

Thrombosed Posterior Communicating Artery Aneurysm Mimicking an Extra-Axial Tumor

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We report a rare case of a thrombosed posterior communicating artery aneurysm mimicking an extra-axial tumor. A 69-year-old woman was admitted to a local clinic for regular checkup. A brain computed tomography on admission revealed a 1.5cm nodular high intensity lesion in the left basal cistern. Brain magnetic resonance imaging revealed a heterogeneous low signal intensity on T2-weighted image, a high signal intensity on T1-weighted image, and a subtle contrast enhancement after gadolinium injection. Location and radiological appearance of the lesion resembled that of an extra-axial tumor, except for finding of signal void on T2-weighted image and high signal portion on T1-weighted image. After cerebral angiography, the nodular lesion was diagnosed as a thrombosed aneurysm arising from the posterior communicating artery. The patient was successfully treated via surgical clipping. We should consider the possibility of a posterior communicating artery aneurysm when an enhancing nodular lesion is in the basal cistern, adjacent to the internal cerebral artery.

KEY WORDS: Aneurysm · Basal cistern · Extra-axial tumor · Posterior communicating artery.

INTRODUCTION

Posterior communicating artery (PCOM) aneurysms are the second most common aneurysms overall (25% of all aneurysms) representing 50% of all internal carotid artery aneurysms.²⁾ When space-occupying lesion is in the basal cistern, PCOM aneurysms can be pre-operatively mistaken for mass lesions such as extra-axial tumors. Thrombosed aneurysms were often revealed as hyperdense mass on brain computed tomography (CT) and contrast-enhancing mass on brain magnetic resonance imaging (MRI), thus mimicking intracranial tumors.¹⁾³⁾ We report a rare case of a thrombosed PCOM aneurysm mimicking an extra-axial tumor because a round enhancing mass was in the basal cistern.

CASE REPORT

A 69-year-old woman was referred to our hospital to undergo stereotactic radiosurgery from a local clinic with diagnosis of brain tumor. She had visited the clinic for reg-

ular checkup. She had been initially diagnosed with an extra-axial tumor in the basal cistern. She had no symptom of headache, or cranial nerve palsy before admission. Neurological examination was unremarkable. Brain CT revealed a 1.5cm hyperdense focal nodular lesion in the left basal cistern (Fig. 1). Brain MRI revealed a heterogeneous low signal intensity on T2-weighted image, high signal intensity on T1-weighted image, and subtle contrast enhancement after gadolinium injection (Fig. 2). However, in contrast with the common finding of an extra-axial tumor, it had low signal portion on T2-weighted images and high signal portion on T1-weighted image, implying signal void and thrombus. We evaluated the lesion with brain CT angiography to differentiate between intracranial tumor and aneurysm. Brain CT angiography revealed a saccular aneurysm with inferior direction involving left PCOM. Digital subtraction angiography revealed an unruptured PCOM aneurysm with a wide neck, and the other vessels were unremarkable (Fig. 3). She was treated with surgical clipping. The postoperative period was uneventful. She was discharged 7 days after the surgery without neurological deficit. The patient remained clinically intact at follow-up for 6 months.

DISCUSSION

PCOM aneurysms are usually in the basal cistern. A

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posterolateral inferior fundus often penetrates the Liliequist membrane pointing into the interpeduncular fossa, suprasellar cistern.²⁾ The lesion can cause difficulty in dif-

ferential diagnosis between intracranial aneurysms and brain tumors including meningiomas, schwannoma, gliomas. Especially, a thrombosed aneurysm with high in-

