

Progressive Multifocal Leukoencephalopathy (PML)



PLAY PICMONIC

Pathophysiology

Demyelination of CNS

[Unraveling-myelin on CNS-brain](#)

PML is a disease of the central nervous system that involves demyelination and is typically caused by the reactivation of the JC virus in immunosuppressed individuals.

Reactivation of JC Virus

[JC-on-a-penny](#)

PML is affiliated with the reactivation of those previously infected with the JC virus. The immunosuppressive state (e.g., HIV) of an individual triggers the reactivation of the virus, thereby allowing for the destruction of oligodendrocytes and, thus, the demyelination of the CNS.

Clinical Features

Neurologic Deficits

[Defective-neuron](#)

PML can involve myriad symptoms, including neurological deficits (e.g., hemiplegia, ataxia, aphasia), seizures, vision changes, encephalopathy, and altered mental status. These symptoms can be slow in onset and progress over several weeks.

Seizure

[Caesar](#)

PML can involve various symptoms revolving around neurological deficits, seizures, vision changes, encephalopathy, and altered mental status. These symptoms can be slow in onset and progress over several weeks.

Vision Changes

[Delta Eyes](#)

PML can involve a myriad of symptoms, including neurological deficits (e.g., hemiplegia, ataxia, aphasia), seizures, vision changes (e.g., hemianopsia), encephalopathy, and altered mental status. These symptoms can be slow in onset and progress over several weeks.

Encephalopathy

[Altered Brain](#)

PML can involve a myriad of symptoms, including neurological deficits (e.g., hemiplegia, ataxia, aphasia), seizures, vision changes, and encephalopathy, which can lead to AMS and dementia. These symptoms can be slow in onset and progress over several weeks.

Diagnosis

Brain MRI or CT

[Brain M-R-eyes and Cat-scanner](#)

The preferred method of diagnosis involves an MRI with and without the presence of gadolinium contrast. An MRI is more sensitive to white matter lesions, though a CT with contrast can also be ordered.

CD4 Count

[CD \(4\) Fork-Helper T Cell](#)

A CD4 count should be obtained in those with suspected PML in order to assess immunological and HIV status. In those with HIV, PML is usually in those with a $CD4 < 200$.

CSF Sample

[Brain-Spine-Fluid Sampler](#)

The diagnosis of PML can also involve a sampling of CSF, which can detect the JC virus via PCR. CSF, in combination with clinical and radiological findings, can also be sufficient for diagnosis.

Treatment

Supportive Care

[Supportive IV Bags](#)

PML treatment revolves around supportive care to address clinical symptoms. In those with HIV, ART should be started immediately. Unfortunately, despite treatment, PML has a high mortality rate with a median survival of less than one year.

ART Therapy

[Graffiti Art](#)

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