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Case report

Partial corpus callosal agenesis – case report

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ABSTRACT

58 yr female, case of ca breast and was operated a 8 years back presented with complains of headache since 6 months, CT finding showed partial corpus callosal agenesis with interhemispheric lipoma , Presence of tiny fat globules in the suprasellar cisterns suggestive of rupture of lipoma, associated with anterior communicating artery – aneurysm.

1. History

58 yr female, case of ca breast and was operated a 8 years back presented with complains of headache since6 months, no history of fever, vomiting, seizures. Investigations like hemogram and cerebrospinal fluid analysis were within normal limits. Ultrasound abdomen, renal function, liver function, lipid profile and ophthalmologic examination were within normal limits.

CT finding

Fig :I --NECT BRAIN relatively parallel placed lateral ventricles with fat density component and calcification in the interhemispheric region.

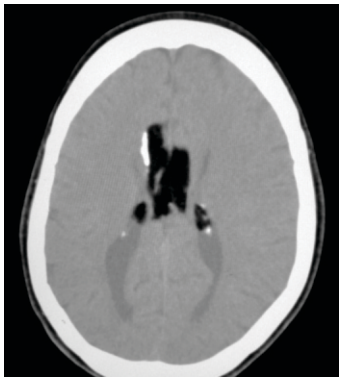

Fig II--Well defined hyperdense extradural lesion in relation to anterior communicating artery suggestive of aneurysm of artery.

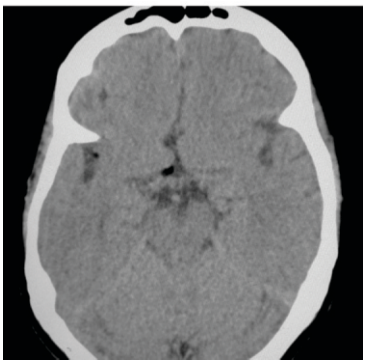

Fig III --Presence of tiny fat globules in the suprasellar cisterns suggestive of rupture of lipoma.

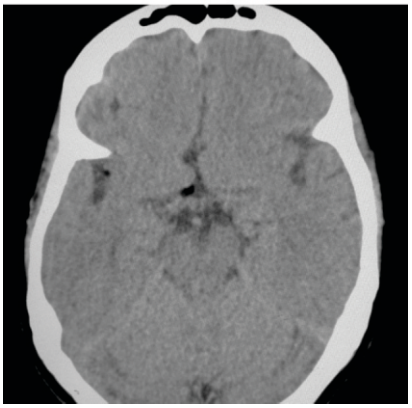

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Fig IV --T1 sagittal image shows partial agenesis of corpus callosum with pericallosal lipoma

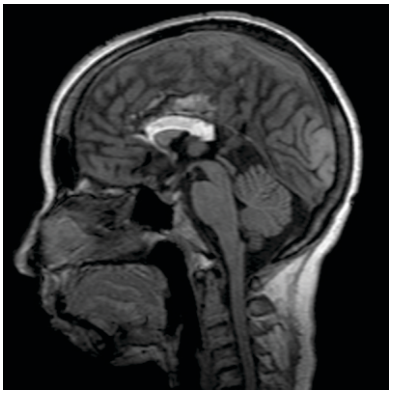
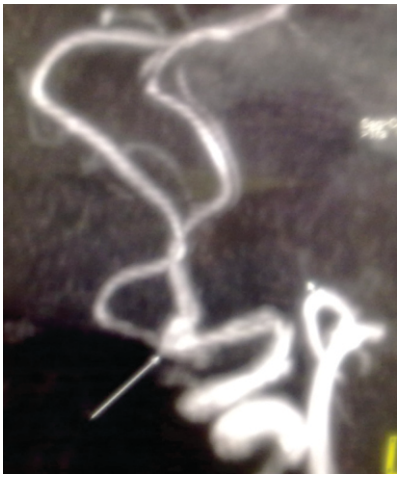


Fig V--MR TOF image shows aneurysm of anterior communicating artery



3. Discussion

Agenesis of corpus callosum may occur as an isolated defect, but it is frequently associated with other organ malformations and genetic syndromes. It is considered a potential marker for neurological impairment. In children, the prognosis is frequently related to other associated abnormalities. (1)

Out of 63, Thirty patients manifested complete agenesis and 33 patients displayed partial agenesis. Other associated nervous system malformations were detected in 14 patients with partial agenesis of the corpus callosum (mostly correlated to posterior fossa malformations) and in 10 patients with complete agenesis (more frequently associated with malformations of cortical development). Involvement of organs and apparatus other than the nervous system was present in 41 patients (ascribed to known syndromes in 21 cases). Cytogenetically detectable chromosomal abnormalities (7 patients) and subtelomeric rearrangements (3 patients) were found. Neuromotor skills were impaired in almost all cases (58/63). Mental retardation of different severity was present in 52 cases, whereas 2 patients were border line and 9 patients had normal intelligence quotient. This study demonstrated that there is no unique prognosis for agenesis of the corpus callosum as this condition is associated with a broad range of clinical manifestations, oscillating between the limits of the norm and severe psychomotor delay(2)

In another study, out of Eight patients with agenesis of the corpus callosum were found, five males and three females.. Three patients were diagnosed with isolated agenesis of the corpus callosum. One of these patients was asymptomatic at three months. Another had a slight language delay at seventeen months. The other patient had a mild developmental delay at five years. All other five patients had non isolated agenesis of the corpus callosum and all were symptomatic, with variable clinical pictures: psychomotor developmental delay, epilepsy, hemiparesis, ocular apraxia, macrocephaly. Thus suggesting non isolated agenesis of the corpus callosum is likely to have a worse prognosis (3)

Thus in this case report, we present an isolated agenesis of corpus callosum with a normal psychomotor development till her age of 58 yr, and anterior communicating artery aneurysm may be an age related finding.

Development of the corpus callosum

. Corpus callosum formation involves multiple steps, including correct midline patterning, formation of telen-cephalic hemispheres, birth and specification of commissural neurons and axon guidance across the midline to their final target in the contralateral hemisphere. Much of what we know about the stages of callosal development comes from animal models (4,5) Several principal mechanisms have been proposed to regulate callosal formation. Patients can show variable presentations ranging from no symptoms to severe cognitive impairment

Genetic causes

The genetics of agenesis of the corpus callosum [AgCC] in humans are variable, and reflect the underlying complexity of callosal development. Current evidence indicates that a combination of genetic mechanisms, including single- gene Mendelian mutations, single-gene sporadic mutations and complex genetics (which may have a mixture of inherited and sporadic mutations) might have a role in the aetiology of AgCC. Retrospective chart reviews and cross-sectional cohort studies report that 30–45% of cases of AgCC have identifiable causes. Approximately 10% have chromosomal anomalies and the remaining 20–35% have recognizable genetic syndromes (6) However, if we only consider individuals with complete AgCC, then the percentage of patients with recognizable syndromes drops to 10–15%, and thus 75% of cases of complete AgCC do not have an identified cause.

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