P-ISSN: 2664-3685
E-ISSN: 2664-3693
www.paediatricjournal.com
IJPG 2022; 5(2): 12-13
Received: 09-06-2022
Accepted: 21-07-2022

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Abnormal gait as primary presentation of corpus callosum agenesis

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DOI: https://doi.org/10.33545/26643685.2022.v5.i2a.187

Abstract
Corpus callosum is the major interspheric fiber bundle that connects the two cerebral hemispheres. Corpus callosum agenesis is among the most common brain malformation, which has a wide spectrum of presentation ranging from mild intellectual disability to severe developmental delay and refractory seizures. We here report a case of complete agenesis of corpus callosum presenting with gait abnormality in an otherwise normal child.

Keywords: Interspheric fiber bundle, developmental delay, gait abnormality

Introduction
Corpus callosum (CC) is the largest white matter tract of human brain which consists of axons that pair signals to various region of contra-lateral hemisphere cortex [1].
Development of CC may be interrupted by various genetic factors and maternal alcohol use.
This malformation can be an isolated abnormality or a component of various neural pathways.
The prevalence of corpus callosum agenesis varies, probably due to its asymptomatic course. Range is 0.02 - 0.025% [2]; although higher prevalence 0.2-0.7 is also reported [3, 4].
Agenesis of corpus callosus is among the most common brain abnormality observed in humans.

Case report
2 year old male child born to a 2nd gravida mother (no history of previous abortions or still birth) presented with complaint of abnormal gait ever since child started walking. No History of any trauma or IM injection in gluteal region. Antenatal, natal and postnatal history was not significant. No history of alcohol abuse in mother. No history of similar complaints in sibling or any other family member. Child has attained all the age appropriate milestones except some difficulty in climbing upstairs. On Examination child is moderately built and nourished, Waddling gait present. Local examination of bilateral hip joints were normal with no restriction of movements with normal tone and power in bilateral limbs with no local signs of inflammation, other systemic examinations were within normal limits.
Child was initially investigated in the lines of neuropathy and myopathy; results of which were normal. MRI brain & spine was done showed complete agenesis of corpus callosum. On Further evaluation child had no history seizures/abnormal movement or developmental delay. There was no history suggestive of ADHD or learning difficulty. Child is advised for regular follow up for growth, development and neuropsychiatric monitoring.

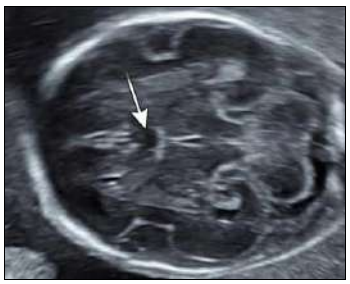

Fig 1: Complete agenesis of corpus callosum

Discussion

Literature has very well mentioned agenesis of corpus callosum with its various possible presentations. Symptomatology in Corpus callosum agenesis varies from being severly impaired to totally normal brain functioning. Majority presents with developmental delay and mental retardation, epilepsy and muscular tone abnormalities. Most frequent presentations remain mental retardation (60%), vision abnormalities (33%), speech abnormality (29%) and feeding problems (20%) [5]. Cases with no developmental delay and normal intelligence with mild behavioral and social problem with ADHD has also been reported.

We here present a case with gait abnormality as the presenting and the only complaint of complete agenesis of corpus callosum (long term follow up is however advised). Hence this case report adds to the literature of corpus callosum agenesis.

Conclusion

Agensis of corpus callosum has multiple presentations from severe development delay & refractory seizures to mild learning difficulty. Abnormal gait can be a rare presentation not associated with seizure/ developmental delay/ADHD. So gait abnormality should be kept in mind as a presentation of corpus callosum agenesis after ruling out neurological and muscular causes. A long term follow up is however advised.

Acknowledgments

The completion of this article could not have been accomplished without the support of my colleague Dr. Srishti Gautam. Thanks to head of department Dr Arvind Gupta for constant support and motivation in publishing this article.

No funding was received during authorship/publication of this article.

Acknowledgement

Not available

Author's Contribution

Not available

Conflict of Interest

Not available

Financial Support

Not available

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How to Cite This Article

Shreyansh V, Gautam S. Abnormal gait as primary presentation of corpus callosum agenesis. International Journal of Paediatrics and Geriatrics. 2022;5(2):12-13.