

Agensis of the Corpus Callosum: The Role of Neuropsychological Assessment with Implications to Psychosocial Rehabilitation

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Abstract : Agensis of the corpus callosum (ACC) is a failure to develop corpus callosum - the large bundle of fibers of the brain that connects the two cerebral hemispheres. It can occur as a partial or complete absence of the corpus callosum. In the general population, its estimated prevalence rate is 1 in 4000 and a wide range of genetic, infectious, vascular, and toxic causes have been attributed to this heterogeneous condition. The diagnosis of ACC is often achieved by neuroimaging procedures. Though persons with ACC can perform normally on intelligence tests they generally present with a range of neuropsychological and social deficits. The deficit profile is characterized by poor coordination of motor movements, slow reaction time, processing speed and, poor memory. Socially, they present with deficits in communication, language processing, the theory of mind, and interpersonal relationships. The present paper illustrates the role of neuropsychological assessment with implications to psychosocial management in a case of agensis of the corpus callosum. Method: A 27-year old left handed Caucasian male with a history of ACC was self-referred for a neuropsychological assessment to assist him in his employment options. Parents noted significant difficulties with coordination and balance at an early age of 2-3 years and he was diagnosed with dyspraxia at the age of 14 years. History also indicated visual impairment, hypotonia, poor muscle coordination, and delayed development of motor milestones. MRI scan indicated agensis of the corpus callosum with ventricular morphology, widely spaced parallel lateral ventricles and mild dilatation of the posterior horns; it also showed colpocephaly—a disproportionate enlargement of the occipital horns of the lateral ventricles which might be affecting his motor abilities and visual defects. The MRI scan ruled out other structural abnormalities or neonatal brain injury. At the time of assessment, the subject presented with such problems as poor coordination, slowed processing speed, poor organizational skills and time management, and difficulty with social cues and facial expressions. A comprehensive neuropsychological assessment was planned and conducted to assist in identifying the current neuropsychological profile to facilitate the formulation of a psychosocial and occupational rehabilitation programme. Results: General intellectual functioning was within the average range and his performance on memory-related tasks was adequate. Significant visuospatial and visuoconstructional deficits were evident across tests; constructional difficulties were seen in tasks such as copying a complex figure, building a tower and manipulating blocks. Poor visual scanning ability and visual motor speed were evident. Socially, the subject reported heightened social anxiety, difficulty in responding to cues in the social environment, and difficulty in developing intimate relationships. Conclusion: Persons with ACC are known to present with specific cognitive deficits and problems in social situations. Findings from the current neuropsychological assessment indicated significant visuospatial difficulties, poor visual scanning and problems in social interactions. His general intellectual functioning was within the average range. Based on the findings from the comprehensive neuropsychological assessment, a structured psychosocial rehabilitation programme was developed and recommended.

Keywords : agensis, callosum, corpus, neuropsychology, psychosocial, rehabilitation

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