

MICROVASCULAR DECOMPRESSION FOR THE IDIOPATHIC UNILATERAL ABDUCENS PALSY: CASE REPORT

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Abstract

Microvascular decompression (MVD) was performed on a 53-year-old male patient who had a sudden attack of diplopia when he looked at the left side. The preoperative diagnosis was left abducens palsy, which was accompanied by left facial spasm in the perioral and inferior palpebral area from which the patient had been suffering since his childhood. The operative findings of a left suboccipital craniectomy were compression of the left facial and abducens nerves with the meatal loop of anterior-inferior cerebellar artery (AICA), and evidence of nerve indentation due to microvascular compression. After the operation, the left abducens palsy was completely cured and the left facial spasm in the perioral and inferior palpebral area resolved.

Introduction

Microvascular decompression (MVD) was performed on a patient with idiopathic unilateral abducens palsy. This procedure has been established as a treatment for trigeminal neuralgia or hemifacial spasm, however there has been no report of the effectiveness of MVD on idiopathic unilateral abducens palsy. The authors report in this paper that a patient who had a sudden attack of left abducens palsy was completely cured by means of MVD.

Case Report

A 53-year-old man had a sudden attack of

diplopia without any pain when he looked at the left side. He was diagnosed by a physician as having left abducens palsy, and admitted to our institute one month after the onset.

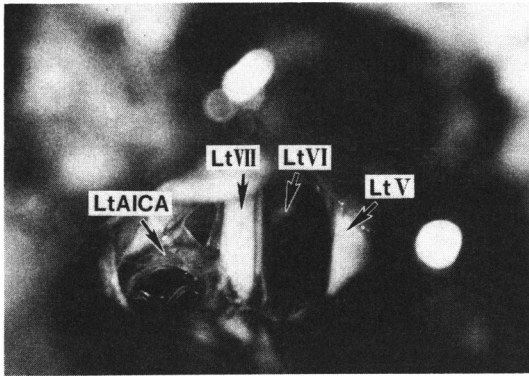
Examination showed left complete abducens palsy and left hemifacial spasm in the perioral and inferior palpebral area from which the patient had been suffering since his childhood. Slight hearing impairment was also noted bilaterally.

No other abnormal findings were disclosed by neurological examination. Diabetes mellitus and hypertension could be excluded. Computerized tomography (CT) showed no focal abnormality in the intracranial space including the posterior fossa.

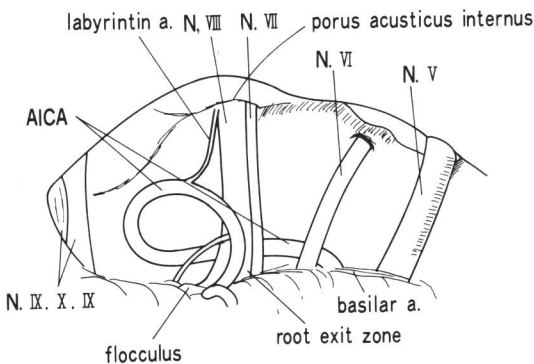
In the angiographical study, left vertebral angiogram revealed that the meatal loop of left anterior-inferior cerebellar artery (AICA) was slightly elongated, being located near the porus acusticus internus.

Bilateral carotid angiogram presented no abnormal findings. Metrizamid CT cisternography and MRI showed no pathological findings. Cerebrospinal fluid obtained by lumbar puncture did not show any abnormality.

Steroid therapy with intravenous injection of betamethasone 8 mg/day for five days was not effective. Microvascular decompression was performed 2 months after the onset, because the patient enthusiastically desired to undergo an operation for regaining the occupational ability.



(A)



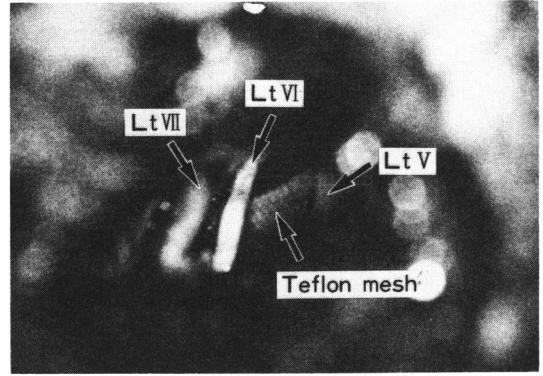
(B)

Fig. 1 Operative photograph showing a meatal loop of the left anterior inferior cerebellar artery (AICA), adhering to the left facial nerve with indentation. The nerve sheath of this adhesion is slightly degenerated and yellowish.

