Immune Hemolytic Anemia in a Patient with Tuberculous Lymphadenitis

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ABSTRACT

Anemia in tuberculosis is usually anemia of chronic disease. Severe hemolytic anemia is exceedingly rare in tuberculosis patients. We report a patient diagnosed with tubercular lymphadenitis complicated by Coomb's positive hemolytic anemia. Patient responded well to antituberculous treatment. Hematological parameters improved after initiation of antituberculosis treatment. To the best of our knowledge, this is the first case from India of an adult patient with tuberculous lymphadenitis presenting with Coomb's positive hemolytic anemia.

Key words: Immune hemolytic anemia, Tuberculous lymphadenitis, Anemia in tuberculosis

INTRODUCTION

Tuberculosis is a common disease in developing countries and has diverse clinical manifestations. Patients can have various hematological abnormalities, most common being normocytic normochromic anemia. Other causes include malnutrition, malabsorption, pyridoxine deficiency, etc. Coomb's positive hemolytic anemia is a very rare cause of anemia associated with TB and only few case reports have been published. The case presented here had tuberculosis lymphadenitis associated Coomb's positive hemolytic anemia which resolved on treatment with anti tuberculous treatment.

CASE REPORT

A 19-year-old girl presented with swelling in the left side of the neck of 1 year duration. She also had fatigue and headache. She did not have any history of fever or night sweats. Physical examination revealed pallor, icterus, and multiple left cervical lymph nodes. These lymph nodes were firm, nontender, matted, and mobile. Systemic examination showed mild splenomegaly. Laboratory findings on admission were as follows: hemoglobin 3.5 g/dL, total WBC count 4800/mm^3 (52% neutrophils and 48% lymphocytes), platelet count 225,000/ mm^3, MCV 97, MCH 30.5 fL, and reticulocyte 12%. Peripheral smear showed anisopoikilocytosis with macrocytosis and spherocytosis. Bone marrow examination showed erythroid hyperplasia. Biochemical tests were as follows: total bilirubin 3.7 mg/dL, direct bilirubin 2.0 mg/dL, indirect bilirubin 1.7 mg/dL, LDH – 720 U/L and haptoglobulin 20 mg/dL. Coomb's test done prior to transfusion was positive (Table 1 for hematological parameters before starting anti-tuberculosis therapy). Serum levels of urea, creatinine were within normal limits and glucose 6 phosphate dehydrogenase activity was normal. Serologic tests for antinuclear antibodies, human immunodeficiency virus, mycoplasma, hepatitis B and C virus were negative. Left cervical lymph node biopsy showed caseating granulomatous lymphadenitis [Figure 1] Mantoux test was positive (18 mm induration). Chest X-ray was normal and ultrasound of abdomen revealed splenomegaly.

Table 1: Laboratory parameters of the patient during hospital stay

Hospital day	Hemoglobin (g/dL)	Reticulocytes	ESR	LDH	Coomb's test
1st	3.9	12%	50	720	+++
3rd	5.0 (PT)	10%	40	NA	+++
5th	5.0	10%	40	NA	+++

NA- Not available; PT- Post transfusion

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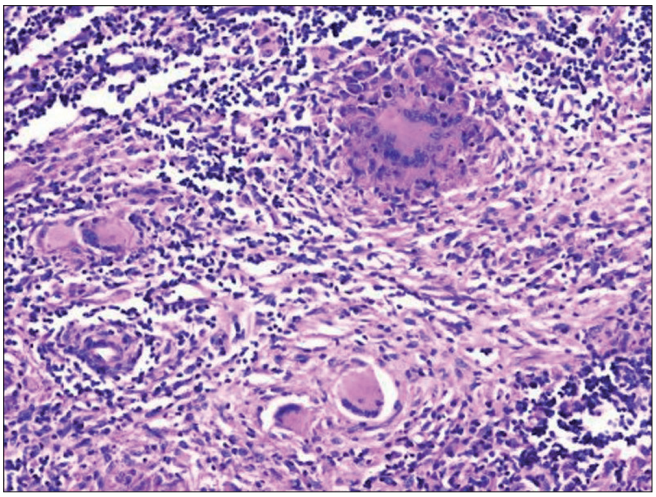

