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Case Report

Psychiatry Section

Delusional Disorder in a Patient with Corpus Callosum Agenesis

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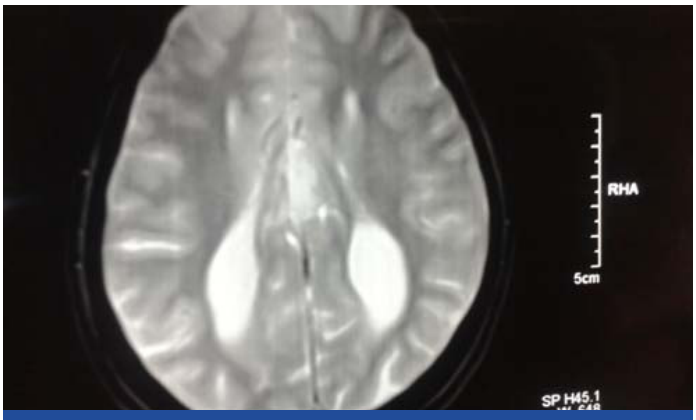
ABSTRACT

Agenesis of corpus callosum is rare and associated neuropsychiatric abnormalities reported are epilepsy, Asperger's syndrome, learning problems, depression, schizophrenia, conduct disorder and conversion symptoms. Schizophrenia is the most common psychiatric disorder reported among corpus callosum agenesis. We report a rare case of delusional disorder with corpus callosum agenesis and seizure disorder. The patient presented with delusions of persecution towards younger brother and mother, disturbed sleep and reduced appetite. She had a history of seizure disorder of ten years duration, which was controlled with carbamazepine and levetiracetam. Neurological examination was normal. On MRI, corpus callosum agenesis was detected. She was put on an atypical antipsychotic quetiapine to which her psychiatric symptoms responded completely.

Keywords: Corpus callosum dysfunction, Epilepsy, Psychiatric sequelae, Psychosis

CASE REPORT

A 23-year-old female was brought by her parents to the psychiatry out-patient services of Guru Teg Bahadur Hospital, a tertiary care center in Delhi with a history of suspiciousness towards her younger brother for last three months. She was preoccupied with firm belief that he was continuously talking ill about her character and was also trying to harm her. This suspiciousness had increased in last one month to the level that she started having frequent fights with her brother. The patient became abusive, assaultive and also started breaking expensive household items. The suspiciousness also started against her mother since last one month that along with brother she is plotting to kill her. The patient stopped eating food prepared by her mother with a belief that some poison has been mixed with it. There was also difficulty in falling asleep and the duration was also reduced to about 3 to 4 hours. The patient's family members noticed that she was not interacting with anyone and even stopped going out of her house. There was no history suggestive of auditory, visual or olfactory hallucinations, depressed mood or suicidal ideation. She had history of seizures since the age of ten years, controlled with carbamazepine 900 mg along with levetiracetam 1gm daily. There was no history of prenatal trauma or exposure to drugs. Early development was normal without any neurotic traits. She was an average student and left schooling at the age of 16 after passing tenth standard. There was no past or family history of any chronic physical illness, psychiatric disorder or drug abuse.



[Table/Fig-1]: MRI showing corpus callosum ageneis.

General physical and systemic examination was normal. Neurological examination revealed a conscious, co-operative young female of average built. The tests for co-ordination (finger nose test, heel-shin test, dysdiadochokinesia) were normal. Sensory and motor systems and cranial nerves were intact. Mental status examination revealed poor eye contact, normal psychomotor activity and speech. Her affect was irritable. There were delusions of persecution and self-reference. Higher mental function revealed impaired attention and concentration (Digit Span Test, Serial Subtraction test), poor immediate and recent memory with impaired judgement and insight. Her I.Q. was 78. Routine blood investigations, liver and kidney function tests, blood sugar (fasting and post-prandial), serum electrolytes and proteins, thyroid function tests, vitamin B12 and folate levels, chest X-ray and urine examination were normal. Fundus oculi and EEG were within normal limits. Patient was non-reactive for HIV, Hepatitis B and C. MRI brain showed agenesis of corpus callosum and septum pellucidum with bilateral colpocephaly [Table/Fig-1].

To control the psychiatric symptoms, the patient was started on an atypical antipsychotic, quetiapine 75mg daily along with tablet clonazepam 0.5mg, if required. The dose of quetiapine was gradually increased to 200mg daily after 3 weeks. There was improvement in her aggressive behaviour; sleep and appetite at 4 weeks follow-up. On following her up after 8 weeks, the delusions had completely subsided.

There were atypical features in the present case. In previous reports, schizophrenia like picture had been mentioned; the present case had delusional disorder. The corpus callosum agenesis had been more commonly reported in males but the reported case was a female.

DISCUSSION

The abnormal morphologies of corpus callosum can be classified into congenital and acquired defects. Complete agenesis of the corpus callosum is a rare defect and includes a wide range of defects e.g. trisomies of chromosomes 8, 13 and 18 [1]. Acquired causes of corpus callosum agenesis include head injury, cerebrovascular accidents, hydrocephalus, tumours, white matter diseases etc [2]. The prevalence of corpus callosum agenesis is estimated to be 0.004% to 2.64% [2-4] and in children with disabilities, it is 2 to 3% [5]. The corpus callosum agenesis is more prevalent among males [1,3]. Corpus callosum agenesis is frequently accompanied

by other developmental defects e.g., cleft palate, ocular and spinal abnormalities [1]. The neuropsychiatric abnormalities reported are epilepsy, Asperger's syndrome, learning problems [3,5-7], autism [8], depression [9], schizophrenia [4], conduct disorder and conversion symptoms [3]. Schizophrenia is the most common reported psychiatric disorder among patients with corpus callosum agenesis [10].

Despite the presence of corpus callosum atrophy or total agenesia, neuropsychological examination may be normal [11]. The psychiatric disorders reported with corpus callosum agenesis are heterogeneous. Disorders of inter-hemispheric integration and communication are the plausible models [12]. The high incidence of seizures in corpus callosum agenesis emphasizes its inhibitory nature. The patients with tumours in this region also have high incidence of symptoms ranging from alexithymia to delusions and hallucinations. Similarly, alternative pathways for interhemispheric communication, which develop in absence of functioning corpus callosum may be susceptible to misconnection, producing psychotic symptoms [13,14]. The limbic structures abnormalities developed along with corpus callosum agenesis may be specifically linked to psychiatric disorders [3]. In a study on MRI, Woodroff et al., showed an inverse relationship between corpus callosum size and delusions [15].

CONCLUSION

Corpus callosum agenesis is a rare disorder. It is frequently associated with psychiatric comorbidity, which should be correctly recognized and timely treated.

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