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Pericallosal Lipoma Revealed by Headaches: A Case Report

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Abstract | **Case Report**

The pericallosal lipoma is a very rare benign congenital lesion, which can be isolated or associated with varying degrees of dysgenesis of the corpus callosum. It is usually asymptomatic, but can be revealed by epilepsy, paresis, paralysis 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.. We report a case of 36-year-old woman, admitted for helmet headaches that benefited from a brain MRI revealing a curvilinear lipoma of the Corpus Callosum.

Keywords: Lipoma; corpus callosum; headaches; MRI; tubulonodular; curvilinear.

INTRODUCTION

Intracranial lipomas are rare, generally considered as congenital malformations [1]. The most common location is the close vicinity of the corpus callosum, hence the name pericallosal lipomas.

Its prevalence is estimated to be less than 0.1% of intracranial tumors [1, 2]. Two morphological types have been reported; tubulonodular and curvilinear, the tubulonodular lipomas have been suggested to be associated more frequently with corpus callosum abnormalities [1, 3]. Clinically, they are asymptomatic in the majority of cases. Otherwise, they may manifest themselves as headaches or seizures [4, 5]. We report a case of curvilinear pericallosal lipoma, discovered in a 36-year- female consulting for headaches.

OBSERVATION

A 36 years old woman with no notable pathological history, consulted for helmet headaches. Vital signs are within the normal range, physical examination is unremarkable, with no focal neurological deficits noted. Basic lab results are within normal limit. The patient was referred to our department of radiology for a cerebral MRI.

The MRI demonstrate typical appearances of a curvilinear pericallosal lipoma, opposite the splenium of the corpus callosum, measuring 7mm in thickness and 76mm in length, with calcifications in signal void on the T2* sequence. The rostrum and the splenium is indeed normal, and as such no callosal dysgenesis is present (Figure 1). Based on these imaging findings, the diagnosis of pericallosal lipoma was made. No surgical intervention was indicated. The patient received a symptomatic treatment with regression of these headaches.

