Case Report

Lipoma of corpus callosum associated with seizure — A rare case report

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Intracranial lipomas (iLp) are very rare congenital malformative lesions, being less than 0.1% of intracranial tumours. They originate from abnormal differentiation of mesenchymal tissue of meninx primitiva. Most of cases are asymptomatic pericallosal lesions, often associated with other defects of differentiation of the midline structures. Association with hypogenesis/agenesis of corpus callosum is frequent, being present in 90% of anterior lipomas and in 30% of posterior lipomas. There is no indication to surgical treatment in pure corpus callosum lipoma lesions. Prognosis and symptoms depends on associated malformations. Here, we report a case of 15 year old girl who presented with new onset seizure episode and diagnosed with lipoma of corpus callosum.

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Lipomas occur in most parts of the body, but intracranial lipomas are extremely rare, being less than 0.1% of intracranial tumours[1]. They originate from abnormal differentiation of mesenchymal tissue of meninx primitiva. Intracranial lipomas mainly occur in the region of the corpus callosum, particularly in the rostrum, as first described by Rokitansky in a case of necropsy[2]. Although more than 50% of intracranial lipomas are localized in the pericallosal cistern, they make up only about 5% of all corpus callosum tumours[3]. 80% of pontocerebellar lipomas are symptomatic, followed by pericallosal and diplomas of .lateral sulcus[4].

Half of cases are associated with cerebral malformations of various grade, most of all midline anomalies, among these, the most frequent being agenesis/hypogenesis of corpus callosum[1]. Association with hypogenesis/agenesis of corpus callosum is frequent, being present in 90% of anterior lipomas and in 30% of posterior lipomas[5].

Neurological manifestations of lipomas are non specific. The most common symptoms are persistent headache, seizures, psychomotor retardation and deficits of cranial nerves[4]. The seizure is one of the most frequent symptoms: when present it appears before the age of 15, and is often partial and severe[6,7].

Lipoma of the corpus callosum does not lend itself to surgical cure, in cases with seizures since anticonvulsant therapy usually results in remission of the seizures.

We report a rare case of 15 year old girl who presented with new onset seizure episode and diagnosed with lipoma of corpus callosum.

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Case Report

A 15 year old girl was referred to our tertiary care hospital with history of repeated seizure episodes for last 6 hours. In the emergency department, she was in drowsy state which was suggestive of post ictal confusion. She was admitted under medicine department and evaluated thoroughly. There was no history of fever, trauma, headache, nausea, vomiting, any limb weakness or history of prolonged drug intake. No past history of similar episodes or significant family history was present.

On examination she was afebrile, drowsy and disoriented. Pulse was 90/min, regular with BP 116/80. No signs of meningeal irritation were evident; pupils were equal and reacting to light, with normal fundic examination. She was moving all 4 limbs and there was no focal neurological deficit .Plantar was bilaterally non responsive, with preservation of all deep and superficial reflexes. No abnormality was detected in the cardiovascular, respiratory and gastrointestinal system.

She was treated with IV Phenytoin and other necessary supportive medications.

Baseline investigations (TC, DC, ESR, Hb%, sugar, urea, creatinine, LFT & electrolytes) were within normal limits.

EEG was unremarkable, and had some dysrhythmic changes.

Computerized Tomography of head showed a hypodense lesion in posterior part of corpus callosum (Fig 1). No other focal neuro parenchymal lesion was

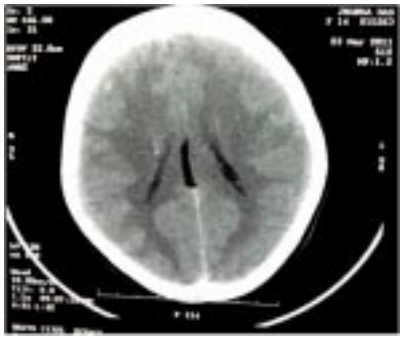

Fig 1 — Axial section of CT brain. Note – Separated and parallel lateral ventricles. Midline hypodense lesion having characteristic Hounsefield value of fat (-83 to-108) suggestive of corpus callosum lipoma

seen. C.T. findings were suggestive of lipoma of corpus callosum. MRI of the brain was done which revealed curvilinear hypodensity in posterior part of corpus callosum without any other abnormality (Figs 2, 3).

