

편측안면경련의 미세혈관감압 수술 중 안면근전도와 추적 근전도 검사의 술 후 결과에 대한 의의*

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Significance of Intra-, Post-operative Electromyography Study and Follow-up Results of Microvascular Decompression for Hemifacial Spasm

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Objective : The aim of this study is to evaluate of the significance of intraoperative electrophysiologic monitoring and follow up electrophysiologic study at seven days after microvascular decompression (MVD) for hemifacial spasm (HFS).

Methods : Thirty nine patients with hemifacial spasm were included in this study and were treated with MVD of the facial nerve from Jun 1990 to May 2001. The patients were divided into a monitoring group and a non-monitoring group. We compared the surgical outcomes, operation related complications between two groups. The abnormal muscle response (AMR) of preoperative electromyographic recording appeared on the mentalis muscle during stimulation of the zygomatic branch of the facial nerve was compared with those of changed during operation, immediately after operation and at postoperative 7th day (POD 7). The relationship between degree of AMR disappearance and surgical outcome was analyzed.

Results : There was no difference in surgical outcomes but significant difference in the incidence of operation-related complications between two groups. The results of electrophysiologic study at POD 7 were significantly correlated with surgical outcome in the monitoring group.

Conclusion : The electrophysiologic study is helpful for identifying the offenders, determining the adequacy of vascular decompression and decrease of operation-related complications. The clinical and electrophysiologic status of HFS after MVD has continuously changed, and therefore the results of electrophysiologic study at POD 7 are useful for predicting the surgical outcome.

KEY WORDS : Hemifacial spasm · Electrophysiologic study · Outcome.

서 론

^{1,5)} 7
(Root exit zone)

^{1,9,11)} 가 가

(ephapse, cross talk)

9,12) . Nielsen¹²⁾
 (antidromic)
 (mentalis 가 3cm
 muscle) 가 1~2
 , Møller Jannetta^{9,11)}
 , 7
 2,8,9) . Nielsen¹³⁾
 (AMR : abnormal
 muscle response)
 7 가 , 50% , 50%
 (MVD : microvascular decompression)
 , 가 가
 7 가
 Excellent,
 Good,
 Poor, Bad
 , Excellent Good
 (Good outcome group) , Poor Bad
 (Poor outcome group)
 3
 14)
 가
 7
 7

대상 및 방법

1990 1 2001 12
 42 3 39
 (22)
 (17)
 (zygomatic branch of the facial nerve)

SPSS for windows 10.0
 Pearson Chi square test Fisher's exact
 test

결 과

임상적 특징과 원인혈관
 가 31 가 8 , 30
 74 53±9.43
 23 14
 6 360 70.4±69.72
 3 48 6.26±

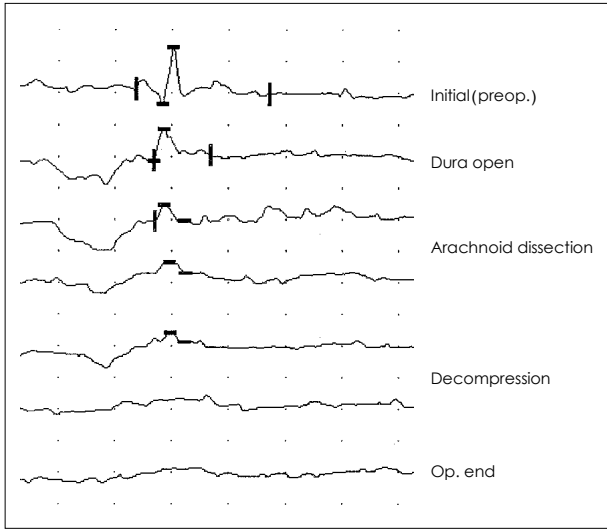


Fig. 1. Progressive disappearance of the abnormal muscle response is shown as operation progresses

7
가 50%
20 (90.9%) , 50%
가 2 (9.1%) (Table 4).