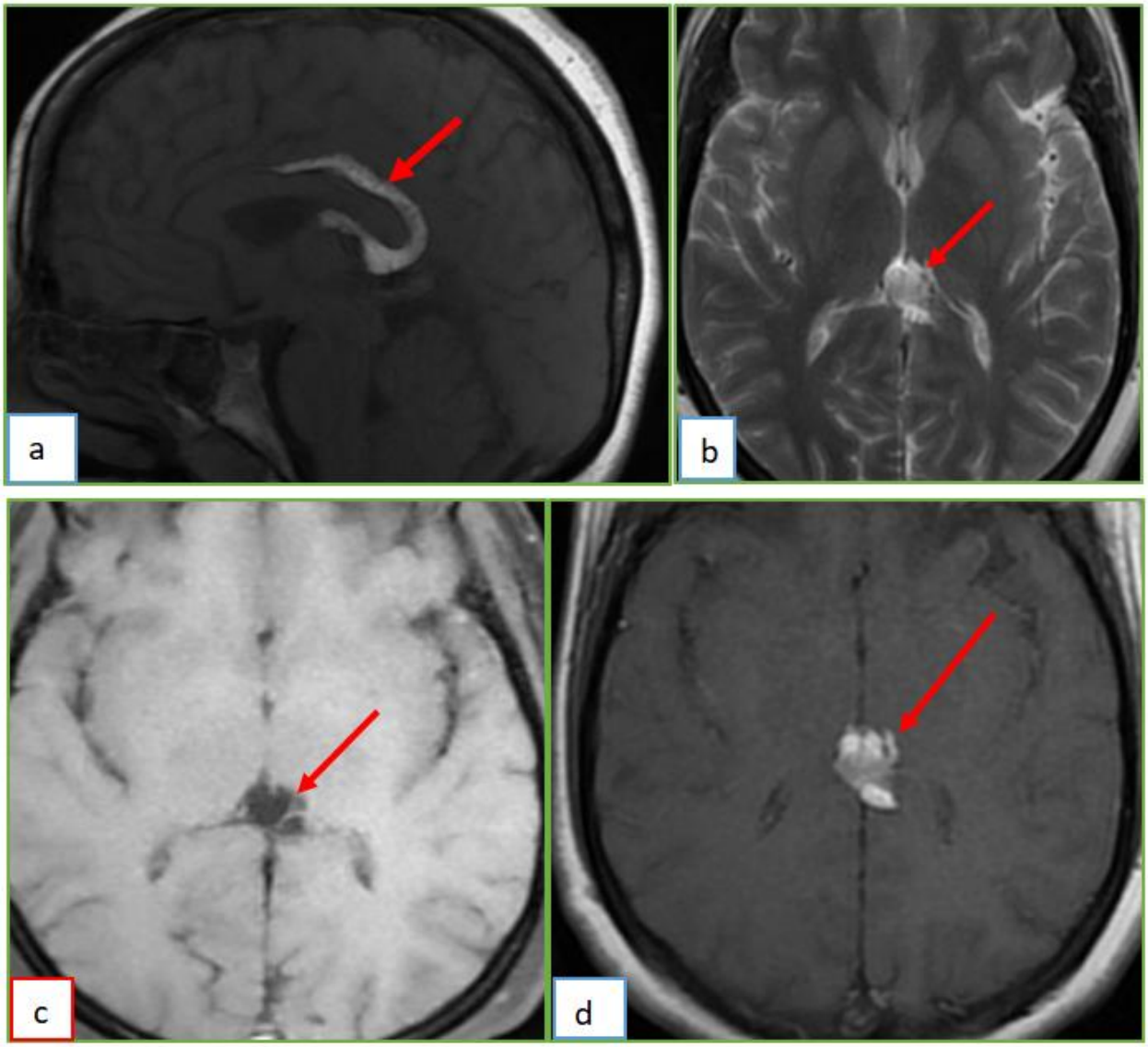

Figure 1: Brain MRI with sagittal T1FSE(a) axial T2(b) etT1(d)FSE and axial T1FatSat: demonstrate a curvilinear pericallosal lipoma(red arrows), appear in T1 and T2 hyper signal, with a drop in signal on T1 Fat Saturation sequence

DISCUSSION

Intracranial lipomas (ICL), also known as lipomatous hamartomas, are a rare nosological entity representing less than 0.1% of intracranial neoformations. The first descriptions of this entity date back to 1818 by Meckel (chiasmatic lipoma) and in 1856 by Rokitansky who described a lipoma of the corpus callosum associated with agenesis of the corpus callosum [1, 2, 5].

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 callous 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 [1, 6, 7].

More than a century after its first description, the precise etiopathogeny of intracranial lipomas is still subject of controversy. Several theories such as hypertrophy of pre-existing adipose tissue in the meninges, metaplasia of the meningeal connective tissue, heterotopic malformations of dermal origin, and pseudotumor derived from the primitive meninges have been advanced to explain the histogenesis of these lesions. Currently, it is accepted that these lipomas are an abnormality of the differentiation of the persistent primitive meninx, which normally resolves between the 8th and 10th week of gestation [1, 2, 8, 9].

There are 2 morphological types of pericallosal lipomas. The tubulonodular type or anterior 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. The curvilinear type or posterior 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 [1, 7, 10, 11]. In our case, it was a curvilinear type and without anomaly associated in the corpus callosum and the rest of the brain parenchyma.

Isolated corpus callosum lipomas are usually asymptomatic and are therefore discovered incidentally [5, 12]. Our patient presented with headaches on isolated corpus callosum lipoma. The clinical manifestations when present are secondary to the associated nervous tissue abnormalities [5, 7, 13]. These manifestations are polymorphic and aspecific, dominated by partial epilepsy which appears in this case before 15 years of age [12, 14]. Other manifestations are: headache, mental disorders, hemiparesis. They can also be responsible for active hydrocephalus [13].

The diagnosis of this condition is made with imaging. Perinatal diagnosis is possible by ultrasound from the 26th week of gestation. Ultrasound demonstrates the characteristic appearance of fat as a hyperechoic midline mass in the region of the corpus callosum [15, 16]. CT reveals a well-defined, midline pericallosal formation with fat density (-80 to -110 HU) [1, 15], which may contain peripheral calcifications. Peripheral curvilinear calcifications are often seen in the tubulo-nodular variety called "bracket sign" on coronal reconstructed images. The anterior cerebral vessels can be seen coursing through or above the mass and may have associated vascular malformations or aneurysm formation [17]. MRI is the examination of choice. It allows not only to diagnosis and characterize the extension of the lipoma, but also to search for agenesis or dysgenesis of the corpus callosum that are frequently associated. They appear in T1 and T2 hyper signal, with a drop in signal on the Fat Saturation sequences but not FLAIR, and do not enhance after gadolinium [1, 2, 12, 13]. The differential diagnosis is discussed with dermoid cysts and teratomas, a fatty falx cerebri: in particular in the curvilinear type, or a rare lipomatous transformation of certain tumors: primitive neuroectodermal tumors (PNET), ependymoma, glioma [1, 2, 12].

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 [1, 7, 12, 18].

CONCLUSION

Pericallosal lipomas are very rare nosological entities, associated to varying degrees with corpus callosum anomalies. They are often asymptomatic in the majority of cases and discovered incidentally. Clinical signs and prognosis depend on the associated malformation. MRI is the imaging modality of choice for diagnosis. The treatment is symptomatic with antiepileptic drugs in case of epileptic seizures. Surgery is rarely indicated.

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