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Case Report

Deep Sylvian Meningioma in a 43-Year-Old Man: A Case Report

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Deep sylvian meningioma is a rare form of meningiomas. So far, only 4 cases including the present one have been reported in South Korea. A 43-year-old man without any previous medical history presented to our hospital with seizure. There was a rim enhancing mass in the right deep sylvian fissure without dural attachment on magnetic resonance images. Surgical resection of the mass revealed the lesion to be a meningioma in this patient.

Index words : Brain · Meningioma · Magnetic resonance imaging (MRI)

INTRODUCTION

Meningiomas are common benign brain tumor which arise from the arachnoid cap or meningoepithelial cells usually located in the meningeal arachnoid area. These tumors exhibit dural attachment signs on imaging studies (1). A meningioma without dural attachment is a rare type of meningioma, and deep sylvian meningioma is one of subtype of meningiomas without dural attachment. In this study we present a case of deep sylvian meningioma.

CASE REPORT

A 43-year-old man visited our hospital emergency center with a new onset seizure. The patient had no significant past medical history. The patient had immediately undergone computed tomography (CT) and magnetic resonance imaging (MRI). The CT revealed a $15 \times 16 \times 16$ mm rim enhancing mass located in the right deep sylvian fissure with minimal calicifications. The MRI revealed the mass as having iso-signal intensity in T1 and T2 weighted images (WI), and rim enhancement in gadolinium-enhanced T1WI with peritumoral edema. No dural tail sign was noted, which is a characteristic finding of extra-axial tumors (Fig. 1). Our first impression was a metastatic mass, with decreased certainty for brain tumors such as glioma or lymphoma.

The patient underwent a surgical resection of the tumor mass, which was found to be an extra-axial mass located in the deep sylvian fissure. There was no dural attachment.

The pathologic diagnosis of mass confirmed lymphoplasmacyte-rich type meninigoma (WHO grade I) (Fig. 2). The less enhanced central portion was identified as central hyalinizing or sclerotic area, intermingling with clusters of meningothelial like cells. The immunohistochemistry profile showed positive staining of epithelial membrane antigen (EMA) and vimentin.

The patient's post-operative course was uneventful, and has returned to normal activities without any neurologic deficiencies. A follow-up gadolinum-enhanced MRI showed about 5 mm sized residual mass in the right deep sylvian fissure, which remained

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unchanged for 4 years after the surgery.

DISCUSSION

Meningioma is a common brain tumor which represents about 15% of primary intracranial tumors in adults. Most meningiomas present with typical dural tail sign in imaging studies, since it originates from arachnoid cap or meningothelial cells (1). A meningioma without dural attachment was first identified by Cushing and Eisenhardt (2). Furthermore, Zhang et al. (1) had classified supratentorial meningiomas without dural attachment into five types: intraventricular meningioma, pineal region meningioma, deep sylvian meningiomas, intra-parenchymal or subcortical meningiomas, and others. These investigators also classified infratentorial meningiomas without dural attachment into four types: intraventricular, inferior telachoroidea, cisterna magna, and intraparenchymal types.

Deep sylvian meningioma probably arise from the arachnoid cap cells in the arachnoid and pia of the

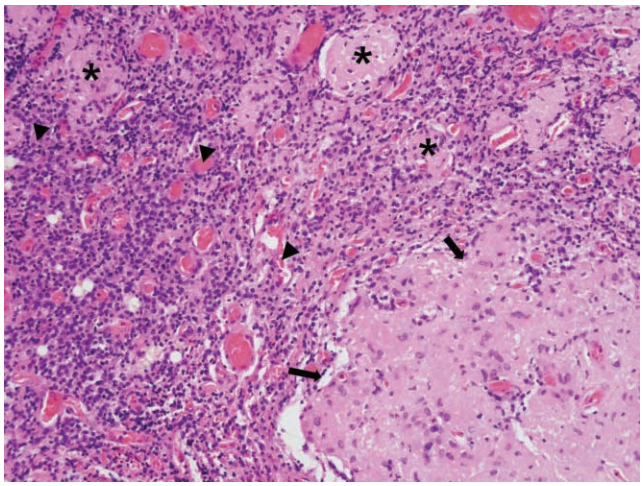

Fig. 2. The mass showing meningothelial proliferative lesion (arrows) and surrounding lymphoplasmacytic infiltrative background (arrowheads). Scattered meningioma component are noted (asterixs)

