



TOXOPLASMA ASSOCIATED IRIS CAUSING POLYMYOSITIS: A CASE REPORT

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ABSTRACT

Toxoplasma gondii is one of the infectious parasites distributed worldwide. This infection generally affects immunocompromised patients most commonly in Acquired Immunodeficiency syndrome (AIDS). It develops due to reactivation known as Immune Reconstitution Inflammatory Syndrome (IRIS) due to Antiretroviral therapy (ART). Here we describe a 30 year old male diagnosed with AIDS on ART with *Toxoplasma* Polymyositis due to IRIS. It's a diagnostic challenge and a rare case reported in the literature.

KEYWORDS : *Toxoplasma*, Polymyositis, IRIS, AIDS

INTRODUCTION

Toxoplasmosis is a zoonosis caused by *Toxoplasma gondii* one of the infectious parasite distributed worldwide (1)

It is a ubiquitous intracellular protozoan which infects 15 to 85% of the adult humans depending on the immune status and geographic location (1). It is mostly asymptomatic in immunocompetent patients, however it is a well recognized illness among patients with Acquired Immunodeficiency Syndrome (AIDS) (1,2).

It infects humans by ingestion of under cooked meat contaminated by tissue cysts. Patients with AIDS are at increased risk of developing acute toxoplasmosis due to reactivation known as IRIS (Immune Reconstitution Inflammatory Syndrome) (3)

This reactivation and IRIS is seen when CD4 count \leq 50 cells/mm³ and *Toxoplasma* IgM and IgG are negative. (3)

The main organs infected by the parasite are brain, myocardium, retina, lymphnode and very rarely skeletal muscle (4).

So, we hereby describe a case of *Toxoplasma* polymyositis in a patient of AIDS.

Case Report

A 30 year old unmarried male truck driver by profession newly diagnosed case of HIV was started with Antiretroviral therapy (ART). He was admitted with chief complaints of fever, muscle pain and weakness in all four limbs for 3 months which was insidious in onset but progressive.

He had no past history of Tuberculosis and Herpes zoster. His personal and family history were non significant. On admission, he was afebrile, vital parameters were within normal limits. No pallor/ icterus/ lymphadenopathy/ edema/ scars/ rash. Oral thrush and severe muscle tenderness was present all over the body. Neurological examination revealed normal higher function, 3/5 power in all 4 limbs, absent all deep tendon and plantar reflexes. Sensory examination and spinal examination were normal. Cranial nerve examination revealed ptosis of right eye, loss of gag reflex, nasal twang in voice, poor neck holding.

All blood investigations were within normal limits, however Blood urea 62mg% (5-20mg%), ALP 154 IU/L (44-147IU/L), SGOT 333IU/L (8-45IU/L), SGPT 221 IU/L (7-56IU/L) were elevated. Tests for dengue and chikungunya were negative.

His CD4 count was 9, CPK 3181IU/L (39-308IU/L) was markedly elevated. He underwent MRI spine which showed patchy multifocal areas of altered signal intensities suggestive of myositis. (Fig 1). Chest X Ray and USG abdomen were normal and ruled out Tuberculosis.

With above clinical findings, the patient was diagnosed as inflammatory/infective polymyositis. He underwent skeletal muscle biopsy. On histopathology, skeletal muscle showed dense infiltration by polymorphs and mononuclear cells, few necrotic muscle fibers along with pseudocyst of *Toxoplasma* containing bradyzoites (Fig2). Final diagnosis was *Toxoplasma* Polymyositis in a case of People living with HIV/AIDS (PLHIV).

Patient was managed by Sulfadiazine + Pyrimethamine FDC with folate supplements, steroid Prednisolone 1mg/kg and Secondary prophylaxis of Azithromycin and Fluconazole was given.

His immunological profile of *Toxoplasma* IgM and IgG were negative. This patient was considered as IRIS and ART was withheld. The patient improved and was discharged.

DISCUSSION

Polymyositis is a syndrome secondary to the defect in cellular immunity and is mainly associated with infections, malignancies or disorders of connective tissue or immune system. (5)

The criteria to diagnose polymyositis is symmetrical proximal weakness, increased muscle enzyme levels, electromyography suggestive of inflammatory myopathy and positive muscle biopsy on histopathology (6) all which were seen in our case.

Toxoplasma gondii alone in muscle may not induce myositis. It may be due to an immune disturbance which can cause reactivation of latent *Toxoplasma* and induce an inflammatory myopathy (7). Recently there are hypotheses suggesting *Toxoplasma* Polymyositis can occur either in acute or chronic phases. In the acute phase, the organism is found in muscle and is benefited after treatment with standard antiprotozoal therapy as seen in our case.

In chronic phase, there is increase antibodies to *Toxoplasma* without *T.gondii* organisms despite of myositis and antiprotozoal therapy is ineffective. (8)

Immune reconstitution inflammatory syndrome (IRIS) is a

clinical worsening condition seen after starting antiretroviral therapy in patients with HIV. This syndrome is characterized by an inflammatory response towards infectious or non-infectious triggers affecting different organs (3,9). The most commonly identified risk factor for IRIS is low CD4+ T cell count at onset of HAART (Highly Active Antiretroviral Therapy) and high load of an opportunistic pathogen (10) as seen in our case.

In IRIS, patients clinically deteriorate as seen with laboratory parameters in our case. Most cases of IRIS in AIDS patients are attributed to bacterial, viral or fungal cases. Very few cases have been described in literature with parasitic infection (11).

CONCLUSION:

The initial presentation of myositis progressing to discovery of another rare finding of *Toxoplasma* cyst in muscle on histopathology in case of AIDS with IRIS makes it a unique and an interesting case to report.

MRI Spine

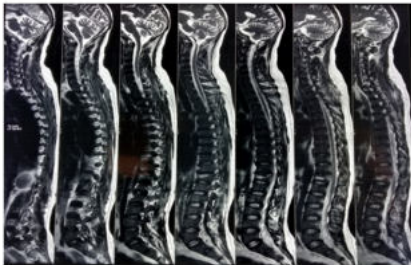


Figure 1 : MRI spine showed patchy multifocal areas of altered signal intensities in the muscle.

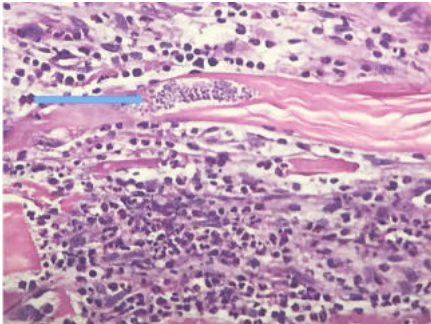


Figure 2: Microphotograph showing skeletal muscle with dense infiltration by polymorphs and mononuclear cells, few necrotic muscle fibers along with pseudocyst of *Toxoplasma* containing bradyzoites (H&E, X 400)

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