Case report

Ataxia telangiectasia

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Abstract:

We report a rare case of a seven- years- old boy from Kosti who presented with progressive ataxia since the age of three. Two years later he developed conjunctival telangiectasia .Examination revealed occulo-motor apraxia. A diagnosis of ataxia telangiectasia was made on clinical findings; low immunoglobulins; high alpha fetoprotein levels and cerebellar atrophy on cranial's MRI. A coordinated multidisciplinary healthcare with follow- up was offered and intravenous immunoglobulin was given on a monthly basis

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Case report:

A seven- years- old Sudanese boy, offspring of a consanguinous marriage, presented to Mohammed Elamin Hamid Teaching Hospital in Omdurman, Sudan, complaining of unsteadiness over the last 4 years. His mother first noticed that her child started to sway backwards and from side to side after he was walking normally at a normal age.

There was past history of recurrent chest infections for which he was admitted many times since the age of 5 months. The condition progressed till he became unable to walk alone .At the age of 5 years his mother noticed abnormal eye movements and reddish discoloration. His previous care has been somewhat fragmented in place. He is the youngest of 4 siblings with no similar condition in the family. His parents were first degree cousins. He did not attend school yet.

Physical examination showed that he is stunted with weight, height and head circumference all below third percentile, his temperature was 37.5º C, blood pressure 90/60 mm/hg and pulse rate was 95/ min and regular.

Eye examination revealed bilateral bulbar conjunctival telangiectasia(figure 1). There were horizontal and vertical nystagmus with normal visual acuity, papillary response and fundi in addition to the presence of normal convergence ability. There were lymph nodes enlargement, skin rash, telangiectasia, hypo- or hyperpgimented areas. Auscultation of the chest showed crackles all over, and the abdomen examination showed no organomegaly.

Neurological assessment showed normal higher mental functions apart from slurred speech and occulo-motor apraxia (difficulty in moving the eye horizontally and he had to turn his head to follow objects) .Limbs examination revealed: hypotonia ; reduced power of grade 4.The deep tendon reflexes were diminished, with difficulties in coordination including intention tremor and disdiadochokinesia. All sensations were intact. Romberg's sign was negative, and the planters were down going. His gait was ataxic .No abnormal movement or skeletal deformities.

His complete blood count, renal function test, liver function test and blood glucose were normal.

Alpha-fetoprotein level was high=130 IU/ml (n<5.8)

Serum immunoglobin assay;

IgA 45.3mg/dl (83-406) - IgG 516mg/dl (700-1600)

IgM 292mg/dl (40-230) - IgE 2.5mg/dl (60-155)

Cranial MRI showed cerebellar atrophy(figure 2).

The chest infections were treated with appropriate antibiotics with good response. Following

consultation with our clinical immunologist, intravenous immunoglobulins were given on monthly bases. He received 0.3-0.4 mg/kg body weight by slow intravenous infusion. A coordinated multidisciplinary health care effort was offered including speech therapy, physiotherapy and psychological support.

Discussion:

Ataxia telangiectasia is a rare neurodegenerative autosomal recessive disease causing severe disability[1]. In 1941 Madame Louis Bar described progressive cerebellar ataxia and cutaneous telangiectasia in a Belgian child[2], and subsequently the disease received her name. Boder and Sedgwick reported seven more cases in 1957[3]. Ataxia telangiectasia can also be classified among neuro-cutaneous syndromes; immunodeficiency disorders; cancer- prone genetic disorders; chromosomal instability syndromes; and abnormal radiosensitivity and DNA repair /processing defects.

Ataxia telangiectasia is caused by a defect in ATM (ataxia telangectasia mutated gene) located on chromosome 11(11q22-23) which prevents broken DNA repair thus increasing the risk of cancer [4].

The incidence worldwide is between 1 in 40.000-100.000 people[2,5] and this indicates its rarity and may explain the delay in diagnosis .All races are affected equally without predilection for gender [2,5].

The presentation of our case is typical[1]; AT presents with progressive cerebellar ataxia in early childhood, telangectasia of bulbar conjunctivae and skin, frequent sino-pulmonary infections, slurred speech and retardation of somatic growth. Intelligence is essentially normal. Examination showed and ataxic child with telangiectasia; hypotonic ; areflexia ; intact sensation and negative Romberg's sign; as seen in our patient; while choreoathetosis are seen more in adults.

