

ORIGINAL ARTICLE

## Sylvian fissure lipomas: case reports and review of the literature

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### Abstract

Two patients with Sylvian fissure lipoma are reported. One of them was operated on because of an increased frequency of epileptic seizures in spite of high dose carbamazepine treatment. A review of the literature regarding the surgical experience with Sylvian lipomas revealed only four cases, and in none of them was the lipoma removed totally. One of ours is the first case in which total removal of the lipoma was achieved. The postoperative course was uneventful and carbamazepine dose was gradually lowered without further epileptic activity. If these exceedingly rare lesions cause symptoms then surgical intervention is indicated. With microsurgical techniques, Sylvian fissure lipomas can be removed totally without complication and symptomatic improvement may result.

**Key words:** *Epilepsy, intracranial lipoma, surgery, Sylvian fissure.*

### Introduction

Intracranial lipomas (ICLs) are very rare tumours, accounting for 0.1–1.3% of all brain tumours.<sup>1–3</sup> Although the pathogenesis is controversial, they are believed to be congenital in origin.<sup>4,5</sup> Abnormal persistence and maldifferentiation of the meninx primitiva during the development of the subarachnoid cisterns are thought to be the cause of these benign tumours.<sup>5</sup> The first case of cerebral lipoma was reported by Rokitansky as an accidental finding at autopsy in 1856. Sosman<sup>6</sup> diagnosed the first case in a living patient in 1939. Ehni and Adson<sup>7</sup> published the first case to be operated upon in 1945. ICLs tend to occur at or close to the midline. The corpus callosum or pericallosal cistern is the most frequently found location.<sup>5,8,9</sup> Lipomas of the lateral cisterns have been described in the cerebellopontine angle<sup>10–14</sup> or in the Sylvian fissure.<sup>15–17</sup>

In this paper we report two patients with Sylvian fissure lipomas. One of the patients was symptomatic, and underwent total surgical excision of the lipoma. The other patient was diagnosed incidentally and managed conservatively. The unusual location and the successful total removal of the lipoma prompted the reporting of these two cases.

### Case reports

#### Case 1

A 38 year-old woman was admitted to our hospital with a 3-year history of uncinat fits. Four months before admission even with the regular use of 1000 mg carbamazepine the frequency of the seizures increased. The neurological examination was unremarkable. CT and MRI (Fig. 1a) revealed a left-sided intra-Sylvian lipoma. Scalp electroencephalography (EEGs) performed during seizures showed epileptic discharges originating from the left temporal lobe. The patient underwent pterional craniotomy and the Sylvian fissure was opened, in order to display the middle cerebral artery (MCA) and its branches. The lipoma was located on the inferior branch of the MCA and was tightly attached to the artery. Meticulous dissection of the lesion under operating microscope made it possible to resect the lipoma totally leaving the arteries intact and without disturbing the brain (Fig. 1b). The postoperative course was uneventful. At follow-up 1 year after the operation, the patient was seizure-free with 400 mg of carbamazepine a day.

#### Case 2

A 28-year-old woman with a 5-year history of headaches was evaluated extensively because of

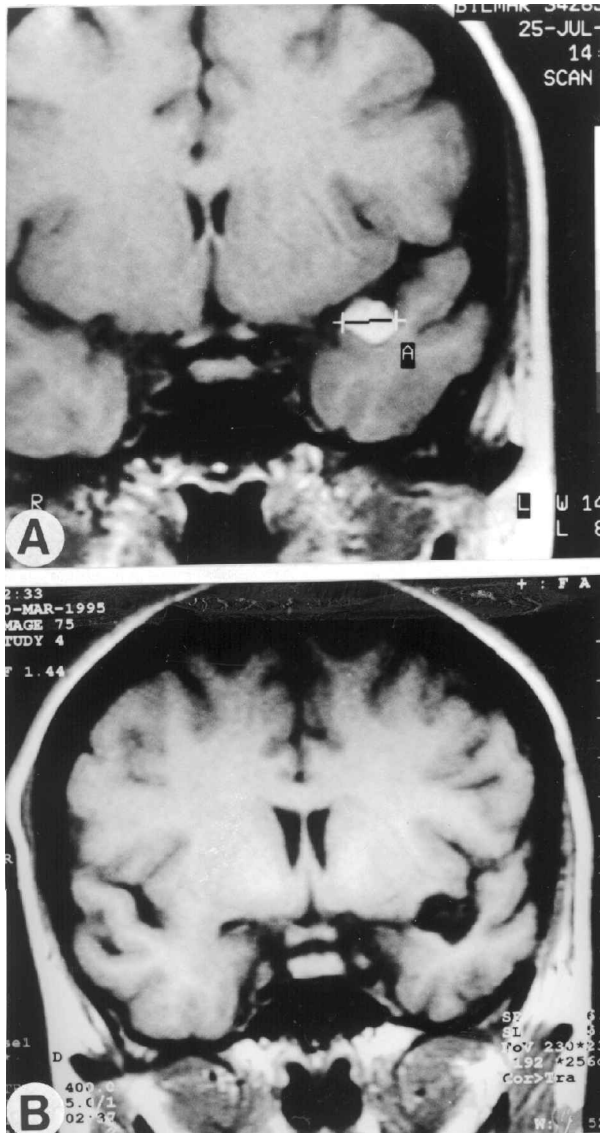


FIG. 1. Case 1. Coronal MR: (A) lipoma in the Sylvian fissure and (B) after total removal of the lipoma.

gradually increased intensity and frequency of the headaches. The neurological examination was unremarkable. CT and MRI demonstrated a lesion in the left Sylvian fissure suggesting a lipoma. The patient was managed conservatively.

