

Case Report

Hemifacial Spasm Caused by Fusiform Aneurysm at Vertebral Artery-Posterior Inferior Cerebellar Artery Junction

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Hemifacial spasm induced by intracranial aneurysm is a rare clinical condition. A 45-year-old male patient presented with a 3-year history of progressive involuntary twitching movement on right face. On radiological study, a dilated vascular lesion compressing the brain stem was found at the junction of vertebral artery and posterior inferior cerebellar artery. On operative field, we found the posterior inferior cerebellar artery and the fusiform aneurysm compressing root exit zone of facial nerve. Microvascular decompression was performed and the facial symptom was relieved without complications.

KEY WORDS : Hemifacial spasm · Microvascular decompression · Fusiform aneurysm.

INTRODUCTION

Hemifacial spasm (HFS) is almost always induced by chronic vascular compression on the root exit zone (REZ) of the facial nerve¹⁵⁾. Rarely, HFS can be caused by other vascular malformations such as arteriovenous malformation¹⁰⁾ or aneurysm^{6,10,12,15)} at cerebello-pontine angle (CPA). In case of HFS caused by vascular malformations, the hemodynamic change induced by the abnormal vasculature may be related with the pathogenic mechanism. Here, authors report a rare case of HFS caused by fusiform aneurysm at CPA with special consideration on selecting the type of treatment option.

CASE REPORT

A 45-year-old male patient presented with a 3-year history of progressive involuntary facial twitching movement on right face. He had no neurological deficit on physical examinations. Radiological findings showed a dilated vascular lesion of vertebral artery (VA) at CPA and diag-

nosed as fusiform aneurysm on angiography (Fig. 1). The aneurysm demonstrated calcified wall on computed tomography. On retromastoid suboccipital approach, posterior inferior cerebellar artery (PICA) was compressing the facial nerve REZ and a fusiform aneurysm of VA-PICA junction located anterior to 9,10,11th cranial nerves complex was compressing partially REZ also. On searching for the aneurysm, the aneurismal wall was hard and calcified and we considered that the risk for the sac to rupture was low. Only microvascular decompression by Teflon was undertaken and the facial symptom was relieved after the operation.

DISCUSSION

HFS is presented with involuntary contractile movement of the facial muscles, mainly begins at the orbicularis oculi muscle and spreads to ipsilateral facial muscles. Vascular compression of the transitional zone where central glias convert to peripheral myelin sheaths has been accepted as a cause of HFS³⁾. Therefore, when the causative vascular compression is decompressed and the vascular hemodynamic impulse is blocked effectively, good surgical outcome can be guaranteed. In case of HFS caused by vascular malformations at CPA, vascular hemodynamic change is important¹³⁾. The HFS caused by aneurysm has been rarely reported with incidence of 0.44-0.08%^{2,5)}. On the existence

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of aneurysm at the junction of PICA-VA or VA at ipsilateral CPA, the HFS may be clinically important warning sign of impending rupture of the rapidly growing aneurysm⁷. And HFS may be a sign of subarachnoid hemorrhage associated with the ruptured aneurysmal sac⁹.

For the treatment of the vertebral artery aneurysm or dissected aneurysm, proximal artery ligation, wrapping, or clipping have been used⁴. Recently, the proximal artery coiling is being used showing good outcome^{1,3,8,13}. As for the treatment of the HFS caused by aneurysm, several treatment options has been suggested; clipping with MVD^{7,14}, endovascular proximal treatment only^{8,13}, or MVD only¹⁵. Nijima have suggested that only small decreased hemodynamic change is enough to relieve the facial symptom¹¹. In case of hemodynamic control by clipping or endovascular treatment at the proximal portion of aneurysm, the procedure was intended to inhibit arterial pulsation from the fusiform aneurysm to the facial nerve REZ. In operative findings of this case, the compression on REZ was mainly induced by PICA and partially by aneurysm (Fig. 1C). The aneurysm had calcified wall, which led us not to perform clipping or proximal ligation but to have the patient MVD only. In case the HFS is associated with aneurysm at same side and more calcified wall, there is possibility of existing additional causative vessels like PICA or AICA adjacent to aneurysm.

CONCLUSION

Hemifacial spasm caused by fusiform aneurysm is rare but can be treated only by parent artery occlusion and coiling the aneurysm. Even if HFS has radiological finding of aneurysm at the ipsilateral CPA, surgeon should not make hasty conclusion that the cause of HFS is only aneurysm because the branching artery can be a cause of symptom.

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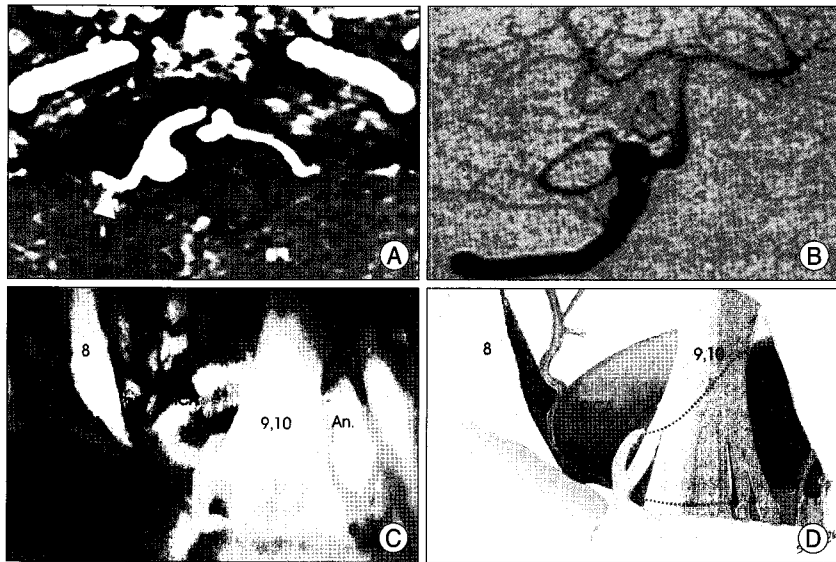


Fig. 1. A : Posterior inferior cerebellar artery (PICA) (arrow head) and aneurysm (arrow) contact on brain stem on 3-dimensional short range magnetic resonance imaging. B : Right vertebral angiogram shows fusiform aneurysm at vertebral artery (VA)-PICA junction. C and D : On operative finding, the compression on root exit zone is mainly induced by PICA and partially by aneurysm. An : aneurysm.