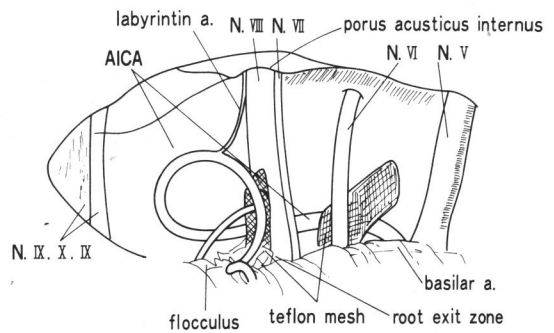
A: operative view, B: schematic drawing

Operation

The patient was placed in the right lateral position with his head bent slightly downward. A left retromastoid suboccipital small craniectomy was performed. By retracting the left cerebellar hemisphere, the meatal loop of the left AICA was found to adhere to the left facial nerve, and to compress it. The sheath of the facial nerve was slightly degenerated and yellowish (Fig. 1A, B). By dissection of the arachnoid membrane, the left abducens nerve which adhered to and was compressed by the left AICA was seen above the basilar artery (Fig. 2A, B). Teflon mesh was



(A)



(B)

Fig. 2 Operative photograph showing the Teflon mesh inserted between the anterior inferior cerebellar artery (AICA) and the left abducens nerve, and also between the AICA and the left facial nerve.

A: operative view, B: schematic drawing

inserted between the AICA and the left abducens nerve, and also between the AICA and the left facial nerve.

After the operation, the left abducens palsy remained unchanged, but left hemifacial spasm gradually improved. He was discharged about one month after the operation, and was followed up at the out patient clinic. The left abducens palsy was gradually improved, and showed full recovery along with cure of the left hemifacial spasm by the end of the second month after the discharge (Fig. 3A, B).

Discussion

Microvascular decompression is a well established procedure for treating trigeminal neuralgia or hemifacial spasm, which is resistant to med-

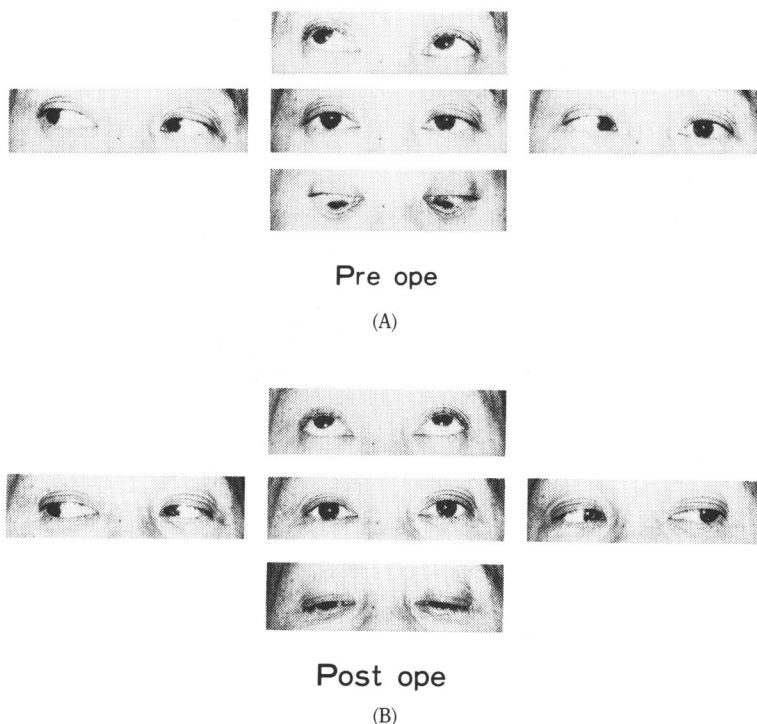


Fig. 3 Photograph demonstrating the pre (A) and post (B) operative ocular movement. The left abducens palsy shows full recovery with cure of the left hemifacial spasm by the first three months after the operation.