## Discussion

Intracranial lipomas are rare, benign lesions which are thought to be congenital in origin. The antenatal

TABLE I. Surgical experience with Sylvian lipomas

Series	Age (years)/sex	Clinical features	Surgery	Outcome
Hatashita <i>et al.</i> (1983) <sup>16</sup>	20 M	Generalized epileptic seizures	Partial removal	Improved (under medication)
Dyck (1985) <sup>15</sup>	38 M	Uncinate fits	Partial removal	Improved (under medication)
Maiuri <i>et al.</i> (1989) <sup>17</sup>	46 M	Generalized epileptic seizures	Biopsy	Seizures controlled by anti-epileptic drugs
Truwit <i>et al.</i> (1990) <sup>22</sup>	8 F	Absence + temporal lobe seizures	Partial removal?	?
This study (1997)	38 F	Uncinate fits	Total removal	Improved (gradually lowered anti-epileptic drugs)

diagnosis of some ICLs support this supposition.<sup>18-21</sup> In 1990, Truwit and Barkovich<sup>5</sup> reviewed the proposed pathogenetic theories regarding lipoma formation and suggested that ICLs are congenital malformations that result from abnormal persistence and maldifferentiation of the meninx primitiva.

Donati *et al.*,<sup>1</sup> in 1992, reviewed 150 cases from the literature and found that ICLs were most often found near the corpus callosum (47%). The cisterna ambiens, quadrigemina and chiasmatica were the second most common sites of occurrence (20%). Maiuri *et al.*<sup>17</sup> in 1988, reported a 0.03% occurrence of Sylvian fissure lipomas in 203 cases of ICLs reviewed from the literature.

A review of the literature has revealed only 10 reported cases of Sylvian fissure lipomas,<sup>17,22</sup> five of which have been found incidentally at postmortem examination. Hatashita *et al.*<sup>15</sup> in 1983, reported the first case of a lipoma of the Sylvian fissure, in which the diagnosis was made and verified surgically during life. Dyck<sup>15</sup> reported a 38-year-old man with typical uncinat fits with transient unpleasant olfactory auras and auditory hallucinations who was operated on, with approximately 20% removal of the lipoma. Maiuri *et al.*<sup>17</sup> reported a case of a very large lipoma of the sylvian fissure, causing epileptic seizures, diagnosed by CT and confirmed by biopsy. Truwit *et al.*<sup>22</sup> detected two lipomas within the Sylvian fissure, both were in patients with pericallosal lipomas, one of whom was operated on for the purpose of excluding a teratoma (Table 1).

Intracranial lipomas are often asymptomatic. The most frequently associated symptom is epileptic seizures.<sup>1</sup> Six (60%) of the reported 10 patients with Sylvian region lipoma have had epileptic fits. Clinical progress in a case of ICL is thought to be caused by tumour growth.<sup>3</sup> Baesa *et al.*<sup>18</sup> in their young patient with a quadrigeminal lipoma, observed a definite increase in size of the lipoma during clinical follow-up and annual MRI.

The CT and MRI characteristics of ICLs are pathognomonic and allow differentiation of ICLs from other mass lesions.<sup>18,23</sup> On CT, ICL appears as a well defined, homogenous and hypodense structure whose density corresponds to that of adipose tissue with attenuation values of -50 to -100 Hounsfield Units (HU). Calcification may be detected and there is no

contrast enhancement.<sup>24,25</sup> On MRI these tumours show an adipose tissue-like signal with a short T1 and T2 relaxation times, hyperintense homogenous signal in T1-weighted images and hypointense signal in T2-weighted images.<sup>22,25</sup> The homogeneity of the lesion suggests that neither desquamated epithelium nor other tissue elements are present, helping to rule out both dermoid cysts and teratomas.<sup>26</sup> Dermoid and epidermoid cysts have higher attenuation values and are less homogenous. Teratomas are heterogenous lesions that may enhance with contrast. Myelolipomas and angioliipomas typically show intense enhancement after contrast administration.<sup>18</sup>

A direct surgical approach is only rarely indicated in the case of ICL. The tenacious attachments to surrounding structures make it impossible to resect totally in most cases. Attempts at radical excision increase the risk of brain injury. According Clarici,<sup>27</sup> the mortality rate of 22 patients operated on for lipomas of corpus callosum between 1942 and 1974 was 63%. In 1979, Tahmouresie<sup>8</sup> in a review of the literature found the operation mortality rate of 21 patients was 48%. Of five patients with Sylvian fissure lipoma diagnosed during life, three were operated on with no mortality. The surgical and postoperative details of the case of Truwit *et al.*<sup>5</sup> were not described. The case of Hatashita *et al.*<sup>16</sup> was operated on and only partial intracapsular removal of the tumour was achieved. The patient was in satisfactory condition without further seizure activity under medication following surgery. Dyck<sup>15</sup> was able to remove his tumour only partially. The rationale for surgery in our patient was the increased frequency of the seizures in spite of high dose carbamazepine treatment, and in this case it was possible to dissect and remove the lesion totally. The patient's postoperative course was uneventful and carbamazepine dose was lowered gradually to 400 mg/day within 6 months without further uncinat fits. Baesa *et al.*<sup>18</sup> in their review of the literature relating to surgical experiences with dorsal brain stem lipomas, found three total removals in the surgical treatment of quadrigeminal cistern lipomas.

## Conclusions

With microsurgical techniques, direct surgical treatment of ICLs is possible and symptomatic improvement may be achieved. It should be kept in mind that the primary goal of the surgery is adequate decompression, but that total removal may be achieved if the lesion permits. Cases of ICLs without any symptoms or sign, should be treated expectantly.

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