CASE REPORT

Autoimmune Hemolytic Anemia in a Patient with Probable Ataxia Telangiectasia: A Case Report

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ABSTRACT

Background: Ataxia telangiectasia (AT) is one of the combined immunodeficiency syndromes with immunologic, neurologic, endocrinologic, hepatic and cutaneous abnormalities. Regarding the fact that autoimmune disorders; such as autoimmune hemolytic anemia (AIHA), are not generally expected in the course of AT, we present a patient with an unusual presentation of these two conditions. **Case presentation:** An otherwise seemingly normal girl, who had developed limping at the age of 11 months old, referred to Namazi Hospital, Shiraz, Iran, due to pallor and latitude at the age of 3 yrs and was diagnosed with AIHA. After 2 years of therapeutic course she developed ocular telangiectasia and ataxic gate. **Conclusion:** This case emphasizes the possibility of ataxia telangiectasia coexistence with autoimmune disorders and must be taken into consideration by physicians.

INTRODUCTION

Ataxia-telangiectasia (AT), also referred to as Louis-Bar syndrome, is a rare hereditary neurodegenerative autosomal recessive disease, due to mutation in ATM (AT, mutated) gene, localized to chromosomal region 11q22-23 (1). Leading to total loss of ATM protein, this mutation deprives the cell from the critical function of this molecule, which is recognition of DNA damage, activation of DNA repair mechanisms and cell cycle check points (2,3).

Major characteristics of this condition include neurodegenaraion such as cerebellar degeneration and progressive ataxia, oculocutaneous telangiectasia, variable humoral and cellular immunodeficiency, radiosensitivity, chromosomal instability and chromatin changes, high risk of cancer, insulin-resistant diabetogenic responses and pulmonary failure (2,4).

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Definite diagnosis of AT is based upon radio-sensitivity testing, immunoblotting and mutations detection (5). In laboratory workup, serum alpha-fetoprotein (AFP) level is of great value. It has been indicated that there is no correlation between serum AFP level and AT genotypes, while it rises with age in patients with AT (6).
Autoimmune hemolytic anemia (AIHA), in which destruction of red blood cells (RBCs) by autoantibodies occurs, may originate from various intrinsic and extrinsic factors (7). Despite being considered an uncommon cause of anemia, which is seen in both children and adults (8), AIHA should not be neglected in the differential diagnosis of hemolytic anemia disorders, particularly in concomitance with lymphoproliferative disorders, autoimmune diseases and viral or mycoplasma infections. Consequently, clinical presentation and serologic workup constitute the fundamental base of diagnosis (9).

CASE REPORT

In this paper, we present an unusual presentation of immune hemolytic anemia in a female A-T patient born in February 2006, who was well until 3 years of age other than limping since she had started walking. At the age of 3, she was presented with the chief complaint of pallor and latitude. Therefore, cell blood count (CBC) test was done on her that suggested anemia.

Table 1. Result of laboratory investigation.

White blood cell count	8,100/mm^3	NL for age: 5.0 – 14.5 x10^3/mm^3
Hemoglobin	8 g/dL	NL for age: 11.5 – 15.5 g/dL
Platelet count	665,000/mm^3	NL for age: 250 – 450 x10^3/mm^3
Reticulocyte count	3.5%	NL for age: 0.5-2%
Coombs test	Positive	
ESR	10 mm/hr	NL for age:<20mm/hr

The result of bone marrow biopsy was indicative of normocellular marrow. Rheumatologic workup results were compatible with the diagnosis of autoimmune hemolytic anemia. The patient was administered Prednisolone, yet she had experienced multiple episodes of anemia, even a Hb drop to 3.5 g/dl that resulted in a blood transfusion for her. In the last two years the patient had normal level of Hb (average: 11.2 g/dl).
Since the time she had started walking, which was at the age of 11 months old, she was afflicted with limping. Therefore, many workups were done on her without any special findings and the patient was labeled as a case of juvenile rheumatoid arthritis (JRA). At the age of 6, she developed mild telangiectasia (Figure 1), which was later followed by ataxic gate.

Table 2. Immunologic investigation.

Immunoglobulin	Patient test results	Normal range for age
IgG	330 mg/dl	504 to 1470 mg/dl
IgM	480 mg/dl	24 to 210 mg/dl
IgA	30 mg/dl	86 to 320 mg/dl
IgE	1.97 IU/ml	Up to 25 IU/ml

Flowcytometry results showed percentage of lymphocytic markers to be as follows: CD3= 67% (range: 52-78), CD4= 36% (range: 25-48), CD8= 30% (range: 9-35) and CD19= 5% (range: 8-25). Anti-tetanus and anti-pneumococcal antibodies were checked and showed decreased levels. Due to the high IgM level and low levels of other immunoglobulin factors, isotype switching was checked to rule out hyper IgM syndrome and the result was normal. Lymphocyte transformation test showed impairment. AFP was checked which showed very high levels (i.e. 181.3 IU/mL; normal range: 0-5.8 IU/mL). During recent year, the patient has had frequent episodes of hospitalization due to pneumonia and was labeled as a case of AT associated with AIHA.

Currently, at the age of 9, the patient has referred due to loss of ocular alignment. With suspicion of sixth nerve palsy, brain MRI was done on her in which pan sinusitis and bilateral mastoiditis was demonstrated.

DISCUSSION

In this case report we presented an unusual presentation of probable ataxia telangiectasia in a 7 years old female patient who was a known case of autoimmune hemolytic anemia since 3 years of age.

Here we discuss other cases that had some manifestations in their disease course similar to our patient. In spite of the fact that autoimmunity has been reported as a common feature of many immunodeficiency disorders, information on the association with AT is scarce. Schulte-Wissermannalso reported two 13 and 16 years old brothers with AT. The older brother had also been presented with AIHA (10).

Another study, reported coexistence of AIHA and AT in a girl, who developed persistent fever, progressive lymphadenopathy and pulmonary nodular infiltrates at 26 months (11).

Another coexistence of autoimmunity with AT was a 7 years old boy case of AT, who was on immunoglobulin replacement therapy and developed acute idiopathic thrombocytopenic purpura (ITP) in the course of his disease. A High dose of IVIG was administered and the patient was immediately responsive (12).

In addition, occurrence of nodular Hashimoto thyroiditis, as another autoimmune disease, has been reported in 2 patients with AT. Authors recommended thyroid examination in these patients for early diagnosis (13).

These cases, along with the case presented here, strengthen the idea that awareness of unexpected associations of autoimmune diseases, particularly AIAH, with AT should be a matter of concern and closely observed, especially in children, whose diagnosis of AT is delayed till late childhood.

The fundamental defect in AT is probably immunologic. An altered immunologic response could lead to multiple system diseases as a direct result of autoantibody destruction. It is also possible that deficient immunity may permit an infectious agent to cause widespread tissue damage with secondary production of autoantibodies.

Consent:

Written informed consent was obtained from the patient`s legal guardians for publication of this case report and its accompanying information. A copy of the written consent is available for review by the Editor-in-Chief of this journal

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