

# Transverse Myelitis in HIV Patient: A Case Report

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## Abstract

Transverse myelitis is an uncommon neurological condition characterized by the inflammation of the spinal cord causing destruction to the myelin sheath. Acquired immunodeficiency syndrome can be a risk factor for this unusual disease. In later stages of AIDS, HIV myelopathy can be presented with diminished CD4 counts. We report the case of a 47-year-old male patient with H/O HIV and Hypertension presented with the complaints of asymmetrical limb weakness, followed by involuntary bowel and bladder habits, decreased bladder sensation, and intermittent fever. At the time of admission, the patient was found to have features of myelopathy and after various modalities of evaluation the patient was initiated on the treatment for the same. Being a rare case, this case report has great importance. Also, treatment of multiple diseases with multiple drug therapy remains a major challenge for physicians.

**Keywords:** AIDS • Transverse myelitis • HIV myelopathy • Opportunistic infections

## Introduction

Transverse Myelitis (TM) is a rare neurological condition characterized by inflammation of the spinal cord causing damage to myelin sheath [1-8]. The presenting symptoms are the weakness of sudden onset, bowel /bladder disorder, and sensory abnormalities. The etiology can be divided broadly into idiopathic, post-infectious (viral, bacterial, fungal), and various inflammatory conditions [9]. Complications of transverse myelitis are more commonly observed in AIDS patients with severe immunosuppression and are manifested as motor, sensory and autonomic impairment below the level of the lesion [5]. HIV Myelopathy appears in advanced stages of HIV infection with diminishing CD4 counts and is characterized by weakness in the lower extremities, gait abnormalities, urinary incontinence, and erectile dysfunction [7]. Pulmonary Aspergillosis and *Pneumocystis jirovecii* pneumonia are opportunistic fungal infections caused by *Aspergillus* (mainly *Aspergillus fumigatus* and *Aspergillus niger*) and *Pneumocystis* (mainly *Pneumocystis jirovecii*) fungal species respectively [1,2]. It usually affects people with weakened immune systems such as advanced stages of Acquired Immunodeficiency Syndrome (AIDS), acute leukemia, organ, and bone marrow transplantation [3]. Here we report the case of a middle-aged man with AIDS, Aspergillosis, *Pneumocystis* Pneumonia, and Transverse myelitis and this indeed has a great clinical significance.

## Case Presentation

A 47-year-old male patient with HIV infection presented with complaints of asymmetrical progressive lower limb weakness, decreased bowel and bladder sensation, involuntary passage of urine and stools, and intermittent fever. His medical history was characterized by Acquired Immunodeficiency Syndrome and Hypertension. He has been retroviral positive for the past 7 years and was not on regular medication. At the time of admission, the patient was found to have features of myelopathy and was investigated further for the same. Upon examination, the patient had hypertonia with an extensor plantar response, weakness (knee-grade 2, ankle-grade 1), impaired pain and vibration of

both lower limbs. The patient also had decreased sensation asymmetrically (left>right). Since the patient had a sensory level at D7, it was considered to be spinal cord myelopathy. The patient was evaluated with MRI studies, CSF analysis, and bone marrow biopsy. MRI revealed features of transverse myelitis. CSF showed cell count-100cell, Glucose-44, and Protein-96 and was suggestive of infective or inflammatory causes. The patient developed pancytopenia and long-standing fever for which bone marrow biopsy was performed and was suggestive of lymphoma.

Also, CT chest and abdomen revealed mediastina, bilateral axillary, submandibular, retroperitoneal, and bilateral inguinal lymphadenopathy which favoured lymphoma. Later the patient developed severe breathing difficulty, saturation fall in room air, tachypnoea, and was shifted to ICU. Due to worsened breathing difficulty, the patient was mechanically ventilated. The patient had persistent high-grade fever, sweating and multiple episodes of seizures. Due to impaired acid-base balance and anuria, renal replacement therapy was initiated. Bronchoscopy was done; sample collection was done for gram stain, fungal stain, KOH, AFB smear, and PCP silver stain were done. Endoscopy was performed in view of rules tube induced gastric erosion. Kaposi sarcoma was suspected as the patient had an erythematous plaque with scleral erosions with yellowish crust and a skin biopsy was done which was negative. In due course his respiratory status deteriorated and he developed Multi-Organ Dysfunction Syndrome (MODS) with worsening pancytopenia and Glasgow coma scale drop. He was on inotropic support.

