

Miller Fisher 1

Serial Electrophysiological Studies in Miller Fisher Syndrome

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- Abstract -

Miller Fisher syndrome(MFS) has been the focus of conflicting opinions regarding the peripheral versus the central nature of the site of major neural injury. We present our electrophysiological findings in one case of MFS to help clarify the pattern of peripheral nerve injury in this syndrome. A 45-year-old man visited our hospital due to sudden diplopia. Initial examination revealed internuclear ophthalmoplegia. The next day, his symptoms rapidly aggravated to complete external ophthalmoplegia, ataxia, and areflexia with hand and foot numbness. Serial electrophysiological studies were performed. The results of brainstem evoked potential(BAEP) and blink reflex were normal in the serial studies. Motor and sensory nerve conduction study(NCS) were normal findings in second hospital day, but ulnar sensory nerve shows no sensory nerve action potential(SNAP) and sural sensory conduction velocity was delayed in 7th hospital day. Our patient's clinical presentation began to improve on 15th hospital day, and his electrophysiologic study showed improvement on 29th hospital day. We believe that all the manifestations of MFS can be explained by the involvement of peripheral nerves without brainstem or cerebellar lesion with the serial electrophysiological studies.

Key Words : Miller Fisher syndrome, Electrophysiologic study

Miller Fisher

Guillain-Baré

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36.5 , 64 ,
 20 , 140/100 mmHg
 4 mm, 5 mm 가
 가
 가
 Miller Fisher

Table 1. Serial electrophysiologic findings in patient

	HD # 2	HD # 7	HD # 12	HD # 29	OPD F/U	Normal Limit
Sensory NCV(m/s)						
Median(palm-wrist)	37.5	43.1	No SNAP	40.4	41.2	>34.05
Ulnar(finger-wrist)	42.7	No SNAP	No SNAP	44.1	45.2	>39.26
Sural	39.4	24.1*	No SNAP	33.6*	42.1	>34.68
Motor NCS						
Median						
TL(ms)	3.14	3.26	3.03	3.01	3.12	<3.60
AMP(mV)	10.8	13.6	12.7	11.3	12.6	>5
NCV(m/s)	58.8	58.3	56.7	54.9	55.3	>40.63
FL(ms)	30.21	30.15	29.92	30.18	30.07	<30.31
Ulnar						
TL(ms)	2.38	2.02	2.54	2.72	2.61	<2.51
AMP(mV)	14.1	7.5	11.2	9.4	10.5	>5
NCV(m/s)	59.5	68.3	64.4	60.7	62.7	>50.61
FL(ms)	30.31	29.94	30.12	30.15	29.97	<30.66
Posterior Tibial						
TL(ms)	3.76	3.32	3.52	3.38	3.46	<5.11
AMP(mV)	27.8	18.3	25.3	22.4	20.2	>5
NCV(m/s)	47.6	45.1	49.7	46.8	47.4	>40.63
FL(ms)	55.71	55.14	54.92	55.32	54.89	<56.15
Peroneal						
TL(ms)	4.18	4.52	3.98	3.56	3.82	<4.78
AMP(mV)	6.8	8.5	9.2	9.1	8.7	>4
NCV(m/s)	48.8	42.3	46.2	45.6	46.7	>41.65
FL(ms)	49.82	48.94	49.12	48.74	48.98	<50.11
H-reflex(ms)	30.71	Absent	Absent	30.32	30.41	<31.66
EMG(biceps brachii)	Normal	Normal	Normal	Normal	Normal	
Blink reflex	Normal	Normal	Normal	Normal	Normal	
Facial NCS						
TL(ms)	2.98	3.01	2.87	2.89	2.91	<3.08
AMP(mV)	1.9	1.8	1.6	1.9	1.7	>1.1
EMG	Normal	Normal	Normal	Normal	Normal	
BAEP	Normal	Normal	Normal	Normal	Normal	

NCV: nerve conduction velocity NCS: nerve conduction study
 TL: terminal latency EMG: electromyography
 FL: F-wave latency SNAP: sensory nerve action potential
 AMP: amplitude *: Outside normal range

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61 mg/dL 1 , 32 mg/dL,

Miller Fisher¹⁻³

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test
Fisher

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8 mm 가
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tial)

SNAP(sensory nerve action poten-
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H-reflex

(Table 1).

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15

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27

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(Table 1).

34

IgG anti-GQ1b
Fisher

Miller
80 ~ 100%
anti-GQ1b
paranodal

가

(Table 1). 2

GQ1b

49 가

¹¹

(: 10 EIA units).

GQ1b 가

Miller Fisher

45

Miller Fisher

Miller Fisher

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