Figure 1: Langerhan's giant cells seen in tuberculosis lymphadenitis

Patient was started on antituberculosis treatment with isoniazid (300 mg qday), rifampicin (450 mg qday), ethambutol (800 mg qday), and pyrazinamide (750 mg bid). Her symptoms of fatigue and headache started improving after 2 weeks of treatment. Hemoglobin improved to 5 gm/dL after 2 weeks of treatment and Coomb's test became negative after 2 months [Table 2]. She is on follow-up and is in excellent health.

Table 2: Laboratory parameters of the patient during antituberculosis treatment

Treatment day	Hemoglobin (g/dL)	Reticulocytes	ESR	LDH	Coomb's test
7th	6.2	9%	50	600	+++
30th	8.5	2%	NA	NA	++
60th	11.0	1%	8	230	Negative

NA- Not Available

DISCUSSION

Autoimmune hemolytic anemia (AIHA) represents a spectrum of disorders in which antibodies against self-antigens on the erythrocyte membrane cause a shortened red blood cell (RBC) life span. AIHA can occur as an idiopathic (primary) disorder or can coexist with another disease (secondary). AIHA can also occur following administration of certain drugs (drug induced). The incidence of AIHA is estimated to be approximately 1 in 100,000 in adults.[1]

Tuberculosis presents with a wide variety of hematological manifestations. The most common is normocytic normochromic anemia of chronic disease. Anemia in tuberculosis is most often due to nutritional deficiency, malabsorption syndromes, failure of iron utilization, and bone marrow suppression. AIHA is exceedingly rare in tuberculosis.

Siribaddane *et al*., first reported association of autoimmune hemolytic anemia in tuberculous lymphadenitis in 1997.[2] A detailed search revealed only 7 cases of AIHA in tuberculosis in the English literature; 3 of them responded to anti-tuberculous treatment (ATT) alone without need for blood transfusion or steroids.[3,4] Mehmet Turgut *et al.,* from Turkey, reported a case of pulmonary tuberculosis with AIHA responding to ATT alone without the need for blood transfusion.[3] Ping-Hung Kuo *et al.* from Taiwan, reported an episode of Coomb's positive AIHA in a patient with Miliary tuberculosis resulting in a hemoglobin of 5g/dL.[5] The hematological parameters in their case improved without the use of steroids or blood transfusion. Bakshi S *et al*., from India, reported a case of AIHA in childhood tuberculosis (mediastinal tuberculous lymphadenitis), which responded to steroids and antituberculous therapy.[6] Abdullah Abba *et al*., from Saudi Arabia, reported AIHA in an Indonesian housemaid suffering from intestinal tuberculosis. In their case, AIHA responded to ATT alone.[7] Gupta V *et al*., from India, reported about a child with abdominal tuberculosis and AIHA, which responded to steroids and ATT.[8]

Apart from autoimmune hemolytic anemia, other autoimmune phenomena like vasculitis and thrombocytopenia have been associated with tuberculosis. Borie *et al.* reported a case series of 5 patients with tuberculosis and thrombocytopenia who were treated with ATT and other drugs like danazol, vincristine, IV immunoglobulin, and steroids.[9]

CONCLUSION

Tuberculosis can cause hemolytic anemia. This case highlights the need for detailed evaluation of anemia in tuberculosis patients and to consider AIHA in the differential diagnosis of anemia in these patients. One of the main treatments of AIHA is the administration of steroids; however, this may be potentially harmful in tuberculosis patients. This case report is to emphasize the effectiveness of ATT alone to correct AIHA in tuberculosis patients.

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