## Investigations

### Immune deficiency panel:

- Absolute Lymphocyte count-618/uL
- Absolute CD 3-457/uL
- CD4-1.27 %
- Absolute CD 4-8/uL

### Cerebrospinal fluid:

- CSF cell count-100 cell
- Glucose-44
- Protein-9

## Radiology

### CT chest:

- Bilateral diffuse peribroncho-vascular ground-glass opacification with patchy air space consolidation independent regions of both upper and

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lower lobes-likely Pneumocystis pneumonia;

- Bilateral mild pleural effusion with mild right major fissural effusion;
- Mediastinal, bilateral axillary and submandibular lymphadenopathy-to rule out neoplasm.

**CT abdomen:**

- Mild hepatosplenomegaly, ascites, acalculous cholecystitis
- Retroperitoneal and bilateral inguinal lymphadenopathy-to rule out Lymphoma

**USG abdomen:**

- Mild hepatomegaly
- Mild to moderate splenomegaly
- Diffuse bladder wall thickening? Chronic cystitis/secondary to chronic urinary retention

**Culture report:**

- Bronchoalveolar lavage-Moderate pus cell, gram-positive cocci in pairs.
- Endotracheal aspirate-Clinically suspecting *pneumocystis jirovecii pneumonia*, but cell block section shows few scattered yeast forms, suggestive of candida.
- Endotracheal culture-Culture yields predominant growth of *Aspergillus fumigatus*.
- Blood parasites (Malaria)-Negative.
- Urine culture-No bacteria.

- Bone marrow biopsy: Suggestive of lymphoma.

**Anti-nuclear antibody profile:**

- ANA-Weak positive nucleolar
- Anti-DS DNA-Normal

**Other tests:**

- ACE-Normal
- Anti-Thyroid globulin-Normal
- ESR-60
- RA Factor-Normal

**Treatment**

On admission, the patient was initiated with a HAART regimen (Lamivudine 300 mg, Tenofovir 300 mg, Efavirenz 600 mg). As he was diagnosed with transverse myelitis, he was treated with IV steroids (Inj. Dexamethasone 8 mg TID). Given the positive culture for *Aspergillus fumigatus* from the Endotracheal tube, he was treated with Inj. voriconazole 200 mg BD. Inj. Sulfamethoxazole and trimethoprim (480 mg TDS) to treat pneumocystis pneumonia. Subsequently, the patient developed pancytopenia and hence was changed to Inj. Clindamycin and Primaquine. Broad-spectrum IV antibiotics were given because of respiratory worsening. Sustained low-efficiency dialysis was started due to low output level. Platelet transfusion was done due to progressive thrombocytopenia (Table 1).

**Discussion**

Neurologic complications develop in a vast majority of patients with HIV

Table 1. Laboratory investigations.

