

Infantile Sandhoff Disease with Hypothyroidism: A rare presentation

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Abstract: This report describes an 18 months old baby with Infantile Sandhoff disease. This case report aims to increase the awareness of this condition among physicians to allow earlier clinical and genetic diagnosis and management.

Keywords: Infantile Sandhoff disease, hypothyroidism, multiple partial seizures, delayed milestones, hypotonia, megalencephaly, Hexosaminidase A and B Enzyme

1 INTRODUCTION

Infantile Sandhoff disease is a rare disorder of sphingolipid metabolism. There are three forms of disorder out of which infantile form is lethal type. In Indian population very few cases have been reported so far. We report a case of Infantile Sandhoff disease with hypothyroidism and unusual neuroimaging finding.

Case description

Eighteen months old child born at term per vaginally without any complication at birth to a non-consanguineous married couple, presented with history of multiple partial seizures involving left side of face for the last two months and low grade fever for the last one month. There was also history of constipation since eight months of age and regression of developmental milestones since one year. There was no history of birth trauma, neonatal jaundice, and seizure at birth. On examination at presentation child was unresponsive with expressionless face. Head was large in size with anterior fontanellae (2.0 X2.0cm) wide open (Fig1). Child had generalized hypotonia with decreased tendon reflexes. Fundoscopy revealed cherry red spot in both eyes. Examinations of cardiovascular, respiratory and abdominal were clinically normal. Laboratory examination revealed normal blood count, C-reactive protein, blood culture, lumbar puncture and raised TSH level ($>24 \mu / \text{ml}$). Computed tomography of brain done outside and in hospital showed bilateral hyperdensity in thalamic area and megalencephaly (Fig2). Imaging performed showed mild cortical and corpus callosum atrophy and hypodensity in left temporo-parietal area. Hexosaminidase A and B Enzyme activity were deficient in serum and leucocytes. The deficiency of above enzyme is confirmatory of Sandhoff Disease.

Discussion

Incidence of Sandhoff disease in general population has been reported from 1 in 384000 to 1 in 422000 [1]. Disease is primarily caused by accumulation of GM2 ganglioside in the lysosomes of neuronal cell. There is a great heterogeneity in symptom in all three types of Sandhoff disease and can be correlated with amount of ganglioside. The disease usually present with psychomotor retardation, seizures which are mainly generalized tonic clonic type but in some cases may present as complex partial type or myoclonic jerks, visual and hearing loss and hepatosplenomegaly [2]. Nalini et al reported typical features of disease in their study and same were also seen in present case. Jain et al described refractory seizure and peripheral neuropathy as primary manifestation [2, 3]. In our case constipation, delayed milestones with refractory seizures were main presenting features. Neither hepatosplenomegaly nor parental consanguinity was reported in present case as described by Nalini et al in their series. Yuksel et al reported bilateral homogenous thalamic hyperdensity on computed tomography and mild cortical atrophy, thin corpus callosum and abnormal signal intensities in basal ganglion on MRI [4]. In present case imaging studies revealed mild cortical atrophy mainly in left frontal cortex and hypodensities in left temporoparietal region similar to encephalitis like picture which were not seen in earlier reports.

Association of cardiac involvement, peripheral neuropathy and autonomic dysfunction has been reported with Sandhoff disease [5, 6] but hypothyroidism has been reported only in present case. There is no standard mode of treatment available till date. Few researchers have tried Miglustate in some cases.

Conclusion:

Infantile Sandhoff disease is a rare disorder of sphingolipid metabolism. Out three types infantile form is lethal one. Present case was diagnosed biochemically and the imaging findings were different as described in literature from other case reports and hypothyroidism association had also not been reported in the literature.

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