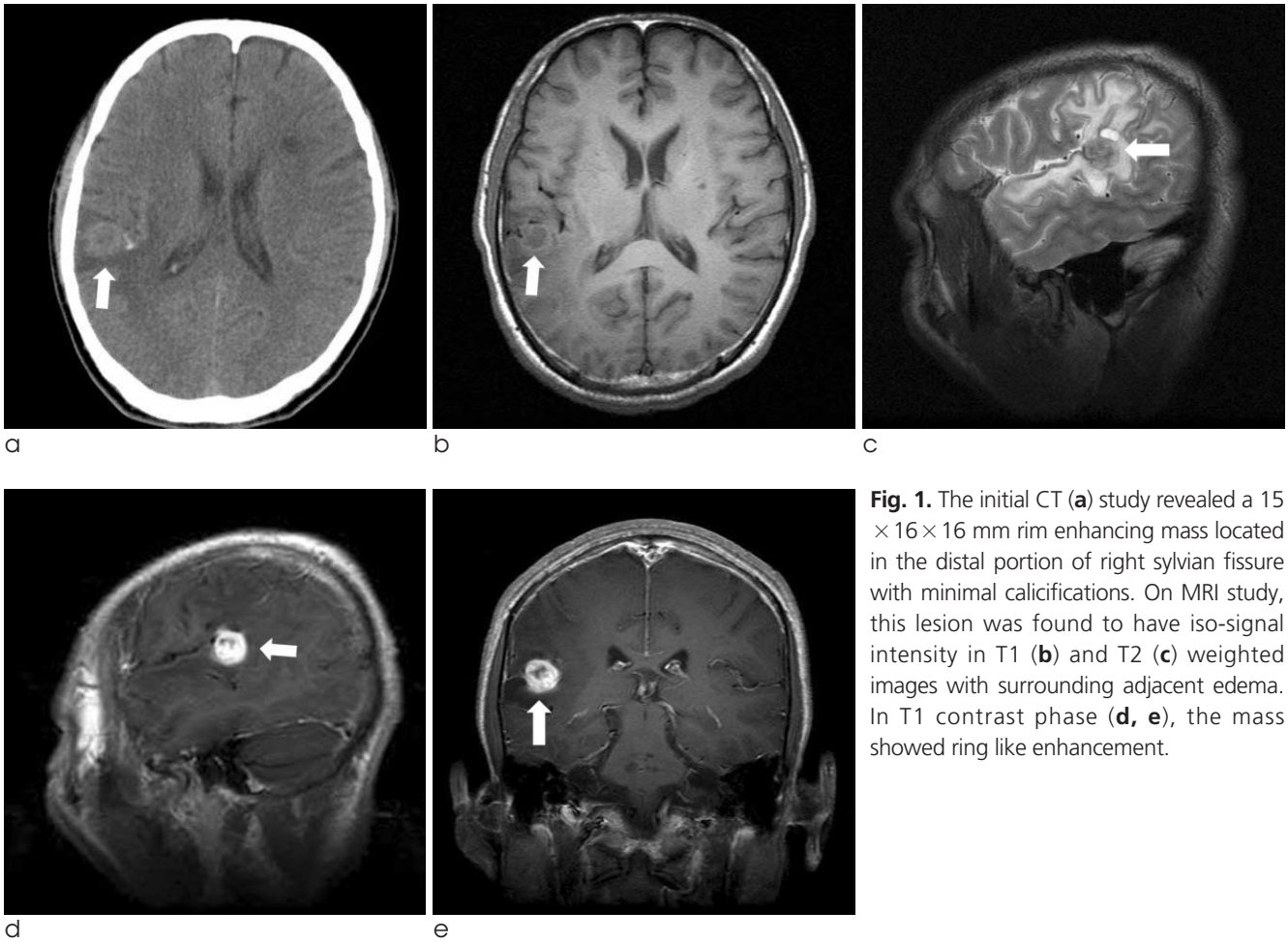

Fig. 1. The initial CT (**a**) study revealed a 15 × 16 × 16 mm rim enhancing mass located in the distal portion of right sylvian fissure with minimal calicifications. On MRI study, this lesion was found to have iso-signal intensity in T1 (**b**) and T2 (**c**) weighted images with surrounding adjacent edema. In T1 contrast phase (**d, e**), the mass showed ring like enhancement.

