Ruptured distal middle cerebral artery aneurysm: Case report

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A B S T R A C T

INTRODUCTION: This report describes a rare case of a distal middle cerebral artery (dMCA) aneurysm.
PRESENTATION OF CASE: That developed a right intracerebral haematoma and subarachnoid haemorrhage. It was treated by surgical exploration and clipping via pteronial approach.
DISCUSSION: Clinical findings and surgical approaches of dMCA aneurysm are different from proximal middle cerebral artery (MCA) aneurysms. Microneurosurgical clipping is the most effective treatment of dMCA aneurysm.
CONCLUSION: We comprehensively review the literature related to these rare aneurysms within the temporal lobe, surgical anatomy of the dMCA aneurysm.

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1. Introduction

Aneurysm of the dMCA is a rarely seen encountered condition, constituting 1.1–5% of MCA lesions.1,5 In a large surgical series of 1012 patients, there were four patients with dMCA.1 In the other large surgical series of 3005 patients, there were 18 patients with dMCA aneurysm.5

Clinical findings and surgical approaches of dMCA aneurysm are different from proximal MCA aneurysms. Treatment of those aneurysms is difficult because of their deep location, small size and angio architecture.

We report a patient with an aneurysm in a ruptured right dMCA that originated from the M2–M3 junction of the MCA, presenting with a right intracerebral haematoma and subarachnoid haemorrhage.

2. Case report

A 54-year-old woman was presented with sudden onset of severe headache, vomiting and decreased conscious level. She was initially transported to a local hospital before she was referred to our hospital for management of subarachnoid haemorrhage (SAH). On admission, the patient was semi comatose with anisocoric pupils. The repeat computerized tomography (CT) scan and coronal magnetic resonance imaging (MRI) demonstrated a dense SAH and intracerebral haematoma (ICH) (insular haematoma) in the right sylvian fissure with evidence of rebleeding (Fig. 1A and B). Digital subtraction angiography (DSA) confirmed a saccular aneurysm of the M3 segment in the dMCA on the right side (Fig. 1C). A right pteronial–frontal craniotomy was performed. The sylvian fissure was partially opened and MCA division and its branch were exposed. A small sulcal opening was made on the discolored cortical surface and haematoma was gently removed. A saccular aneurysm 12 mm in diameter was embedded within the haematoma cavity. The aneurysm originated from the M3 segment in the dMCA. The aneurysm was successfully obliterated with clip. Follow-up DSA obtained two weeks later confirmed total obliteration of the aneurysm and good patency of the dMCA. No postoperative complication was observed. The patient was neurologically intact at discharge. The patient’s postoperative course was uneventful and she was discharged home on the 14th postoperative day. At 2 months follow-up examination, she had recovered completely.

3. Discussion

Ruptured dMCA aneurysms are very rare, constituting 0.47% of all cerebral aneurysms and 2% of MCA aneurysms.1–5 Yasargil5 in his series of 184 aneurysms of the MCA found only four distal localization. Recently, it has been reported that the incidence of dMCA aneurysm ranged 2–6% cerebral aneurysms.1,4 According to Gibo et al.,12 to locate MCA aneurysms the distal vessel was classified into four segments M2 (insular segment), M2–M3 junction, M3 (opercular segment) and M4 (cortical segment). Most MCA aneurysms occur at division of the main trunk (M1–M2 junction).1,5 Because, cerebral aneurysms usually arise at the primary bifurcation or trifurcation due to haemodynamic stress and/or congenital factors. dMCA aneurysms are uncommon. In our study, ruptured dMCA aneurysm was saccular aneurysm. The aneurysm originated from the M3 segment in the dMCA.

dMCA aneurysms bleed frequently into the adjacent brain.1–5 In our study, ruptured dMCA aneurysms had ICH with SAH, which
contributed to a poor pre-operative condition. In this case, the aneurysm presented with intracerebral haemorrhage. Therefore, from a clinical perspective, it is important to emphasize that although they are rare.

Clinical findings and surgical approaches of dMCA aneurysm are different from proximal MCA aneurysms. The microneurosurgical treatment of dMCA is challenging. They are often difficult to localize during the operation. Microneurosurgical clipping is the most effective treatment of dMCA aneurysms.

Conflict of interest

None.

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None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Authors’ contributions

Yilmaz M. played a role in writing the manuscript. Yurt A. did the study design, Kalemcı O. and Yuksel Z.K. enrolled themselves in data collection and Yucesoý K. did both data collection and edition.

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