

## Adult T Cell Leukemia/Lymphoma in a 56 years Old Indian Male with History of Miliary Koch's on Anti-Tubercular Therapy

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### Abstract

Adult T-cell leukemia/lymphoma (ATLL) is a rare T lymph proliferative disorder which is etiologically linked with human T-cell lymphotropic virus type-1 (HTLV-1). HTLV-1 is endemic in Japan, Caribbean and Africa. The highest incidence of ATLL is in Japan although sporadic cases have been reported elsewhere in the world. We describe a case of ATLL where a 56-year-old Indian male was referred to our hospital for increasing swelling on the left side of neck and thigh since last one month. Clinical examination revealed tender left cervical mass (150 mm by 90 mm) that was fixed, warm and slightly erythematous. A subcutaneous mass (40 mm by 35 mm) on the left thigh was non-tender and without erythema. Histopathological examination of the neck and thigh mass showed mixtures of intermediate and large atypical tumor cells. Immunohistochemical staining was positive for CD3, CD4 and CD8 and negative for CD29 and CD 79a, results that were consistent with T-cell lymphoma. Testing for antibody to human T-cell leukemia virus type 1 (HTLV-1) was positive.

**Keywords:** ATLL; HTLV-T cell lymphoma; Miliary Koch's

**Abbreviations:** AKT: Anti Koch's Treatment; HTLV: Human T-cell Lymphotropic Virus; ATLL: Adult T-cell Leukemia/Lymphoma; TNF: Tumor Necrosis Factor

### Introduction

ATLL is an aggressive malignancy of activated mature T lymphocytes caused by the retrovirus HTLV-1. The disease is resistant to multiple chemotherapy agents and is characterized by severe immunosuppression, resulting in poor survival [1]. Herein, we report a rare case of ATLL that was originally diagnosed as Miliary Koch's and started on 1<sup>st</sup> line AKT as per the culture sensitivity report and 6 month later presented with enlarged swelling on the left side of neck and thigh and finally diagnosed to have HTLV-1 T cell lymphoma.

### Case History

56 years old male, businessman by profession, presented with gradually increasing swelling on left thigh and left side of the neck. His brother died of a "neck tumor" at the age of 45 and sister died of a "Bone tumor" at the age of 35. He was diagnosed with Miliary Tuberculosis 6 month before and was started on Anti Tubercular Therapy which he tolerated very well so far. He presented with persistent fever, weight loss and cough 6 months before and was investigated and found to be having Miliary Koch's. His Tb culture was positive and he was sensitive to 1<sup>st</sup> line AKT, hence continued on the same. Isoniazid (300 mg), rifampin (450 mg), ethambutol (800 mg) and pyrazinamide (1500 mg) daily were administered for 8 weeks (Intensive phase) until susceptibility results returned, and the treatment was changed to isoniazid (300 mg) and rifampin (450 mg) daily were continued since then (Maintenance phase). He was doing well till one month before when his family noticed a hard subcutaneous mass on his left thigh, which was painless. Approximately 2 weeks later he noticed progressive enlargement of left neck mass. He had a history of hypertension and diabetes since last 10 years and on the medication for the same and very well controlled with the given medications. On examination, He appeared in mild distress and was not fully oriented to time, place and person. The blood pressure was 105/66 mm Hg, pulse 76 beats per minute, temperature 98.0°F (36.7°C), and respirations 16 breaths per minute. There was a tender left cervical mass (150 mm by 90 mm) that was fixed, warm and slightly erythematous. The abdomen was soft, non-

