

## 반측성 안면경련증 환자에서 안면신경의 미세혈관감압술 후에 시행한 자기공명영상의 역할

한인보 · 장종희 · 장진우 · 박용구 · 김동익\* · 정상섭

= Abstract =

### The Role of Postoperative Magnetic Resonance Imaging of Microvascular Decompression of the Facial Nerve in Patients with Hemifacial Spasm

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**Objectives :** The objective of this study was to investigate the role of postoperative three dimensional short - range magnetic resonance angiography(3D - TOF MRA) in predicting the clinical outcomes following microvascular decompression(MVD) for the treatment of a hemifacial spasm(HFS).

**Material and Method :** Postoperative magnetic resonance(MR) imaging was performed on 123 patients with a HFS between March 1999 and May 2000. All patients who had postoperative MR imaging were undertaken preoperative MR imaging. Of the 123 patients, 122 patients were included in this retrospective study. The degree of the detachment of vascular contact, and change of the position of offender were determined by pre - and postoperative 3D - TOF MRA. These findings were compared with the surgical findings and clinical outcomes.

**Results :** Of 122 patients who had successful MVD, clear decompression of offenders of the root entry zone(REZ) of facial nerve was found in 106 patients(86.9%), partial decompression in 10 patients(8.2%) and contact of offenders to the REZ of facial nerve in 6 patients(4.9%) by the postoperative 3D - TOF MRA. Our patients demonstrated that the types of offender did not influence with the degree of decompression of REZ of facial nerve and with surgical outcomes( $p>0.05$ ). Also, there was no significant relationship between the degree of decompression of the REZ of facial nerve from offenders and an improvement of symptoms( $p>0.05$ ). Furthermore, there was no significant relationship between the degree of decompression of the REZ of facial nerve from offenders and an improvement time ( $p>0.05$ ).

**Conclusion :** Our data suggests that MVD of facial nerve alone may not be sufficient to resolve the symptoms in all patients with hemifacial spasm. Therefore, another unknown factors besides vascular compression may be involved to cause symptoms in certain patients and it may be necessary to remove these factors with MVD simultaneously to obtain the resolution of symptom.

**KEY WORDS :** Hemifacial spasm · Microvascular decompression · Magnetic resonance angiography · Facial nerve.

서 론

entry zone)

(facial nerve root

2)13)21)

1)2), 가  
 2)25)30),  
 (three dimensional time of flight  
 magnetic resonance angiography ; 3D - TOF MRA)  
 가 4)6)7)17),  
 18)25).  
 3D - TOF MRA가

2. 자기공명영상 평가  
 MRI 1.5 (Tesla)  
 (Signa ; GE Medical System, Milwaukee, WI),  
 가 6).  
 3D - TOF MRA ,  
 (contact), (partial de-  
 (clear decompression) 가  
 (Fig. 1).  
 3D - TOF MRA 가  
 3D - TOF MRA  
 (vascular indentation)