ication, nerve block, and radiofrequency coagulation. It is also applicable to other functional disorders of the nervous system such as glossopharyngeal neuralgia, paroxysmal vertigo, Meniere's disease, and neuralgia of the superior laryngeal nerve. Moreover, treatment of cases with spasmodic torticollis has been reported¹⁾²⁾. It might be reasonably assumed that other cranial nerves are compressed by the vessels. The authors have seen a case of gradual onset with unilateral abducens palsy. Most clinical reviews of abducens palsy are concerned with patients who consult ophthalmologists³⁾.

In 1958 and 1966, Rucker⁴⁾⁵⁾ reported the distribution and causes of paralysis of the third, fourth, and sixth cranial nerves in each 1,000 patients seen at the Mayo Clinic, Rochester, Minn.

The sixth cranial nerve was affected most frequently in 409 cases of the first group and 515 cases of the second group. Rush presented a third group of 1,000 patients with extraocular muscle

paralysis at the Mayo Clinic from January 1966 through December 1978. He found a high proportion of cases (419 cases) with involvement of the sixth cranial nerve in his cases same as previous two reports. Multiple affected extraocular muscle paralysis was classified into other category in these three reports.

In Rush's report⁶⁾, most patients (29.6%) did not have an identifiable cause. Same tendency had found at Rucker's previous two reports, while Keane⁷⁾ showed that the most common, single etiologic lesion among 26 cases with unilateral abducens palsy was a tumor. As for this presented case, most important and controversial viewpoint is concerning the spontaneous remission.

In the etiological classification of 104 patients with abducens nerve palsy, Shrader⁸⁾ noted, the group of an undetermined etiologic factor consisted of 47 cases (45.2%), in which 22 cases (21.1%) were suspected of being vascular origin. Seven of these 22 cases had spontaneous remis-

sion; 4 cases of them in less than 4 months, and 3 in less than 5 months.

Rush⁶⁾ reported that spontaneous remission was noted in 63 cases (51%) of 124 undetermined group and patients with sixth palsy due to vascular disease—that is, diabetes mellitus, hypertension, or atherosclerosis—frequently recovered (71%) regardless of the nerve affected.

He had not mentioned the duration from the onset of the sixth nerve palsy to recover. In our case, the left abducens palsy was fully cured 2 months after the operation, whereas the left hemifacial spasm began to improve gradually soon after the operation. The reason of different recovery course between abducens and facial nerve will be a different dysfunction, one being hypokinetic and the other hyperkinetic dysfunction.

The authors confirmed the effectiveness of microvascular decompression for the left abducens palsy due to following reasons.

1) Left abducens palsy showed slightly delayed recovery due to its hypokinetic dysfunction.

2) In the operative findings, meatal loop of left AICA definitely compressed to the left abducens nerve and the indentation was actually seen on the nerve.

3) Vascular etiology—that is, diabetes mellitus, hypertension, and atherosclerosis—could be excluded.

As mentioned above, microvascular decompression is supposed to be occasionally worthy of treatment.

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特発性片側性外転神経麻痺に対する microvascular decompression

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症例は53歳男性。昭和61年4月16日、左外転神経麻痺で発症し来院。小児期より左片側顔面痙攣の既応歴がある。CT、脳血管写、MRIで異常を認めず、髄液所見は正常であった。左外転神経麻痺の原因は不明で、発症より2カ月後MVDを施行した。手術所見はAICAのmeatal loopが顔面神経をroot exit zoneで圧迫し、圧痕が認められた。さらに外転神経を圧迫しnotchを形成していた。各々の圧迫部位にteflon meshを留置し、meatal loopのtranspositionを行なった。術後顔面痙攣は除々に改善し、外転神経麻痺は術後不変であったが、術後2カ月を経過して両者とも完全に治癒した。顔面痙攣がhyperactive dysfunctionであるのに対し、外転神経麻痺はhypoactive dysfunctionであるため、改善に時間を要したと思われる。原因不明の外転神経麻痺に対してもMVDは考慮に値する治療法と思われる。