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

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INTRODUCTION
Hemifacial spasm (HFS) is almost always induced by chronic vascular compression on the root exit zone (REZ) of the facial nerve[5]. Rarely, HFS can be caused by other vascular malformations such as arteriovenous malformation[10] 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 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.

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 glia convert to peripheral myelin sheaths has been accepted as a cause of HFS[5]. 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 important[15]. The HFS caused by aneurysm has been rarely reported with incidence of 0.44-0.08%[2,5]. On the existence...
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 aneurysm. And HFS may be a sign of subarachnoid hemorrhage associated with the ruptured aneurismal sac.

For the treatment of the vertebral artery aneurysm or dissected aneurysm, proximal artery ligation, wrapping, or clipping have been used. Recently, the proximal artery coiling is being used showing good outcome. As the proximal artery coiling is being used showing good outcome, several treatment options have been suggested; clipping with MVD, endovascular proximal ligation but to have the patient MVD only. In case 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 facial nerve REZ was mainly induced by PICA and partially by aneurysm. An : 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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