**대상 및 방법**

1. 연구 대상

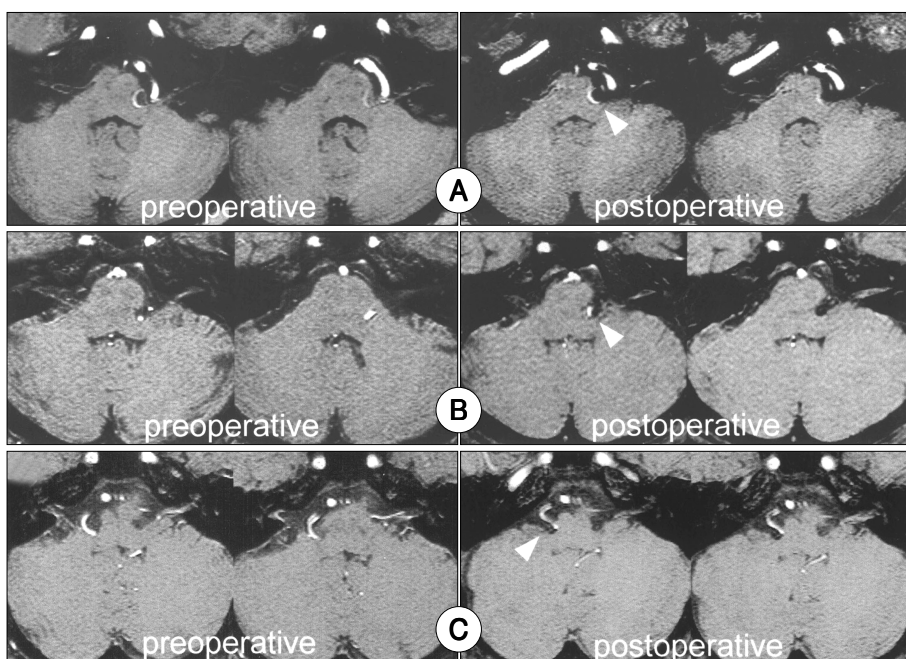
1978	8	2001	3	1169
		1999	3	2000
3	123			
3D - TOF MRA		12		
	122			

3. 임상 평가

MRA

가

3D - TOF



**Fig. 1.** The degree of vascular decompression of facial nerve after microvascular decompression. A : Contact. B : Partial decompression. C : Clear decompression.

excellent, 90% good  
 50% fair, 가  
 50% poor 가  
 failure 가 6

**4. 통계적 분석**

가, 3D - TOF MRA  
 . MR two -  
 tailed, unpaired, Student's t - test chi - square test  
 가, p 0.05

**결 과**

**1. 연령 및 성별 분포**

1 : 3.7 22  
 71 48.6  
 7.8 12.6

**2. 수술 전후 3D-TOF MRA와 수술 소견**

3D - TOF MRA  
 . MR, 46 (37.7%)  
 (anterior inferior cerebellar artery ; AICA), 53 (43.4%)  
 (posterior inferior cerebellar artery ; PICA), 4 (3.3%)  
 (vertebral artery) , 가 19 (15.6%)  
 60  
 (49.2%) AICA, 34 (27.9%) PICA, 1 (0.8%)  
 가 27 (22.1%)

122 3D - TOF MRA ,  
 106 (86.9%), 10 (8.2%), 6  
 (4.9%)  
 3D - TOF MRA  
 (p>0.05) (Table 1).

**3. 수술 후 3D-TOF MRA와 임상결과**

122 excellent가 112 (91.8%), good 6 (4.9%)  
 (Table 2). 90% 117  
 (96.7%) 80

**Table 1.** Comparison between degree of vascular decompression of facial nerve and offenders confirmed at operation field\*

Offenders	Degree of vascular decompression			Total(%)
	Clear	Partial	Contact	
AICA	57	2	1	60(49.2)
PICA	26	6	2	34(27.9)
VA	1	0	0	1( 0.8)
Multiple	22	2	3	27(22.1)
VA+PICA	7	0	0	7
VA+AICA	2	0	1	3
PICA+AICA	12	2	2	16
VA+PICA+AICA	1	0	0	1
Total(%)	106(86.9)	10(8.2)	6(4.9)	122(100)

\* : AICA : anterior inferior cerebellar artery  
 PICA : posterior inferior cerebellar artery  
 VA : vertebral artery

**Table 2.** Comparison between degree of vascular decompression of facial nerve and surgical outcomes

Clinical grade	Degree of vascular decompression			Total(%)
	Clear	Partial	Contact	
Excellent	99	9	4	112(91.8)
Good	3	0	2	5( 4.1)
Fair	3	0	0	3( 2.5)
Poor	0	0	0	0
Failure	1	1	0	2( 1.6)
Total(%)	106(86.9)	10(8.2)	6(4.9)	122(100)

