

Martin - Gruber



– Abstract –

Martin-Gruber Anastomosis in Ulnar Neruopathy around the Elbow

Dong Hwee Kim, M.D., Yoon Kyoo Kang, M.D., Miriam Hwang, M.D., Ho Sung Jo, M.D.

Department of Rehabilitation Medicine, Korea University College of Medicine

The Martin-Gruber anstomosis may influence the ulnar nerve conduction study in ulnar neuropathy around the elbow or even in normal cases. We present a case of complete ulnar neuropathy above the elbow with Martin-Gruber anstomosis diagnosed as incomplete ulnar neuropathy. The presence of Martin-Gruber anstomosis may have important clinical implications and can be a diagnostic challenge for the electromyographer.

Key words: Martin-Gruber anastomosis, Ulnar neuropathy

Case	Age	Sex	Occupation	Onset	Duration	Findings	Diagnosis	Reference
1	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
2	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
3	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
4	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
5	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
6	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
7	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
8	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
9	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
10	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
11	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
12	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
13	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
14	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1
15	38	Male	Farmer	2001.11.9	11 months	Complete ulnar neuropathy	Martin-Gruber	1

Address reprint requests to **Yoon Kyoo Kang, M.D.**
 Department of Rehabilitation Medicine, Korea University, Medical Center, Ansan Hospital
 #516 Kojan-dong, Ansan-si, Kyungki-do 425-707, Korea
 TEL: 82-31-412-5330, FAX: 82-31-412-5344, E-mail: yykang@unitel.co.kr