Table. 1 Cases of Deep Sylvian Meningiomas from South Korea

Author (year)	Age/ Sex	Clinical Presentation	Location	CT Finding	MRI Finding	Dural tail sign	Edema	OP	Pathologic Type	F-U
Cho et al 1990 (4)	2 yrs/ M	Seizure	Deep sylvian fissure	Heterogeneous hyperdense with homogeneous enhancement	NS	N	Y	Total	Transitional	2 yrs with no recurrence
Moon et al 2003 (5)	36 yrs/ M	Seizure	Deep sylvian fissure	NS	T1: low T2: iso T1c+: homogeneous enhancement	N	Y	Subtotal	Transitional	No complications
Chae et al 2012 (6)	69 yrs/ M	No symptom	Deep sylvian fissure	Calcification with enhancement	T1, T2: iso to low T1c + : heterogeneous enhancement	N	Y	Subtotal	Psammomatous	NS
Present case	43 yrs/ M	Seizure	Deep sylvian fissure	Calcification around tumor	T1: iso T2: iso T1c+: rim enhancement	N	Y	Subtotal	Lympho-plasmacyte rich	4 yrs with no recurrence

Note.— OP, operation; F-U, follow up; yrs, years; Mo, months; M, male; F, female, CT, Computed tomography; MRI, magnetic resonance imaging; NS, not stated; T1, T1 weighted image; T2, T2 weighted image; T1c, T1 weighted contrast phase; iso, iso-intensity; low, low-intensity; high, high-intensity; Y, yes; N, no; Total, total resection

sylvian fissure and the Virchow-Robin space of the middle cerebral artery branches (3). To the best of our knowledge, only 4 cases of deep sylvian meningioma including the present case have been reported in South Korea (Table 1). Additionally, meningiomas without dural attachment have been reported for a total of only 8 cases in Korea (7–9). In worldwide, about 28 cases of deep sylvian meningioma including our case have been reported (1–6, 10).

Meningiomas without dural attachment have been reported to mainly affect young adults with a slight male predominance (mean age of 26.5 years and 1.39 times more prevalent in males). The most common clinical presentation is seizure, and most patients are reported to have good prognosis after surgery (3). Radiologic findings are variable for this rare entity, and pre-operative correct diagnosis is difficult. On MRI, the mass is more frequently described as having iso- or low-signal intensity on both T1WI and T2WI with intense homogeneous enhancement and peritumoral edema (3). Sometimes the mass shows a calcification on noncontrast CT. However, these findings are nonspecific, and the lesion may be confused with glioma, metastasis, lymphoma, tuberculous granuloma, cavernous angioma, and craniopharyngioma.

Pathologically, the lympoplasmacyte rich type (WHO grade1) deep sylvian meningioma has never been reported.

Table. 1 summarizes the 4 reported cases in Korea, showing certain agreements with radiologic findings from previous reports.

The preoperative diagnosis of deep sylvian meningioma is very difficult. However, a deep sylvian meningioma should be considered when a well enhanced mass is observed in the fissure, even in the absence of a dural tail sign.

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221
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43세 남자에게서 발생한 심부실비우스열뇌수막종: 증례보고

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심부실비우스열뇌수막종은 뇌수막종의 드문 형태이다. 본 증례를 합하여 한국에서 총 4증례가 보고 되었다. 이전 병력이 없던 43세 남자가 경련발작을 주소로 본원에 내원하였다. 자기공명영상에서 오른 심부실비우스열에 테두리가 조영증강되는 종괴가 발견되었고 경막과의 연결성은 없었다. 수술적 제거 후 심부실비우스뇌수막종으로 진단되었다.

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