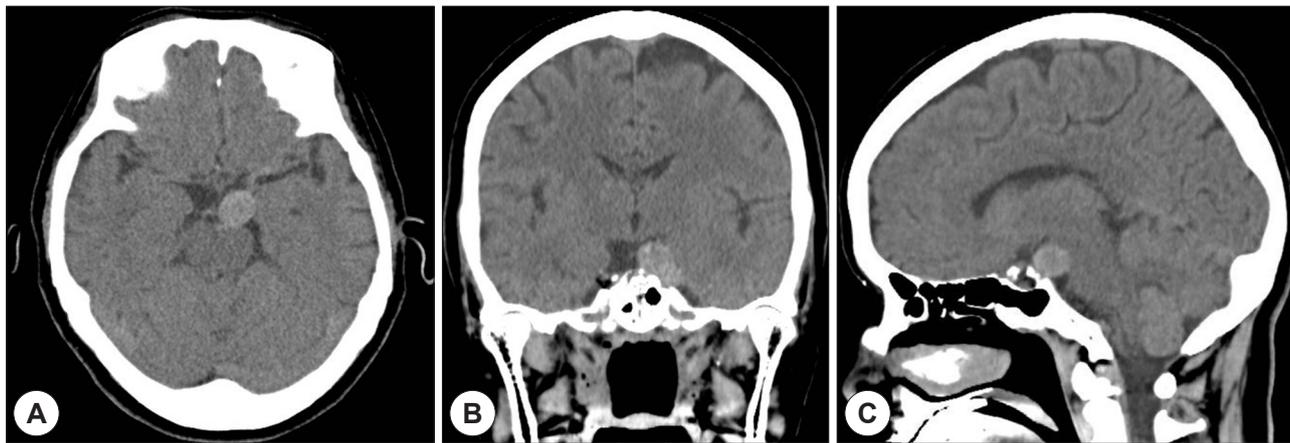


Fig. 1. Brain computed tomography reveals a hyperdense focal nodular lesion in the left basal cistern on axial image (A), coronal image (B), and sagittal image (C).