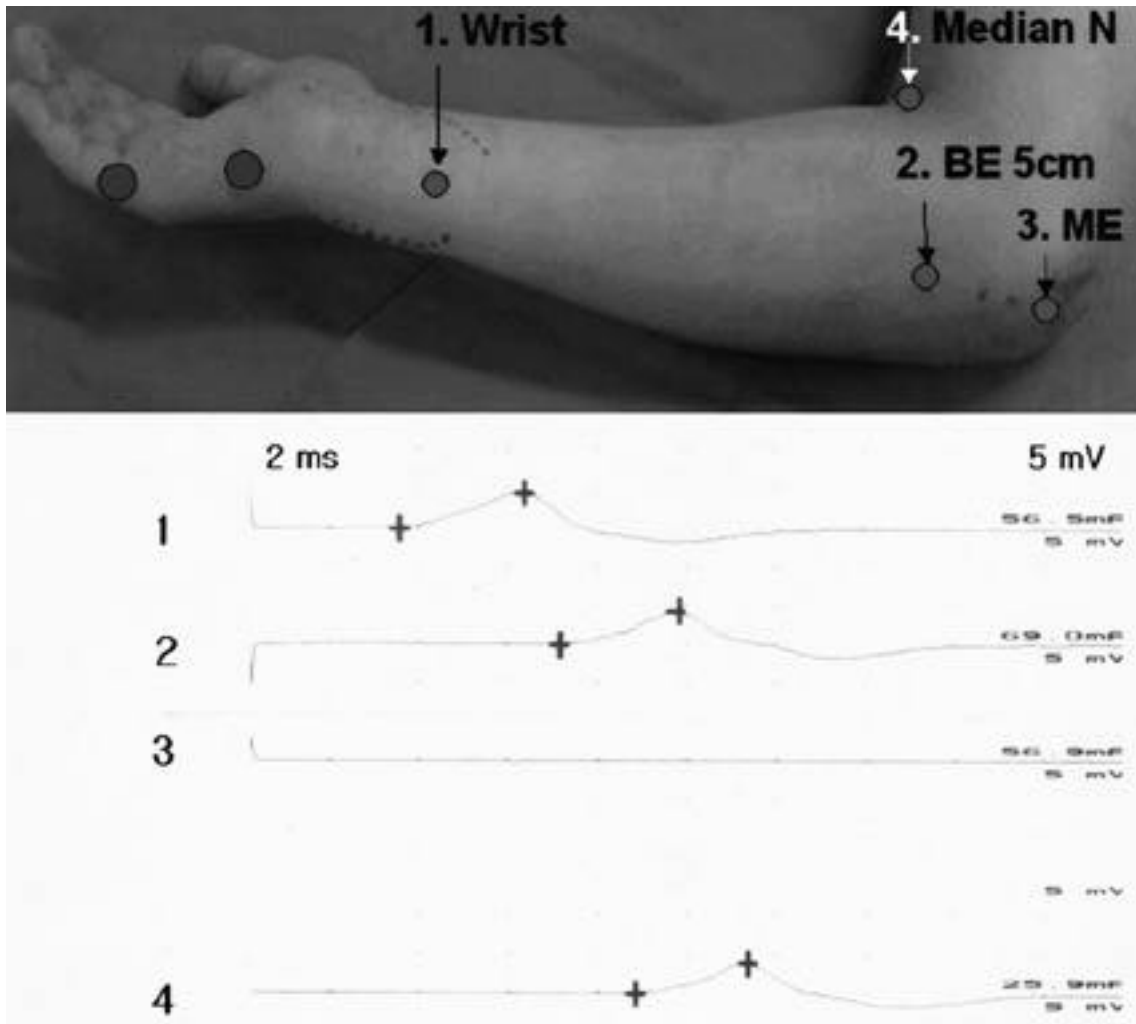


Fig. 1. Ulnar motor nerve conduction study in abductor digiti minimi muscle with stimulation at wrist (1), below elbow 5 cm (2), medial epicondyle (3), and median nerve (4).

(flexor digitorum profundus III, IV)
 2/5, (flexor carpi ulnaris) 0-1/5
 Froment
 (dorsal ulnar cutaneous nerve)

8 cm
 tin-Gruber
 가

2 cm
 Fig. 2
 가

3, 4

5

cm
 4.6 mV, 4.2 mV
 3, 4

가

3.9 mV 가
 (Fig. 1). 1
 5 cm
 8.3 mV, 7.7 mV
 가

8.1 mV (Fig. 1).
 Martin Gruber

1. Martin R: Tal om Nervers allmanna Egenskaper i Manniskans Kropp. Stockholm, L Salvius, 1763
2. Gruber W: Uber die Verbindung des Nervus ulnaris am unterarme des Menschen und der Säugetiere. Arch Anat Physiol Med Leipzig 1870: 37: 501-522
3. Crutchfield CA, Gutmann L: Hereditary aspects of median-ulnar nerve communications. J Neurol Neurosurg Psychiatry 1980: 43: 53-55
4. Gert Van Dijk J, Bouma PAD: Recognition of the Martin-Gruber anastomosis. Muscle Nerve 1997: 20: 887-889
5. Gutmann L: AAEM minimonograph #2: Important anomalous innervations of the extremities. Muscle Nerve 1993: 16: 339-347
6. Sonck WA, Franck MM, Engels HL: Innervation anomalies in upper and lower extremities: Potential clinical implications. Electromyogr Clin Neurophysiol 1991: 31: 67-80
7. Nakashima T: An anatomic study on the Martin-Gruber anastomosis. Surg Radiol Anat 1993: 15: 193-195
8. Shu H, Chantelot C, Oberlin C, Alnot JY, Shao H. Martin-Gruber communicating branch: anatomical and histological study. Surg Radiol Anat 1999: 21: 115-118
9. Srinivasan R, Rhodes J: The median-ulnar anastomosis (Martin-Gruber) in normal and congenitally abnormal fetuses. Arch Neurol 1981: 38: 418-419
10. Taams KO: Martin-Gruber connections in South Africa: An anatomical study. J Hand Surg 1997: 22B: 328-330
11. Gutmann L: Median-ulnar communication and carpal tunnel syndrome. J Neurol Neurosurg Psychiatry 1977: 40: 982-986
12. Iyer V, Fenichel GM: Normal median nerve proximal latency in carpal tunnel syndrome: A clue to coexisting Martin-Gruber anastomosis. J Neurol Neurosurg Psychiatry 1976: 39: 449-452
13. Kimura J, Murphy MJ, Varda DJ: Electrophysiological study of anomalous innervation of intrinsic hand muscles. Arch Neurol 1976: 33: 842-844
14. Wilbourn AJ, Lambert EH: The forearm median-to-ulnar nerve communication, electrodiagnostic aspects. Neurology 1976: 26: 368
15. Kingery WS, Wu PBJ, Date ES: An unusual presentation of a traumatic ulnar mononeuropathy with a Martin-Gruber anastomosis. Muscle Nerve 1996: 19: 920-922
16. Rodriguez-Niedenfuhr M, Vazquez T, Parkin I, Logan B, Sanudo JR: Martin-Gruber Anastomosis revisited. Clin Anat 2002: 15: 129-134
17. Thomson A: Third annual report of the Committee of Collective Investigations of the Anatomical Society of Great Britain and Ireland for the year 1891-1892. J Anat 1893: 27: 183-194