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Pericallosal lipoma: A rare cause of persistent headache.

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Abstract

Objectives: Intracranial lipomas are very rare tumors with an incidence of approximately 0.1% of intracranial tumours. They are mostly localized in the pericallosal region. The importance of this report is that it is the first case in childhood that indicates an association between persistent headache and pericallosal lipoma in the literature.

Case report: We observed an eleven year old male patient who was admitted to our pediatric emergency department because of a persistent headache that his cranial magnetic resonance imaging demonstrated to be a lipoma in the pericallosal region, occupying both anterior and posterior locations around the corpus callosum without any corpus callosum or other central nervous system anomalies.

Conclusion: Intracranial lipomas are usually asymptomatic and rare. They can be detected from computer tomography and magnetic resonance imaging. They are usually benign but may require surgery in symptomatic cases.

Keywords: Childhood, Magnetic resonance, Pericallosal lipoma, Persistent headache.

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Background

Mostly intracranial lipomas are determined by chance, and all intracranial tumors are found with a regularity of less than 0.1%, but the real frequency is not known precisely [1]. Pericallosal lipomas are usually seen in nearly half of the incidences of intracranial lipomas with corpus callosum abnormalities and are caused by abnormal differentiation the persistent primitive meninges [2,3]. A pericallosal lipoma may contain calcification in the periphery and may continue into the lateral ventricle [3,4]. Usually it has no symptoms and about half are determined by chance. These patients' symptoms may include headache, seizures, weakness, forgetfulness, and patients may arrive with psychological problems [2,5]. In this paper, we want to present an eleven year-old male patient with the symptoms persistent headache as a rare malformation of pericallosal lipoma.

Case Presentation

We were presented with an eleven year-old male patient who has had headaches during the previous one month, every day, lasting all day long, which were localized to the frontal region, with which he experienced insufficient relief with painkillers, and were accompanied by nausea and vomiting. The self and family history was unremarkable. There wasn't family history of migraine. On physical examination, his weight was 72 kg (>97 percentile), height 155 cm (90 percentile), and blood pressure 115/73 mmHg (normal percentile), respectively. Other systems and neurological examinations were normal. An ophtalmoscopic examination was normal. Cranial Magnetic Resonance Imaging (MRI) was given to the patient because of the persistent headaches. On T1 and T2 images the following was observed: hyperintense (Figure 1), diffusely hypointense on the diffusion images (Figure 2), which demonstrate without contrast enhancement (Figure 3) about the size of 6.5 × 1.2 cm compatible with lipoma around of the corpus callosum. There were no corpus callosum abnormalities. A pituitary MRI was taken due to obesity and a 4.5 mm micro adenoma was detected in the adenohypophese posterior segment, visible with contrast enhancement. Brain surgery was evaluated for the absence of clinical bass effects, however, it was decided to follow up the patient clinically. Partial reduction of his headache was observed with non-steroidal anti-inflammatory agents.

Discussion

Congenital malformations are rare tumors and known to be benign intracranial lipomas. Meckel chiasm by a lipoma was described for the first time in 1818, while in 1856 Rokitansky determined the pericallosal lipoma accompanied by agenesis of the corpus callosum in an

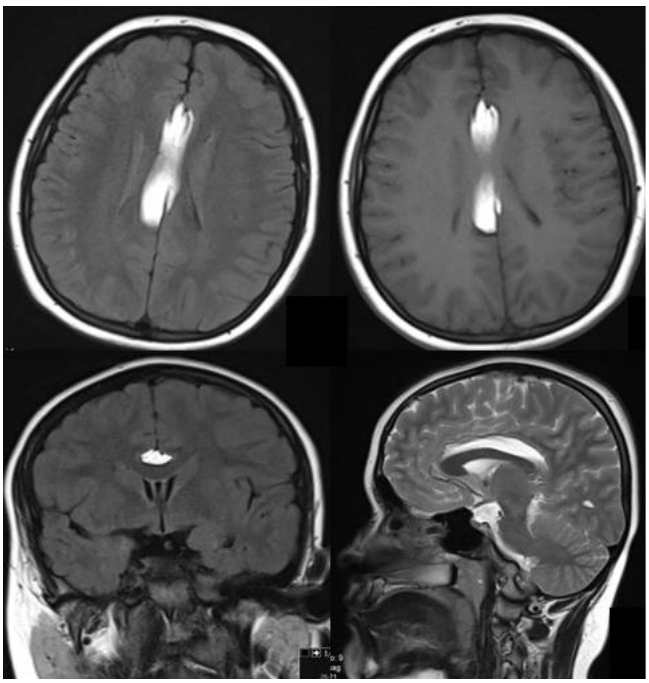

Figure 1. *T1-weighted axial/coronal, and T2-weighted sagittal sections show hyperintense, approximately 6,5 x 1,2 cm lipoma around corpus callosum*

