Ataxia as Forme Fruste of Opsoclonus Myoclonus Ataxia Syndrome

Dear Sir,

Opsoclonus, myoclonus and ataxia syndrome is characterized by opsoclonus, myoclonus, irritability, behavioral changes, and sleep disturbances. Diagnosis is easy when 2 or more of these symptoms are present. Most of these children have underlying neuroblastoma. We describe a 3-year-old girl who presented with subacute ataxia with posterior mediastinum mass, which was histologically diagnosed as neuroganglioma.

Case Presentation

A 3-year-old girl presented with unsteadiness of gait of one-month duration. She had tremulousness of hands on attempting to feed. The fluency and volume of her speech had reduced, and her sleep was disturbed. On further questioning, she had recurrent early morning wheezing for which she was treated with prednisolone (10 mg/day) for 5 days by a local practitioner, following which the symptoms markedly improved. On examination, her anthropometry was age-appropriate. Neurological examination revealed low pitched slow staccato speech, wide-based unsteady gate, tremulousness and impaired finger-nose test, suggestive of cerebellar ataxia. She was evaluated for subacute and fluctuating ataxic symptoms. Her Magnetic Resonance Imaging (MRI) of the brain was normal. Since the child had a response to oral corticosteroids, immune-mediated ataxia was considered. MRI of the chest showed 2.8 × 2 cm mass in posterior mediastinum at D3-D6 level in the right paravertebral location region abutting the right main bronchus [Figure 1]. A possibility of an incomplete form of Opsoclonus myoclonus ataxia syndrome (OAMS) was considered, and she was treated with methylprednisolone for 5 days and oral corticosteroids

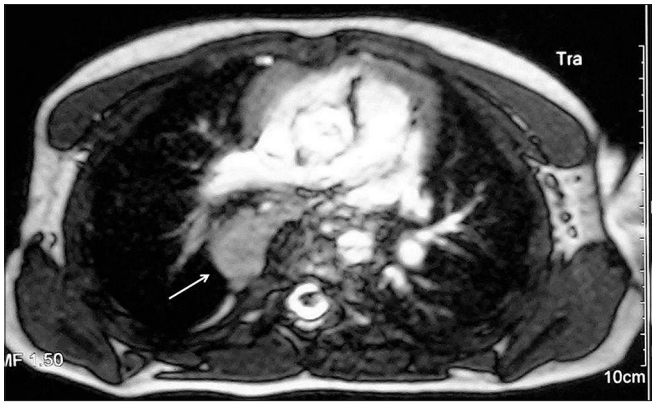

Figure 1: MRI Chest (Axial TRUFI image) showing a hyperintense mass of size 2.8 × 2 cm in posterior mediastinum in right paravertebral region abutting the right main bronchus.

for 3 months. Surgical excision of the mass was done, and the histopathology suggestive of neuroganglioma [Figure 2]. The child was continued on 0.5 mg/kg prednisolone for 3 months, followed by tapering. Recurrence of ataxia was noted, 1 month after tapering of steroids. A repeat MRI scan of the chest and abdomen didn't show any residual tumour activity. Steroids were reinitiated and given at 1 mg/kg dose for 2 weeks (total steroid duration of 3 months). Her symptoms of irritability, sleep disturbances, and ataxia subsided gradually. Currently, she is in follow-up for the last 2 years (not on any medications), and asymptomatic [Videos 1-3].

Discussion

The case is interesting as the child at presentation had only ataxia leading to a diagnosis of OAMS. The cardinal symptoms of OAMS are opsoclonus, myoclonus, and ataxia. Irritability, behavioral changes, and sleep disturbances are other commonly associated symptoms.[1] Diagnosis of OAMS is challenging in the absence of opsoclonus and myoclonus. Opsoclonus, though absent in the index case, is frequently misdiagnosed as nystagmus.[2]

Similarly, sleep disturbances and irritability can be so subtle, that they are often missed. Diagnosis of OAMS is frequently delayed in children presenting with only ataxia. In a series of 26 pediatric OMAS, only 2 children with isolate ataxia were diagnosed with OMAS, after a delay of 18 months after diagnosis of ataxia.[3] The response to oral corticosteroids also suggested immune-mediated ataxia, which led to a suspicion of OAMS and its early diagnosis. A diagnostic criteria has been described, and 3 out of 4 criteria should be present for the diagnosis of OMAS: a) opsoclonus; b) myoclonus or ataxia; c) behavioral change or sleep disturbances; d) neuroblastoma. A possibility of OAMS should be considered when acute onset ataxia is present along with irritability and sleep disturbances. Viral trigger preceding OAMS, as in the index case has been described.[1,4]

Neuroganglioma, ganglioneuroblastomas and neuroblastomas are neural crest tumors' with varying level of cell differentiation.

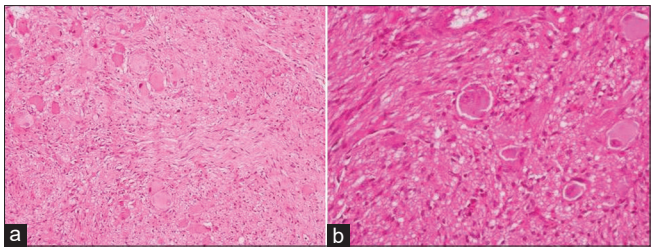

Figure 2: Hematoxylin and eosin stain (H and E) from resected mass showing cytodifferentiated ganglion cells in a background of fibrillary schwannian stroma arranged in fascicles and storiform pattern (A; H and E; 100X) (B; H and E; 400X).

Neuroganglioma is a well circumscribed tumor consisting of mature ganglion cells and Schwann cells, commonly located in the posterior mediastinum. Immature forms of neuroblastic tumours like neuroblastoma are more common in younger children, while neuroganglioma predominantly are seen in older children. Neuroganglioma is symptomatic in only half of children; with the common symptoms being pain and respiratory distress due to pressure symptoms on adjacent structures. In a series of 146 patients with ganglioneuroma, none of the patients had neurological symptoms.[5] It is hypothesized that neuroblastoma may evolve into neuroganglioma during chemotherapy or neuroganglioma may arise de novo. Majority of children with OAMS have underlying neuroblastoma, though neurogangliomas have been described in isolated reports. Anti-cerebellar antibodies and GluR epsilon too have been described in children with ataxia and neuroganglioma.[6,7] Neurological symptoms in neuroglioma can persist despite of tumor removal due to the presence of anti-neuronal antibodies. Symptoms may improve with decrease in titre of anti-tumour antibody.[8]

To conclude, the presence of isolated ataxia can be forme fruste of OMAS, and the diagnosis of OAMS should be considered in any child presenting with ataxia, with or without behavioral changes and sleep disturbance.

Ethical approval

An informed consent form was signed by the parents of the patient to approve the use of patient information or material for scientific purposes.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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