

Kissing Aneurysms of Distal Anterior Cerebral Arteries

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The incidence of distal anterior cerebral artery (ACA) aneurysm is relatively rare, and only a few cases of bilateral symmetrical distal ACA aneurysms which were adhered together have been reported. They are also called kissing aneurysms. We treated bilateral symmetrical distal ACA kissing aneurysms in a 44-year-old woman. We successfully clipped the double aneurysmal sacs individually by interhemispheric approach in spite of intraoperative aneurysmal rupture. The patient was discharged without any neurological deficits two weeks after the operation.

KEY WORDS : Kissing aneurysms · Distal anterior cerebral arteries.

Introduction

Aneurysms of the distal anterior cerebral arteries (ACA) are rare and their incidence is about 2~5% of all intracranial aneurysms^{8,10,11,15}. However, multiple aneurysms in distal ACAs are not so rare^{5,8,10,11,15}. Kissing aneurysms, which means two aneurysmal sacs that adhere together, have been reported in only a few cases.

We report a case of mirror image kissing aneurysms at the distal ACAs who presented with severe headache and subarachnoid hemorrhage along with a review of the literature.

Case Report

A 44-year-old woman presented with severe headache and dizziness which had persisted for four days. She also complained of nausea, vomiting and showed mild neck stiffness.

The initial brain computed tomography (CT) scan showed normal findings but the cerebrospinal fluid (CSF) study by lumbar puncture revealed suspicious subarachnoid hemorrhage. We performed four-vessel angiography and found bila-

teral, nearly symmetrical, saccular kissing aneurysms in both distal anterior cerebral arteries (Fig. 1).

The left interhemispheric approach was performed for the direct neck clipping of both aneurysms two days after admission. Through operative findings, two aneurysmal sacs were located at both pericallosal-callosomarginal artery junctions: 5 × 3mm- and 5 × 4mm-sized respectively, and they were mutually adhering kissing aneurysms (Fig. 2). Intraoperative aneurysmal rupture occurred during aneurysm dissection, but we successfully clipped both aneurysmal sacs individually (Fig. 3).

Two weeks after the operation she was discharged without any neurological deficits.

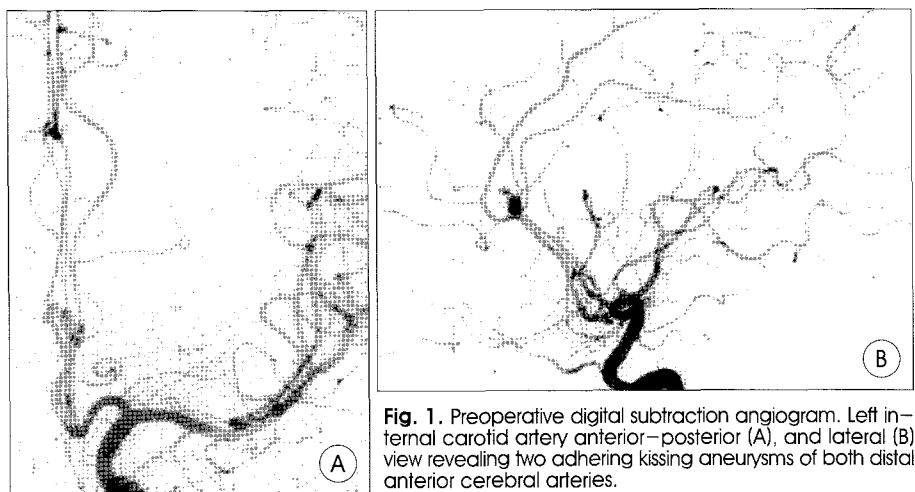


Fig. 1. Preoperative digital subtraction angiogram. Left internal carotid artery anterior-posterior (A), and lateral (B) view revealing two adhering kissing aneurysms of both distal anterior cerebral arteries.

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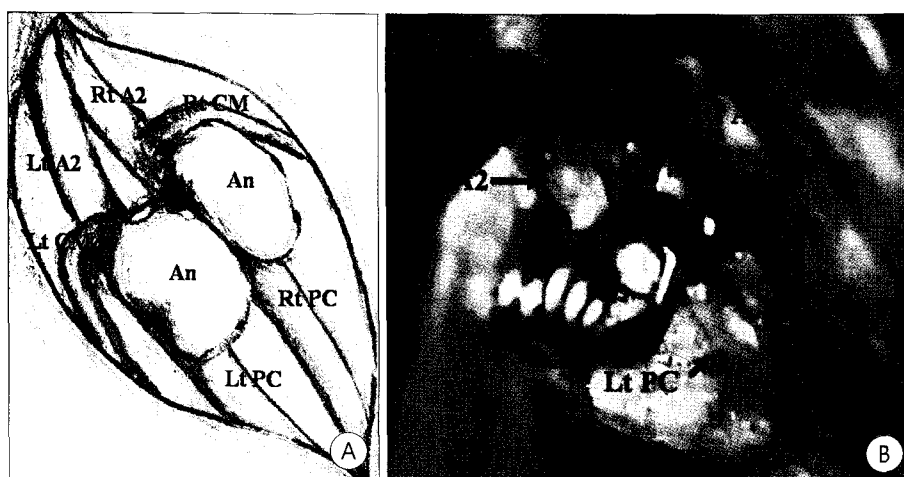


