elevated, COVID-19 nasal PCR was positive, non-contrast CT head was negative for any apparent acute process. MRI was unobtainable due to COVID-19 restrictions at that time, and lumbar puncture (LP) was declined by the patient.

During the hospital course headache was improved and he was discharged in stable condition with symptom resolution by day two with a diagnosis of symptoms associated with COVID-19.

## OUTPATIENT CLINICAL COURSE

During outpatient follow up, the patient remained headache-free with normal neurological examination. Serum Rapid plasma regain (RPR) was reactive (1:128), Fluorescent Treponemal Antibody Absorption (FTA-ABS) was reactive and out of clinical suspicion, LP was obtained which showed lymphocytic pleocytosis in the cerebrospinal fluid, and a reactive Venereal Disease Research Lab Test (VDRL) was found, thereby confirming the diagnosis of early symptomatic neurosyphilis. He was treated with IV Penicillin-G for 10 days. Post-treatment follow-up titers are awaited. Patient remains symptom free.

## NEUROCOVID VS NEUROSYPHILIS



## CSF PROFILE IN NEUROSYPHILIS

	NEUROSYPHILIS OUR CASE	NORMAL
GLUCOSE	56 mg/dl	40-70 mg/dl
PROTEIN	81 mg/dl	15-45 mg/dl
CELL COUNT	WBC - 20 , 1 RBC cells/microL	0-5 cells /microL
CELL TYPE	Lymphocytes - 98%	0-5 Lymphocytes
VDRL	Reactive 1:2 titres	NON REACTIVE

## DISCUSSION

This case highlights the importance of including syphilis on the differential when encountering a patient presenting with a headache, particularly in those with high risk behaviour such as HIV and MSM.

Clinical suspicion and CSF analysis are keys to diagnosing neurosyphilis.

Studies recommend LP for all patients with concomitant HIV infection and syphilis, regardless of stage, particularly those with serum RPR  $\geq 1:32$ , CD4+ T $\leq 350$ /microL, detectable plasma HIV RNA, or those not on antiretroviral.

To ensure CSF penetration, neurosyphilis is treated with an intensified regimen of 1.8–2.4 MU procaine penicillin intramuscularly once with oral probenecid 500mg or inpatient treatment can be given with benzyl penicillin as 1.8–2.4g intravenously every 4hours for 10–14 days.

Post treatment titres should be repeated at least 6 months. Persistent pleocytosis after treatment without alternative explanation probably need retreatment.

With the onset of COVID-19 several studies established the involvement of CNS during the course of COVID-19 infection leading to a specific manifestation of disease termed Neuro-COVID with neuroinvasive potential presenting with symptoms attributed to meningoencephalitis, encephalomyelitis and acute myelitis which may overlap with other disease processes such as Neurosyphilis.

## CONCLUSION

This case reemphasizes the importance of avoiding anchoring heuristic when encountering nonspecific symptoms in a patient amidst COVID-19 pandemic, diagnostic and radiographic limitations, and overlapping symptomatology.

## REFERENCE

1. Tancheva L, Petralia MC et al, Emerging Neurological and Psychobiological Aspects of COVID-19 Infection. Brain Sciences 2020, 10, 852
2. Hobbs E, Vera JH et al, Neurosyphilis in patients with HIV. Pract Neurol 2018;0:1-