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Lipoma of the Corpus Callosum: Report of a Case and Review of the Literature

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Abstract **Case Report**

Intracranial lipomas are exceptionally rare congenital lesions. This article presents a case of a 68-year-old female patient who experienced chronic headaches. Imaging studies revealed a fat-density formation in the anterior corpus callosum. While most corpus callosum lipomas are asymptomatic and typically found incidentally, they can be associated with congenital malformations, particularly affecting corpus callosum development. This case underscores the importance of imaging techniques, such as CT and MRI.

Keywords: Lipoma, Corpus Callosum, Headache, CT and MRI.

INTRODUCTION

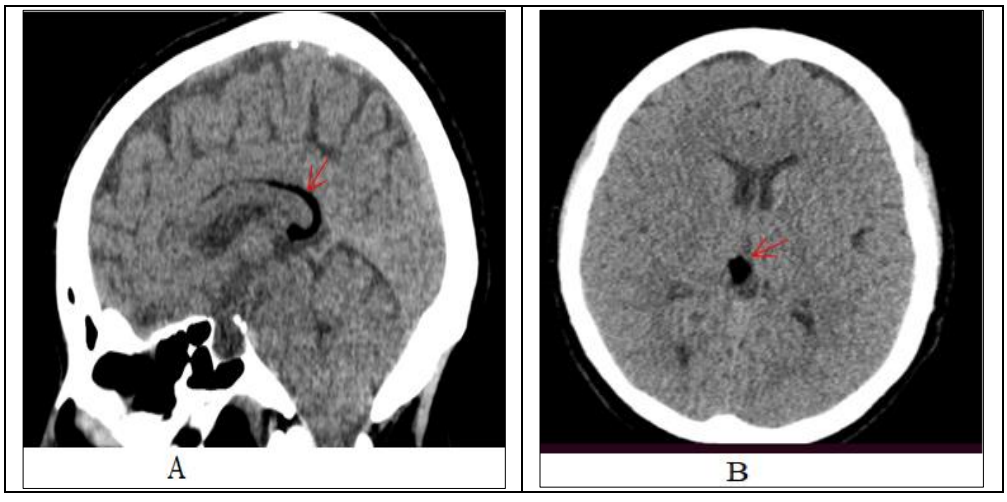
Intracranial lipomas are very rare malformative congenital lesions, accounting for less than 0.1% of intracranial tumours [1]. They are considered to be heterotopias rather than tumours, because they are histologically composed of normal fat cells, but anatomically displaced [2]. They occur mainly in the peri-callosal region (45%) [3].

Corpus callosum lipomas, however, represent only 5% of callosal tumours [3]. They are associated in more than half of cases with congenital malformations such as agenesis/dysgenesis of the corpus callosum [1]. Most lipomas of the corpus callosum are asymptomatic and are discovered incidentally. Their prognosis and symptoms symptoms depend on the associated malformations.

CASE DESCRIPTION

A 68 years old female, with no previous pathological history, who consulted for chronic headaches. Neurological examination was normal.

The brain scan (Fig1) revealed the presence of a fatty density formation in the midline, occupying the anterior part of the corpus callosum, measuring 9 mm in thickness.