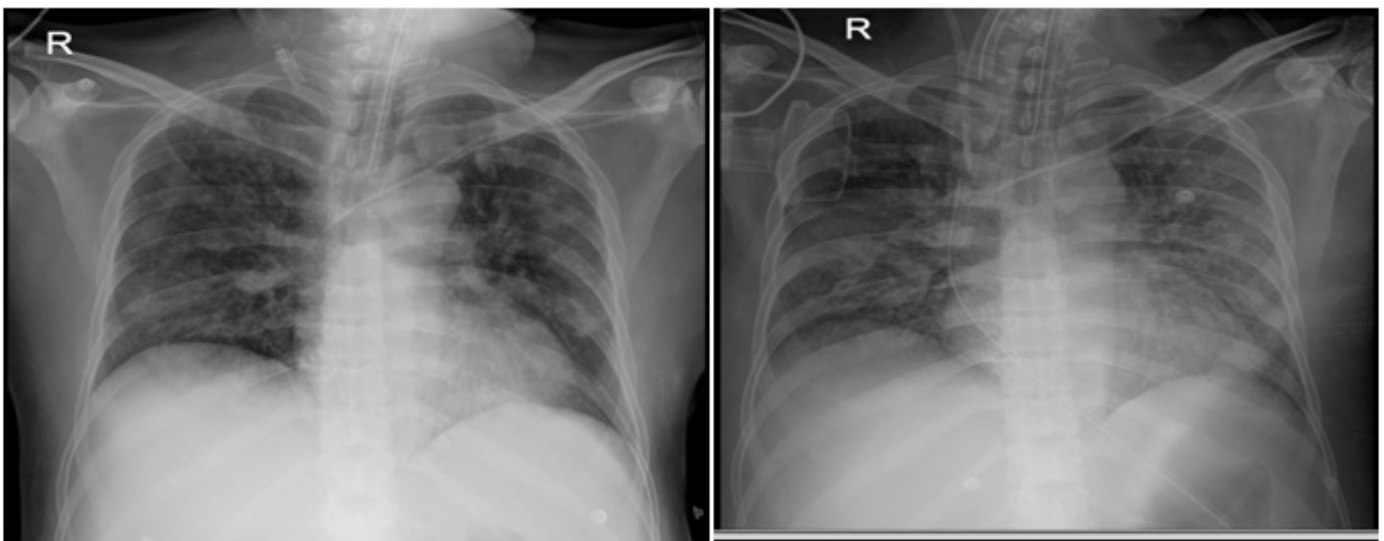
Parameters: Hematology	Day 1	Day 8	Day 13	Day 17	Day 18	Day 20	Day 21	Day 23	Day 24
Hb (g%)	6.8	7	7.7	8.1	5.9	7.6	7.7	6.7	6.5
PCV (%)	20.6	20.1	22.8	23.9	20.7	21.7	22.4	18.9	18.7
TLC (Thousands/cumm)	3.5	6	5.5	2.6	2.6	2	1.4	0.7	0.9
DLC									
N (%)	83.14	85.54	85.19	82.99	85.66	91.72	69	49	-
L (%)	8.39	6.92	6.17	7.36	5.44	11.24	24	29	-
E (%)	0.02	0.06	0.12	1.79	0.41	0.13	1	-	-
Platelet (Thousand/cumm)	227	97	51	18	20	12	16	17	17
CRP (mg/l)	24.5		59.6	179.3	88.7	25.3	48.7	-	226.3
Parameters: Electrolytes	Day 8	Day 13	Day 17	Day 18	Day 20	Day 21	Day 23	Day 24	
Serum sodium (mmol/l)	123	137	151	135	132	134	135	137	
Serum magnesium (mmol/l)	1.8	2.3	-	-	-	1.4	-	2.3	
Serum Potassium (mmol/l)	4.4	3.8	3.2	3.2	3.2	4.2	3.9	3.7	
Inorganic Phosphorous (mg/dl)	-	1.9	3.6	-	-	0.5	-	4.6	
Serum calcium (mmol/l)	7	6.6	-	-	-	8.1	-	-	
Parameters: RFT and LFT	Day 1	Day 8	Day 13	Day 17	Day 18	Day 20	Day 21	Day 23	Day 24
Urea (mmol/l)	-	37	31	31	25	24	44	31	82
Creatinine (mg/dl)	0.8	0.7	0.7	1.2	1	0.9	1.2	0.8	1.9
Total Bilirubin (mg/dl)		8.2	4.1	3.3	-	9.6	8.3	-	-
Direct Bilirubin (mg/dl)	-	1.4	3.8	3.1	-	7.7	7	-	-
SGOT (IU/L)	125	165	106	167	-	129	149	-	-
SGPT (IU/L)	-	125	64	92	-		36	-	-
ALP (IU/L)	-		309	260	-	257	400	-	-
Albumin (mg/dl)	-	2.4	1.8	1.7	-	2.3	2.2	-	-
Globulin (mg/dl)	-	3	2.7	2.8	-	2.2	2.4	-	-
Total protein (mg/dl)	-	5.4	4.5	4.5	-	4.5	4.6	-	-

infection and it involves both the central and the peripheral nervous systems. Rarely, HIV may manifest as sub-acute or acute transverse myelitis as the presenting symptom [8]. HIV causes immunodeficiency and results in the elevated occurrence of opportunistic infections. Due to the increased risk of opportunistic infection, HIV is associated with a high mortality rate. In this case, the patient was diagnosed with HIV a few years back and was on irregular medications. As a result, his immune system deteriorated and there was a declining trend in the CD4 counts. Subsequently, he developed transverse myelitis. This patient was admitted with complaints of limb weakness, urinary incontinence and bowel and bladder dysfunction which are likely to be manifestations of transverse myelitis. The patient was evaluated further for transverse myelopathy. MRI revealed multiple lesions confirming transverse myelitis (Figure 1).