tender and there was no organomegaly. A subcutaneous mass (40 mm by 35 mm) on the left thigh was non-tender and without erythema. There was no lymphadenopathy including in the right cervical, supraclavicular, axillary, trochlear or inguinal regions. The remainder of the examination was normal. The white cell count was 9,700 per cubic millimeter (reference range 4,000-1,1000) with neutrophils 89%, band forms 3%, and lymphocytes 3%; the level of hemoglobin was 9.6 mg/dL (reference range 13.5-17.5) and the platelet count was 343,000 per cubic millimeter (reference range 150,000-450,000). The serum level of urea nitrogen was 31 mg/dL (reference range 8-20), creatinine 0.93 mg/dL (reference range 0.63-1.5), aspartate aminotransferase 37 IU/L (reference range 11-30), alanine aminotransferase 36 IU/L (reference range 4-30), alkaline phosphatase 245 IU/L (reference range 107-330), gamma-glutamyl transpeptidase (GGTP) 114 IU/L (reference range <70), lactate dehydrogenase 165 IU/L (reference range 109-216), and albumin 2.5 g/dL (reference range 3.9-5.1). Computed tomography (CT) of the neck with the administration of contrast showed a large mass on the left side (Figure 1). Three sputum smear samples were negative for acid-fast bacilli. The serum concentration of isoniazid (INH) was 4.9 µg/mL (usual therapeutic range 1-7) and rifampin 22.0 µg/mL (usual therapeutic range 4-32). Testing for antibodies to human immunodeficiency virus (HIV) was negative. Biopsy of thigh and neck masses was performed; images of pathological examination of the neck mass (Figure 2) and thigh subcutaneous mass (Figure 3) are shown, both with hematoxylin and eosin (HE) staining. Histopathological examination of the neck and thigh subcutaneous masses (Figures 2 and 3) showed mixtures of intermediate and large atypical tumor cells. Immunohistochemical staining was positive for CD3, CD4 and CD8 and negative for CD29 and CD79a, results

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Figure 1: CT of the neck with contrast, coronal view.

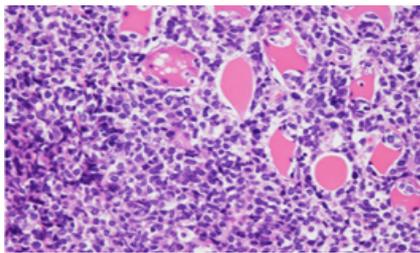


Figure 2: Left neck mass, HE stain, high power.

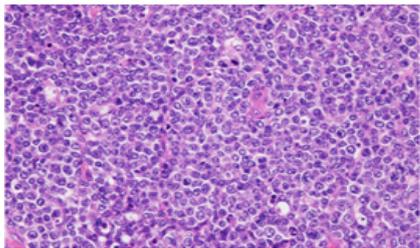


Figure 3: Left thigh mass, HE stain, high power.

that were consistent with T-cell lymphoma. Testing for antibody to human T-cell leukemia virus type 1 (HTLV-1) was positive. He was treated with an intensive chemotherapy including cyclophosphamide, etoposide, doxorubicin, vincristine, and prednisone. Despite initial transient improvement, the tumor progressed after three cycles of the regimen and became refractory to further Chemotherapy. The patient's condition deteriorated gradually and he finally had multi-organ failure

and he died on the 26th hospital day. Final Diagnosis made was T-cell lymphoma associated with Human T-cell leukemia virus type 1.

## Discussion

HTLV-1 infects an estimated 20 million people worldwide. Endemic areas include Japan, Africa, the Caribbean islands, and Central and South America. The route of HTLV-1 transmission includes breast feeding, sexual transmission, tissue donation and injection drug use. One million people are infected in Japan, where vertical transmission by breast-feeding is thought to be the most common route of contagion. Seroprevalence rates are up to 37% and are especially high in the southwestern isles of Shikoku, Kyusyu and Okinawa. Most infected people remain entirely asymptomatic. However, the HTLV-1 virus infection has been associated with a number of complications, including Adult T-cell Lymphoma/Leukemia (ATL), HTLV-1-associated myelopathy/tropical spastic paraparesis, and HTLV-1-associated uveitis [2]. Acute ATL is a fulminant disease with poor outcome. Furthermore HTLV-1 infection increases the severity and susceptibility to strongyloidiasis, scabies, leprosy and tuberculosis (TB) [3]. Several studies have investigated the effect of HTLV-1 infection on both infection and disease due to *M. tuberculosis* [4]. People with HTLV-1 infection have 2- to 4-fold increased risk of acquiring *M. tuberculosis*. Suppression of delayed-type hypersensitivity to purified protein derivative (PPD) of *M. tuberculosis* has been demonstrated [4], possibly due to impairment of TNF-alpha production caused by HTLV-1 infection. Detection of HTLV-1 antibodies are highly sensitive (100%) and highly specific (99.4%) [5].

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