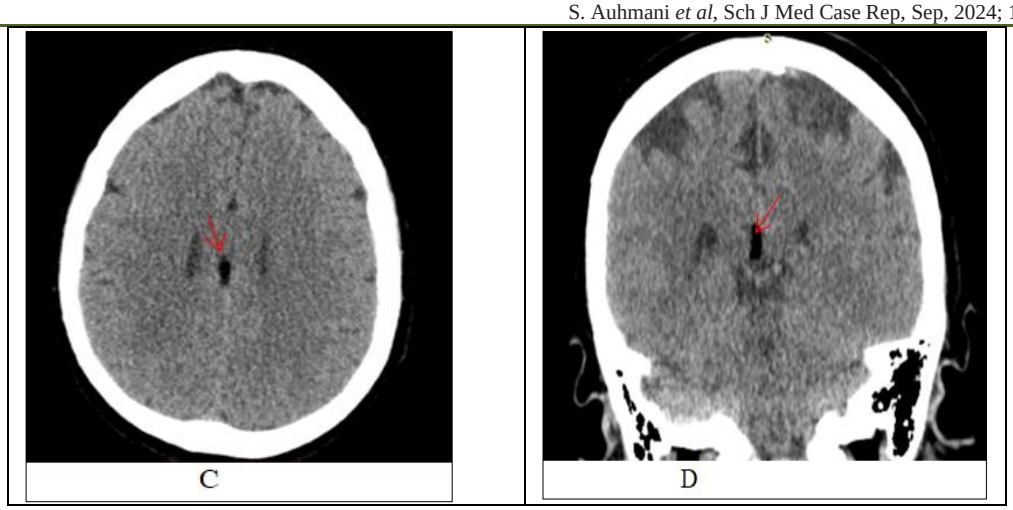


Figure 1: Sagittal, axial and frontal reconstructions CT. Thin fat density structure that lies superior to the corpus callosum, and extends from the anterior aspect of the body of the corpus callosum posteriorly, wrapping around the splenium of the corpus callosum (red arrow)

DISCUSSION

Intracranial lipoma is a very rare malformative congenital lesion, accounting for less than 0.1% of intracranial tumours. It is an abnormality in the differentiation of the primary meningeal mesenchymal tissue. It was described for the first time in 1818 by Meckel (chiasmatic lipoma).

It is located on the median line in 90% of cases, and the most frequent site is the dorsal pericallosal region [2].

However, although they are located in the corpus callosum in 45% of cases, lipomas of the corpus callosum represent only 5% of callosal tumours [3]. They are often associated with other abnormalities in the differentiation of medialstructures, notably hypogenesis or agenesis of the corpus callosum, which is found in 90% of anterior lipomas and 30% of posterior lipomas [1].

Corpus callosum lipomas are morphologically classified into two groups [1]. The first group is represented by anterior (tubulo-nodular) lipomas : Rounded or lobular and are generally more than 2cm thick. They are frequently associated with hypogenesis/agenesis of the corpus callosum, frontal lobe anomalies, calcifications, and/or ocular anomalies. The tubulonodular variety may extend into the choroid plexuses of the lateral ventricles.

The second group is represented by posterior lipomas (curvilinear). They are thin and elongated along the margin of the corpus callosum, usually less than 1 cm thick.

They are located more posteriorly on the splenium and are less often associated with corpus callosum and/or other brain abnormalities. They are often found in the paediatric young adults [4].

Isolated lipomas of the corpus callosum are usually asymptomatic. Clinical manifestations such as seizures, mental disorders, hemiparesis and headache are often secondary to the the concomitant abnormalities of the nervous tissue. Epilepsy is one of the most frequent symptoms. When it appears before the age of 15, and is often partial and severe. Lipomas can also cause obstructive hydrocephalus [1].

On CT scans, these lipomas appear as masses of fatty density (-80 to -110 HU), which may contain peripheral calcifications (the tubulo-nodular variety may sometimes present a peripheral curvilinear calcification called a "bracket sign" on coronal images) [1].

MRI is the most useful modality for a differential diagnosis and identification of associated congenital malformations. These masses follow the intensity of the fat signal on all sequences: they therefore appear in hyper T1 and T2, with a drop in signal on fat saturation sequences (Fat-Sat).

In general, there are few differential diagnoses to be considered in the presence of these fatty masses of the corpus callosum, namely: dermoid cysts and teratomas, a "fatty" brain scythe, particularly in the case of curvilinear type, or a rare curvilinear type, or a rare lipomatous transformation of certain tumours (PNET, ependymoma, glioma) [1].

No specific treatment is usually required. Antiepileptic treatment is the modality of choice in symptomatic lipomas epilepsy. Surgery is rarely indicated of the lesion to the surrounding parenchyma.

CONCLUSIONS

Corpus callosum lipoma is a rare anomaly, mostly associated with varying degrees of dysgenesis of the corpus callosum.

In most cases it is asymptomatic and is discovered incidentally. The clinical signs and prognosis of lipomas of the corpus callosum depend on the associated malformation.

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