As the patient had transverse myelitis in the background of longstanding HIV infection, the possibilities considered were retroviral infection, autoimmune, malignancy-associated TM. CSF studies were suggestive of infective aetiologies as there was no inflammatory pleocytosis. Antiretroviral therapy was

initiated. As the patient developed pancytopenia bone marrow studies were done which was suggestive of lymphoma. Also, imaging studies revealed lymphadenopathy at multiple sites which were also suggestive of lymphoma. Since the patient's condition worsened and developed sepsis with multi-organ dysfunction, chemotherapeutic treatment for lymphoma was deferred. PET scan was also not performed as the patient was on inotropic supports. Since the patient had very low CD4 counts the possibility for malignancy/lymphoma induced TM would be higher than the autoimmune cause.

The patient's breathing difficulty and deterioration of his respiratory status are likely to be due to Pneumocystis pneumonia that developed as an opportunistic infection. Clinical and radiological findings supported the same. Also, PCP is a common etiology that can cause a sudden worsening of the chest in HIV-infected individuals. Treatment for the same was initiated with Cotrimoxazole. Broad-spectrum IV antibiotics were also given because of worsening respiratory conditions. The possibility of IRIS was also considered as HART was initiated and hence steroid treatment was continued. As part of MODS patient had acute kidney injury and dialysis was initiated (Figure 2).



1A

1B

Figure 1. A: Chest X-Ray observed on day 8; B: Chest X-Ray observed on day 17.

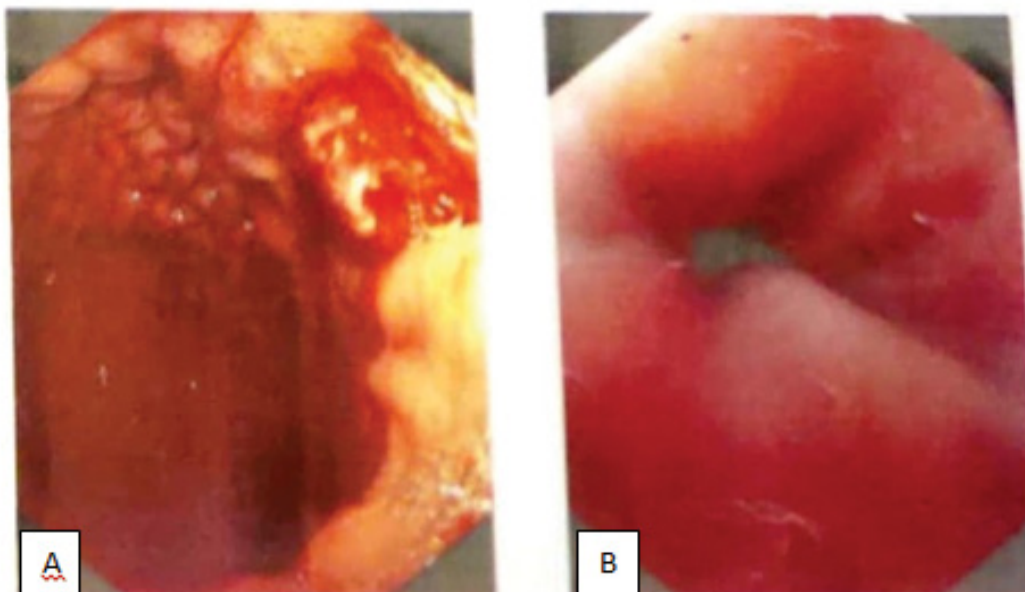


Figure 2. Ryles tube induced gastric erosion; A: Fundus: A small area of mucosal erosion with sloughed-off mucosa and hemorrhagic spot seen along the greater curvature; B: Body: Linear erosion is seen along the greater curvature.

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## Conclusion

This case report sheds light on our experience with an HIV patient who developed TM. Unfortunately, the treatment modalities for HIV associated TM were limited and the prognosis was unsatisfactory. The displeasing improvement of the patient indicates the necessity of appropriate management and further research in this arena for attaining a better therapeutic outcome.

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