**Table 3.** Comparison between degree of vascular decompression of facial nerve and improvement time\*

Improvement time	Degree of vascular decompression			Total(%)
	Clear	Partial	Contact	
Immediate	71	6	3	80(68.4)
Within 1 month	14	2	0	16(13.7)
After 1 month	17	1	3	21(17.9)
Total(%)	102(87.2)	9(7.7)	6(5.1)	117(100)

\* : In patients with improvement above 90%(n=117)

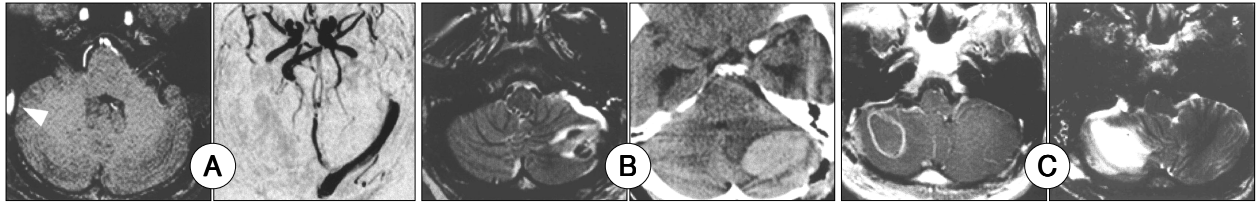
(68.4%) , 16 (13.7%) 1  
 , 21 (17.9%) 1  
 (Table 3).

(p>0.05).

(p>0.05).

**4. 수술 후 3D-TOF MRA와 임상 양상**

가  
 (sigmoid sinus thrombosis) ,



**Fig. 2.** Several complications associated with MVD on postoperative MR images. A : 3D-TOF MRA(left) showing right sigmoid sinus thrombosis(arrowhead)and MR sinogram(right) showing completely occluded right sigmoid sinus. B : MR images on 2nd post-operative day(left)showing mild cerebellar swelling and CT on 6th postoperative day(right) showing cerebellar hemorrhage and swelling due to probably retraction injury. C : MR images showing cerebellar abscess with fluid level adjacent to the operative site.

3D - TOF MRA (Fig. 2A, 2B). 1)<sup>20)</sup>, 가 가 가

(Fig. 2C). 1 (0.8%) 가 가 가

2 (1.6%) 가 가

MRA 3D - TOF ( , )

고 잘 ephaptic transmission) (synkinesis) 9)<sup>26)</sup>

11)<sup>26)</sup>, 가 가

16)<sup>21)</sup>, 가 가

MRI 가 4)<sup>6)</sup>7)<sup>17)</sup>22)<sup>25)</sup>, 24)

MR 가

seki 25) , Naga- (oblique sa- 8)<sup>29)</sup>

gittal gradient - echo MR imaging) , 가 가

MRI Moller<sup>23)</sup> (resting membrane potential)

Mitsuoka 22) (three dimensional fast spin echo MR imaging ; 3D - FSE MRI)

가 10)

28)

가 . Nagaseki

27) , MRI

1) MRI AICA

PICA

Kureshi Wi-

Ikins<sup>18)</sup> 70% 37.5% 20)

30%,

75%

1994 5)

12) 3D - TOF MRA

31 53

7 (23%) , 4 (13%)

16 (52%) 가 MRI가 25)

3)15)19) 가

Jannetta Bisonette<sup>14)</sup> Kureshi Wilkins<sup>18)</sup> 가 가

Bederson Wilson<sup>3)</sup> 3D - TOF MRA가

, 90%

가

3D - 가

TOF MRA , (86.9%)

결 론

(p>0.05). 3D - TOF

MRA

(p>0.05). 가 가 가 , MRI

가

- : 2001 4 6
- : 2001 12 7
- :  
120 - 752 134  
: 02) 361 - 5622, : 02) 393 - 9979  
E - mail : sschung@yumc.yonsei.ac.kr

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