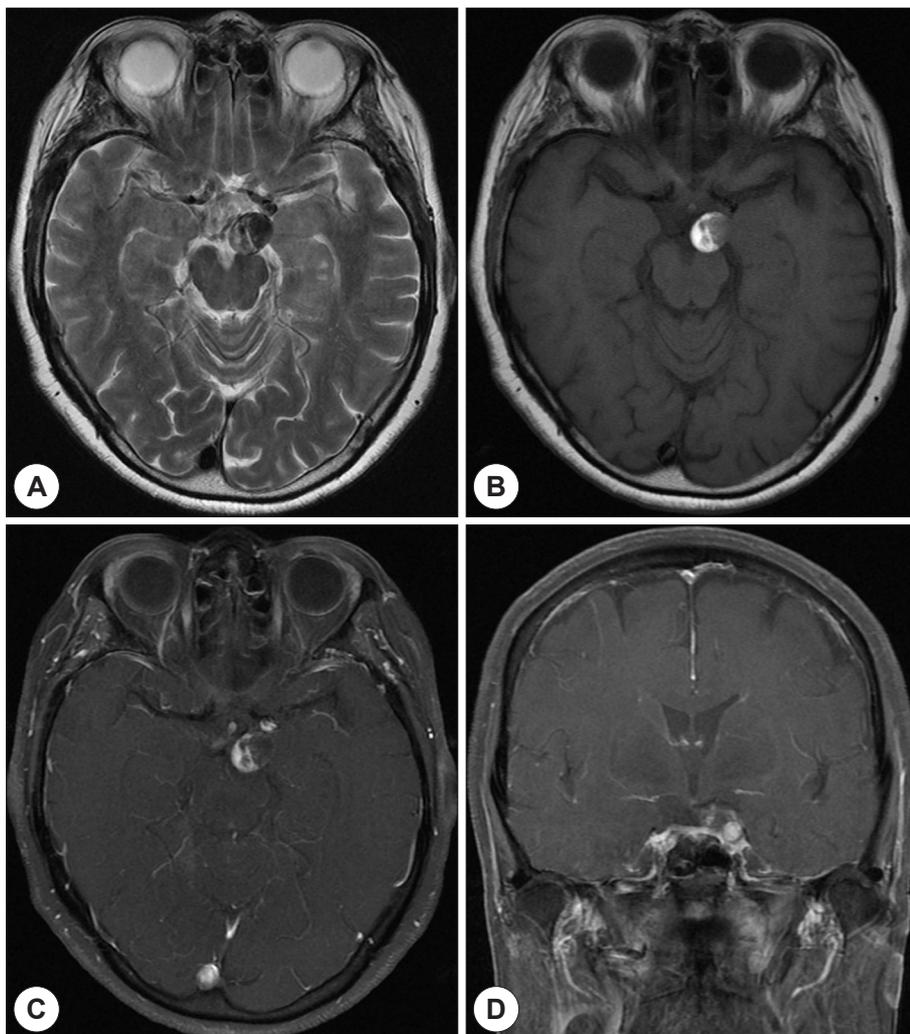


Fig. 2. Brain magnetic resonance imaging reveals a heterogeneous low signal intensity on T2-weighted image (A), a high signal intensity on T1-weighted image (B) and a subtle contrast enhancement after gadolinium injection (C and D).

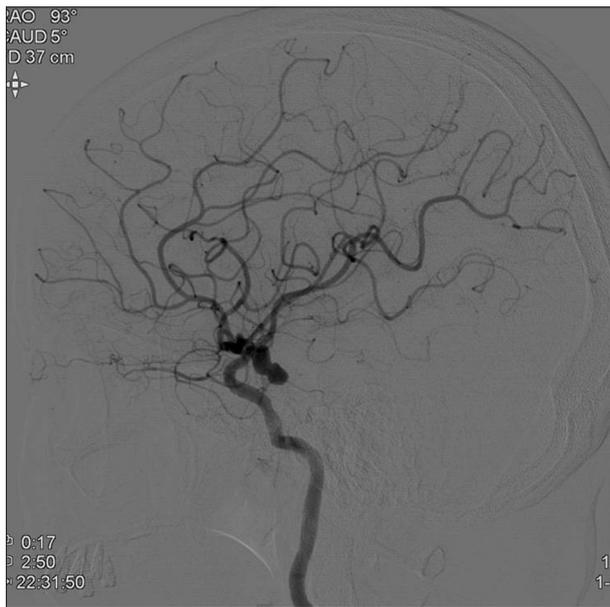


Fig. 3. Digital subtraction angiography reveals a saccular aneurysm with a wide neck at the posterior communicating artery.

tensity on brain CT scan can be easily misdiagnosed as a nonenhancing brain tumor as is illustrated in our case.³⁾⁵⁾

In this case, we reported a PCOM aneurysm with location and radiological findings mimicking an extra-axial tumor, treated via surgical clipping. When the patient was referred to our hospital, the lesion was initially diagnosed as an extra-axial tumor at a local clinic. The local clinic recommended that she should undergo stereotactic radiosurgery for the lesion. However, we conducted non-invasive CT angiography, with accurate diagnosis of a PCOM aneurysm. Päsler, et al.⁴⁾ reported a case of an intrameatal thrombosed anterior inferior cerebellar artery aneurysm mim-

icking a vestibular schwannoma. Kim, et al.³⁾ reported a case of a thrombosed middle cerebral artery aneurysm mimicking an intra-axial brain tumor. Radiological findings in the Kim, et al. case were like those in our case. In the two cases of the above, the lesion was a thrombosed aneurysm in the operative field. When an intracranial mass is in the basal cistern, surgeons should consider the possibility of a cerebral aneurysm and conduct angiographic examination.

CONCLUSION

We report a rare case of a thrombosed PCOM aneurysm with similar location and imaging characteristics as those of an extra-axial tumor. Intracranial mass in the basal cistern should be considered in the differential diagnosis of PCOM aneurysm and evaluated with angiographic examination.

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