The immunoglobulin level and alpha fetoprotein [8] guided us to a firmer diagnosis. About two thirds of cases of AT have abnormalities in the immune system ,the most common: low levels of (IgG, IgA, IgE); not making antibodies in response to vaccine or infection; low number of lymphocytes[6]. Elevated IgM occurs in 60% of cases[7]. On the other hand, approximately 95% of people with AT have elevated level of serum alpha fetoprotein by the age of two which increases slowly over time [8].

According to Tavani et al cerebellar atrophy is found on MRI brain with age starting from early childhood[9]. The diagnosis can be confirmed in the laboratory by finding an absence or deficiency of ATM protein in cultured blood cells[10,11] ; an absence or deficiency of ATM function (kinase assay); and mutation of both copies of the cells ATM gene. These more specialized tests are not always needed, but are particularly helpful if a child's symptoms are atypical.

The delay in making the diagnosis in our case may be attributed to many factors: the rarity of the disease; delayed appearance of telangiectasia; and the previous medical care that had been fragmented in place with no proper follow- up to detect the appearance of new signs timely.

The risk of an AT patient developing any cancer is 37-fold higher than individuals in the general population. The risk of developing lymphoid tumors, however, the most frequently diagnosed cancer in AT patients, is 100-fold higher than in the general population. AT patients have about a 10% risk of developing lymphoma or leukemia. Cancers also occur in the stomach; brain ; ovary; skin; liver; larynx; parotid gland; and breast[12].

There is no treatment known to slow or stop the progression of the neurologic problems. It is only symptomatic and supportive. Multidisciplinary medical team including the neurologist, immunologist, pulmonologist and physical therapist are capable of dealing with many needs in this disease. Prompt treatment of infections, if any, and in some cases, prophylactic antibiotics and immunoglobulin therapy, may be of benefit. Avoidance of X- ray whenever possible. Regular follow- up for early cancer detection is necessary as well as education, socialization and special help in school.

The prognosis is very poor and they usually require wheel chair by 10-11 years. Most patients may not survive beyond their twenties according to the National Cancer Institute. Causes of death are chronic lung disease and lympho-reticular (leukemia and lymphoma) cancers [13].

In conclusion: awareness about this condition and its significant morbidities will help early diagnosis and institution of appropriate supportive treatment.

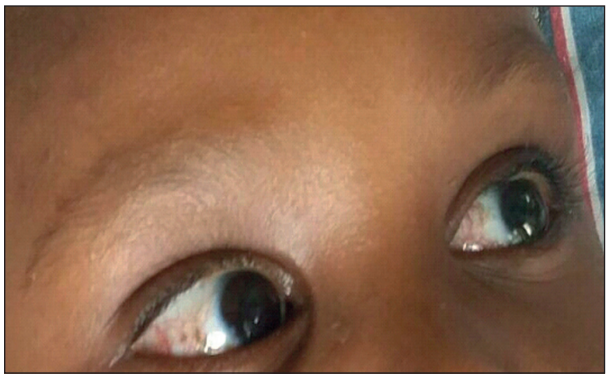

Figure 1. bilateral bulbar telangiectasia

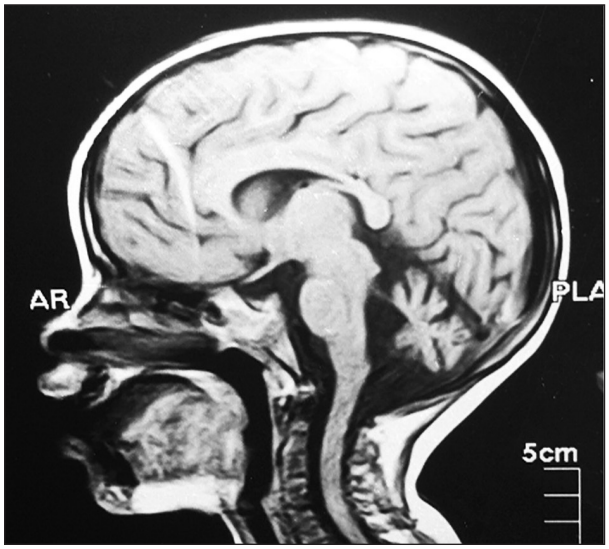

Figure 2. Cranial MRI showing cerebellar atrophy

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