수술 종료 시 및 수술 후 7일째의 전기생리학적 검사와
임상결과 및 장기 추적임상결과와의 연관성

7
22 21
50% Excellent
가 14 , Good 5 , Poor 가 1 , Bad
가 1
50% 90.5%(19)
7
50%
20 100%(20)
가

Table 4. Degree of abnormal muscle response during operation & POD 7 (monitoring group)

Degree of abnormal muscle response	No. of Cases (%)				
	Dura open	Arachnoid dissection	Offender decompression	End of operation	POD 7*
Completely disappeared	1 (4.5)	8(36.4)	15(68.2)	14(63.7)	13(59.1)
Remained below 50%	14(63.7)	13(59.1)	7(31.8)	7(31.8)	7(31.8)
Remained above 50%	6(27.3)	1(4.5)	0(0.0)	1(4.5)	2(9.1)
Unchanged or increased	1(4.5)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Total	22	22	22	22	22

* : POD 7 : post-operative 7th day

Table 5. Correlation of abnormal muscle response and clinical outcome

Abnormal muscle Response	End of operation		POD 7*	
	Good	Poor	Good	Poor
Completely disappeared & remained below 50%	19	2	20	0
Remained above 50% & unchanged or increased	0	1	0	2

p=0.004, * : POD 7 : Post-operative 7th day

50% 2
(p=0.004)(Table 5). 7
50% 20
, 50% 2

(p=0.004)(Table 6).

Table 6. Correlation of abnormal muscle response at POD 7 and long-term follow up outcome

Abnormal muscle response at POD 7*	Good prognosis	Poor prognosis
Completely disappeared & remained below 50%	20	0
Remained above 50% & unchanged or increased	0	2

p=0.004, * : POD 7 : Post-operative 7th day

4 가
1
7
50%
50%
1 5
7
가 50%

50%

1 7

가 50%

50%

1
가 50%

Shin 14,15)
Sood 17)

(ectopic)

neta 10)
가
가
가
3
16)
가
1
가
결 론
2가
가

가 가

- : 2002 5 29
- : 2002 8 8
- :

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References

1. Auger RG : Hemifacial spasm : Clinical and electrophysiologic observations. *Neurology* **29** : 1261-1272, 1979
2. Auger RG, Peipgras DG, Laws ER, Miller RH : Microvascular decompression of the facial nerve for hemifacial spasm : Clinical and electrophysiologic observations. *Neurology* **31** : 346-350, 1981
3. Frueh BR, Preston RA, Musch DC : Facial nerve injury and hemifacial spasm. *Am J Ophthal* **110** : 421-423, 1990
4. Jang IH, Lee YH, Chung UW : Intraoperative electromyographic monitoring of the facial nerve during microvascular decompression for hemifacial spasm. *J Korean Acad Rehabil Med* **37** : 142-151, 1994
5. Kim SK, MA HI, Kwon Y, Lee SA : Intraoperative electrophysiological monitoring during microvascular decompression for hemifacial spasm and surgical outcome. *J Korean Neurol Assoc* **19** : 260-265, 2001
6. Lee YH, Chun SI, Shin JS : Electrophysiologic study of hemifacial spasm. *J Korean Acad Rehabil Med* **16** : 101-108, 1992
7. Mooij JJ, Mustafa MK, Weerden TW : Hemifacial spasm : Intraoperative electromyographic monitoring as a guide for microvascular decompression. *Neurosurgery* **49** : 1365-1371, 2001
8. Møller AR, Jannetta PJ : Hemifacial spasm : Results of electrophysiologic recording during microvascular decompression operations. *Neurology* **35** : 969-974, 1985
9. Møller AR, Jannetta PJ : Microvascular decompression in hemifacial spasm : intraoperative electrophysiological observation. *Neurosurgery* **16** : 612-618, 1985
10. Møller AR, Jannetta PJ : Physiological abnormalities in hemifacial spasm studied during microvascular decompression operations. *Exp Neurol* **93** : 584-600, 1986
11. Møller AR, Jannetta PJ : Monitoring facial EMG response during microvascular decompression operations for hemifacial spasm. *J Neurosurg* **66** : 681-685, 1987
12. Nielsen VK : Pathophysiology of hemifacial spasm : I. Ephaptic transmission and ectopic excitation. *Neurology* **34** : 418-426, 1984
13. Nielsen VK : Electrophysiology of the facial nerve in hemifacial spasm : Ectopic/ephaptic excitation. *Muscle Nerve* **8** : 545-555, 1985
14. Shin JC, Jang IH, Oh HI, Chung UW, Lee YH : Significance of

- intraoperative electrophysiologic monitoring and follow-up results after microvascular decompression of hemifacial spasm. **J Korean Acad Rehabil Med** 19 : 309-318, 1995
15. Shin JC, Kim YC, Park CI, Chung UH : Intraoperative monitoring of microvascular decompression in hemifacial spasm. **Yonsei Med J** 37 : 209-213, 1996
16. Shin JO. **Clinical Electromyography : Nerve conduction studies** ed 2. Maryland : Williams & Wilkins, 1993, pp665-680
17. Sood S, Vyas L, Taori GM : Hemifacial spasm : Early postoperative normalization of blink reflex latency. **Br J Neurosurg** 7 : 407-411, 1993