Fig. 2. Schematic drawing of the operative findings (A) and microscopic operative findings (B) showing two aneurysmal sacs adhering together and surrounding vessels (An : aneurysm, A2 : second portion of anterior cerebral artery, CM : callosomarginal artery, Lt : left, PC : pericallosal artery, Rt : right).

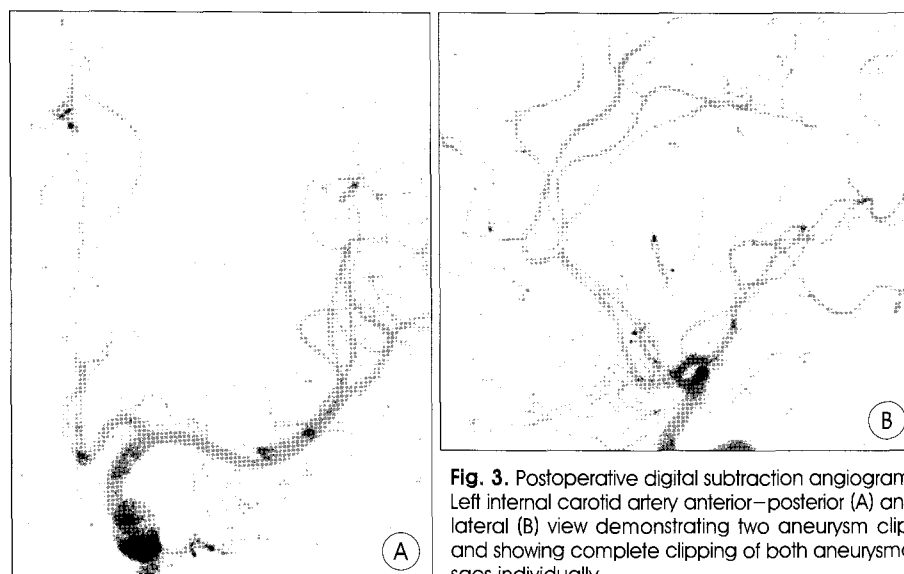


Fig. 3. Postoperative digital subtraction angiogram. Left internal carotid artery anterior-posterior (A) and lateral (B) view demonstrating two aneurysm clips and showing complete clipping of both aneurysmal sacs individually.

Discussion

The incidence of distal anterior cerebral artery (ACA) aneurysms is rare : they compose about 2~5% of all intracranial aneurysms^{8,10,11,15}. Multiple aneurysms in association with distal ACA may not be so rare, and some cases of bilateral symmetrical distal ACA aneurysms have been reported^{15,8,10,11,15}. Among bilateral distal ACA aneurysms, only a few cases show them adhering to each other at the dome, i.e. kissing aneurysms¹⁰. In our country, one case of kissing aneurysms of distal ACAs was reported in 2001⁹. Harada et al.³ classified kissing aneurysms into two groups based on the location of the aneurysmal neck (Type 1 : each aneurysmal neck is located

on different parent arteries). Our case belongs to the type 2. In our case, on digital subtraction angiography (DSA), we were confident of the two kissing aneurysms of both ACAs. According to Mori et al.¹⁰ magnetic resonance angiography (MRA) is also useful in diagnosing the two kissing aneurysms at the distal ACAs. Kissing aneurysms have also been reported in the internal carotid artery, middle cerebral artery, ophthalmic artery, anterior communicating artery and basilar artery^{2-4,7,12,14}.

Distal ACA aneurysms have characteristic features of multiplicity, broad base, sclerotic plaque content, and a small arachnoid space in the interhemispheric fissure. So surgery for distal ACA aneurysms is difficult^{1,6,13,15}. However, we successfully clipped the bilateral aneurysmal sacs individually, in spite of intraoperative aneurysmal rupture.

Conclusion

We present this rare case with a review of the literature and we emphasize that it is important to examine the multiplicity of the aneurysms preoperatively, especially in the case of a distal ACA aneurysm.

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