Pericallosal lipoma: A case report

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Abstract

Pericallosal lipoma or lipoma of the corpus callosum is a rare congenital brain malformation that can be associated to dysgenesis or agenesis of the corpus callosum. It is usually asymptomatic, but can be revealed by epilepsy, paresis, paralysis, dementia, or headaches. CT and MR imaging play an important role in making this diagnosis. Lipoma of the corpus callosum can present as 2 different types: tubulonodular and curvilinear. Tubulonodular lipomas are the most common morphology. We report a case of 60-year-old woman, admitted for a seizure following a head trauma that benefited from a head CT revealing a curvilinear lipoma of the Corpus Callosum.

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Introduction

Pericallosal lipoma is a very rare fat containing congenital malformation, its prevalence is estimated to be less than 0.1% of intracranial tumors. Two morphological types have been reported; tubulonodular and curvilinear. It is usually associated to agenesis or hypogenesis of the corpus callosum. Typically, Lipoma of the Corpus Callosum is asymptomatic and discovered during radiological investigations for other conditions, usually following trauma and it grows very slowly [1]. The prognosis depends on the concomitant malformations; however, it is generally favorable [2]. We report a case of curvilinear pericallosal lipoma with no associated corpus callosum anomalies, discovered in a 62-year-old female admitted for a seizure following a syncopal episode and head trauma.

Observation

A 62-year-old woman, with a history of a third degree atrioventricular block, was admitted to the emergency department for a seizure following a syncopal episode, with a head injury, the patient also reports recurrent migraines, without any other pertinent symptom.

The neurological examination was normal after the seizure, and she was referred to the radiology department for head CT (Fig. 1), that revealed a well-defined curvilinear midline formation, molding the genu, body and splenium of the corpus callosum, homogeneously hypodense with a fat density (-90 UH), and no enhancement after contrast. Based on these imaging findings, the diagnosis of pericallosal lipoma was made. No surgical intervention was indicated. The patient

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The week Normally, than primitive, injec-

schwannomas, agenesis found a pericallous Rokitansky, reported mors. mation, headaches was by

Fig. 1 – Head CT axial and sagittal plan showing a midline pericallosal lipoma.

was treated by antiepileptic. She is currently stable and the headaches have also regressed.

Discussion

Intracranial lipomas are a rare condition of congenital malformation, with a prevalence of less than 0.1% of intracranial tumors. It was described for the first time in 1818 by Meckel that reported a case of chiasmatic cistern lipoma, and in 1856 by Rokitansky, that reported the first case of pericallosal lipoma with agenesis of the corpus callosum.

They are situated in the midline in 90% of cases, and the pericallous region is the most frequent location, nevertheless the lipoma of the corpus callosum represents only 5% of callosum tumors. They are usually associated with other abnormalities of the differentiation of midline structures, notably a hypogenesis or dysgenesis of the corpus callosum, that are found in 90% of anterior lipomas and 30% of posterior lipomas, agenesis of the cerebellar vermis, pituitary tumors, acoustic schwannomas, and lipoma of the choroid plexus situated in the lateral ventricles [2].

The exact etiology of intracranial lipomas is still a subject of controversy. Although it has been reported that they can originate from an abnormal differentiation of the meninx primitive, a mesenchymal derivative of the neural crest, rather than being absorbed it differentiates into lipomatous tissue. Normally, the resorption occurs between the 8th and 10th week of gestation [3].

There are 2 morphological types of pericallosal lipomas. The tubulonodular type is usually anterior, it is round or lobular and typically measures >2 cm in diameter. It is also frequently associated to hypogenesis or agenesis of the corpus callosum, frontal lobe deformities, ocular anomalies and calcifications, thus is more frequently symptomatic. This variety can extend to the choroid plexus of the lateral ventricle. The curvilinear type is usually posterior, it is thin and molds the corpus callosum margins, and usually measure <1 cm in diameter; however, it is less associated with malformations of the corpus callosum [4,5].

Most cases of pericallosal lipomas are asymptomatic. Clinical manifestations such as seizures, mental disorders, paresis, or migraines are usually secondary to concomitant disorders. Epilepsy is one the most common revealing symptoms. Lipomas can also cause obstructive hydrocephalus in some cases.

The diagnosis of this condition is made with imaging. CT reveals a well-defined, midline pericallosal formation, homogeneous and hypodense with a density range from -40 UH to -100 UH, that can contain peripheral calcifications. MRI is useful to characterize the extension of the lipoma, to reveal anomalies of the corpus callosum than can be associated and to eliminate differentials, mainly intracranial teratoma. These tumors follow the attenuation characteristics of fat thus they present as hyperintense in T1 and T2 sequences with signal attenuation on fat suppression sequences, but not FLAIR, and do not enhance after gadolinium [6]. In general, few differential diagnoses can be evoked, the differentials include intracranial teratoma, fat in the cerebral falx, or alipomatous transformation of certain tumors such as gliomas, ependymoma, and Primitive neuro-ectodermal tumors.

There is no specific treatment for pericallosal lipomas, antiepileptic medication can be considered in case of seizures. Surgery is rarely indicated due to the rich vascularity and
adhesion of the lesion to the adjacent tissue. Imaging follow-up is not required. In our case, the patient was observed in ambulatory consultations; however, a neurosurgical intervention was not indicated [7].

**Conclusion**

Pericallosal lipoma is a rare benign intracranial tumor that is usually asymptomatic. The diagnosis is mainly made using CT or MR imaging. Management is rarely surgical. The prognosis is usually favorable and depends on the associated malformations.

**Patient consent**

An informed consent was obtained from the patient.

**REFERENCES**

[1] Yilmaz N, Unal O, Kiymaz N, Yilmazc C, Etlikb O, et al. Intracranial lipomas-a clinical study. Clin Neurol Neurosurg 2006;108:363–8.
[2] Truwit CL, Barkovich AJ. Pathogenesis of intracranial lipoma: an MR study in 42 patients. AJR Am J Roentgenol 1990;155(4):855–64 discussion 865.
[3] Paulus W, Scheithauer BW, Perry A. Mesenchymal, non meningotheial tumours. In: World health classification of tumours. IARC; 2007. p. 173–4.
[4] Mostafa SN, Akhter A, Sultana T, Islam MN. Corpus callosal lipoma with agenesis of corpus callosum—a case report. Farid Med Coll J 2018;13(1):47–9.
[5] Patel AN. Lipoma of the corpus callosum: a nonsurgical entity: nosology, diagnosis, management. N C Med J 1965;26:328–35.
[6] Loddenkemper T, Morris HH, Diehl B, Lachhwani DK. Intracranial lipomas and epilepsy. J Neurol 2006;253:590–3.
[7] Gerber S, Plotkin R. Lipoma of the corpus callosum. J Neurosurg 1982;57:281–5.