As surgical management is contraindicated in lipoma of corpus callosum, patient was discharged with oxcarbazapine for seizure prophylaxis. Periodic follow up in outpatient department was done on a regular basis and there was no documented episode of seizure recurrence even after 6 months.

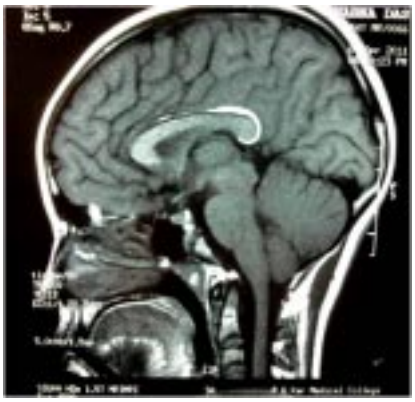

Fig 2 — MRI T1 weighted image (saggital view) showing hyper intensity in posterior part of corpus callosum suggestive of corpus callosum lipoma

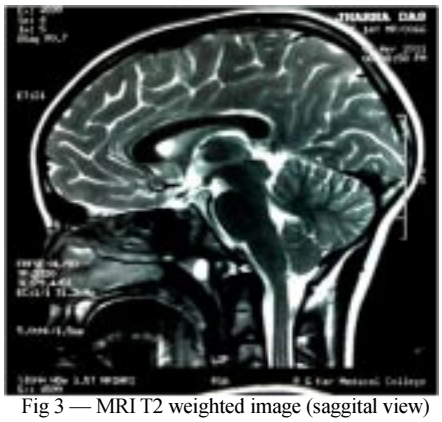

Fig 3 — MRI T2 weighted image (saggital view) showing hyper intensity in posterior part of corpus callosum suggestive of corpus callosum lipoma

Discussion

Lipomas can occur in any part of the body but intracranial lipomas are extremely rare and are developmental in origin. Abnormal resorption of primitive meninges is said to be responsible for the development of these lipomas. During embryological development, resorption of primitive meninges usually takes place between 8th and 10th week of intrauterine life. If the primitive meninges persist longer, it may eventually differentiate into fatty tissue. This is considered to be the pathogenesis of intracranial lipomas[8].

More than 50% are localized in the pericallosal cistern; other sites are cisterna ambiens and quadrigeminal cistern, pontocerebellar cistern, cistern of lateral sulcus and infrequent superficial cerebral hemispheric localizations[9].

80% of pontocerebellar lipomas are symptomatic, followed by pericallosal and lipomas of lateral sulcus. On the other hand, lipomas of cisterna ambiens and quadrigeminal cistern infrequently cause clinical manifestations (20% of cases)[4]. The most common symptoms are: persistent headache, seizures, psychomotor retardation and deficits of cranial nerves[5]. Half of cases are associated with cerebral malformations.

Of various grade, most of all midline anomalies[10], among these, the most frequent is agenesis/hypo genesis of corpus callosum[1]. Other associated anomalies are agenesis/hypo genesis of vermis of cerebellum, spina bifida, and lack of septum pellucidum[11]. Because of their malformative origin, iLp usually do not become hyperplasic, whereas it might occur when the patient gains weight, as well as other sites of fat storage[12].

Lipoma of corpus callosum was first described by Rokitansky[2] in a case of necropsy in 1856.

Lipomas of corpus callosum are morphologically classified into two groups: anterior lipomas are indicated as tubulonodular, usually bigger than 2 cm and frequently associated with hypogenesis/agenesis of corpus callosum, frontal lobes anomalies, frontal encephalocele, calcifications, and/or ocular anomalies. Posterior lipomas are indicated as curvilinear, they are thin and usually lay on splenium; they are less frequently associated with corpus callosum anomalies and/ or other encephalic anomalies[13].

The seizure is one of the most frequent symptom, when present is often partial and severe[6,7]. There's no indication to surgical treatment in isolated (pure) corpus callosum lesions; on the other hand, surgical outcomes are controversial because of difficulty in complete debulking with sparing of the neurovascular structures involved[14].

In our case, the girl of 15 years presented with repetitive attack of partial, later severe generalised seizure and diagnosed as a case of lipoma in the posterior part corpus callosum.

She improved with anti-convulsing therapy without surgical procedure.

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