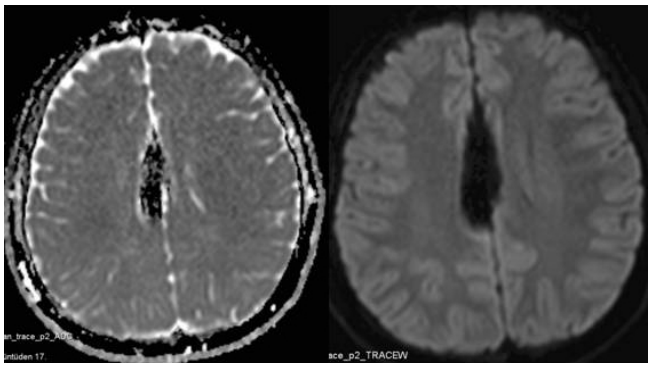

Figure 2. *The corpus callosum lipoma seems to be diffusely hypointense on diffusion images*

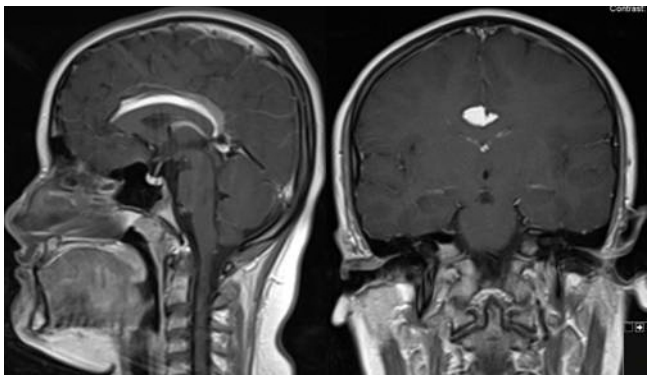

Figure 3. *Contrast enhancement does not appear on the T1-weighted sagittal and coronal sections*

autopsy [6]. The incidence is thought to be 0.08% as well 0.46% in an autopsy series [7].

Pericallosal lipomas are grouped according to anterior and posterior localization group lipomas. The anterior group is larger than 10 mm with various intracranial malformations of and including the corpus callosum. The posterior group is around the splenium. It is smaller and thinner than 10 mm and usually unaccompanied by intracranial abnormalities [2,4]. The cerebellopontine angle, sylvian cistern, tuber cinerium, pontomesencephalic region, and choroid plexus are the less common locations for intracranial lipomas [1,2]. In our case, the lipoma is both in the posterior and anterior of the corpus callosum, in addition, the posterior part of the settlement was more subtle.

Many theories have been produced in the pathogenesis of intracranial lipomas. Recent theories of lipomas are congenital malformation, as a result of the false differentiation of primitive mesenchymal tissue and ectopic tissue that is thought to produce [5,7]. This happens in the first trimester [5]. The primitive structure of meningeal tissue resorption, and mature adipose tissue differentiation is incorrectly located in the arachnoid space, so it causes calcification and formation of mature bone tissue [8,9]. Developmental malformation is not a true tumor [5]. Under this theory, the pathogenesis of embryogenesis are often described as accompanying the callosal and other cerebral hypoplasia. Associated anomalies depend on the location and size of lipoma.

Cranial CT and MRI findings are characteristic and patognomic. CT lipomas are homogenous, well-circumscribed, show contrast, and they are seen as a hypodense mass. The MRI is hyperintense on T1 and T2 weighted sequences, iso-hypointense on T2-weighted sequences and intracranial lipomas generally do not enhance. It appears to be lost in the fat-suppressed signal sequence. Interhemispheric lipomas, especially calcifications, are common in the fibrous capsule surrounding the lipoma [6,10]. Isolated corpus callosum lipomas are asymptomatic. Approximately half of the cases are detected incidentally. These cases include headache, seizures, weakness of the limbs, and patients tend to consult with psychological problems and memory problems [2,5]. In our case, there were no additional neurological symptoms except for recurrent and persistent headaches. There was no additional central nervous system pathology except corpus callosum lipoma.

The surgical removal of an intercranial is risky because of high mortality and morbidity due to its being attached to the environmental tissue containment and neurovascular structures. Lipomas do not particularly require surgery but it should be considered in cases of uncontrolled seizures, hydrocephalus, progressive dementia and increased intracranial pressure [2,5]. Rather than total removal, the surgical strategy should aim for decompression. Our case did not display surgical indications and he was observed in clinical follow-up.

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