Hereditary Neuropathy with Liability to Pressure Palsies with Involvement of Central Nervous System

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OBJECTIVES: we describe a patient with clinical and MRI signs of central nervous system (CNS) dysfunctions associated with Hereditary neuropathy with liability to pressure palsies (HNPP).

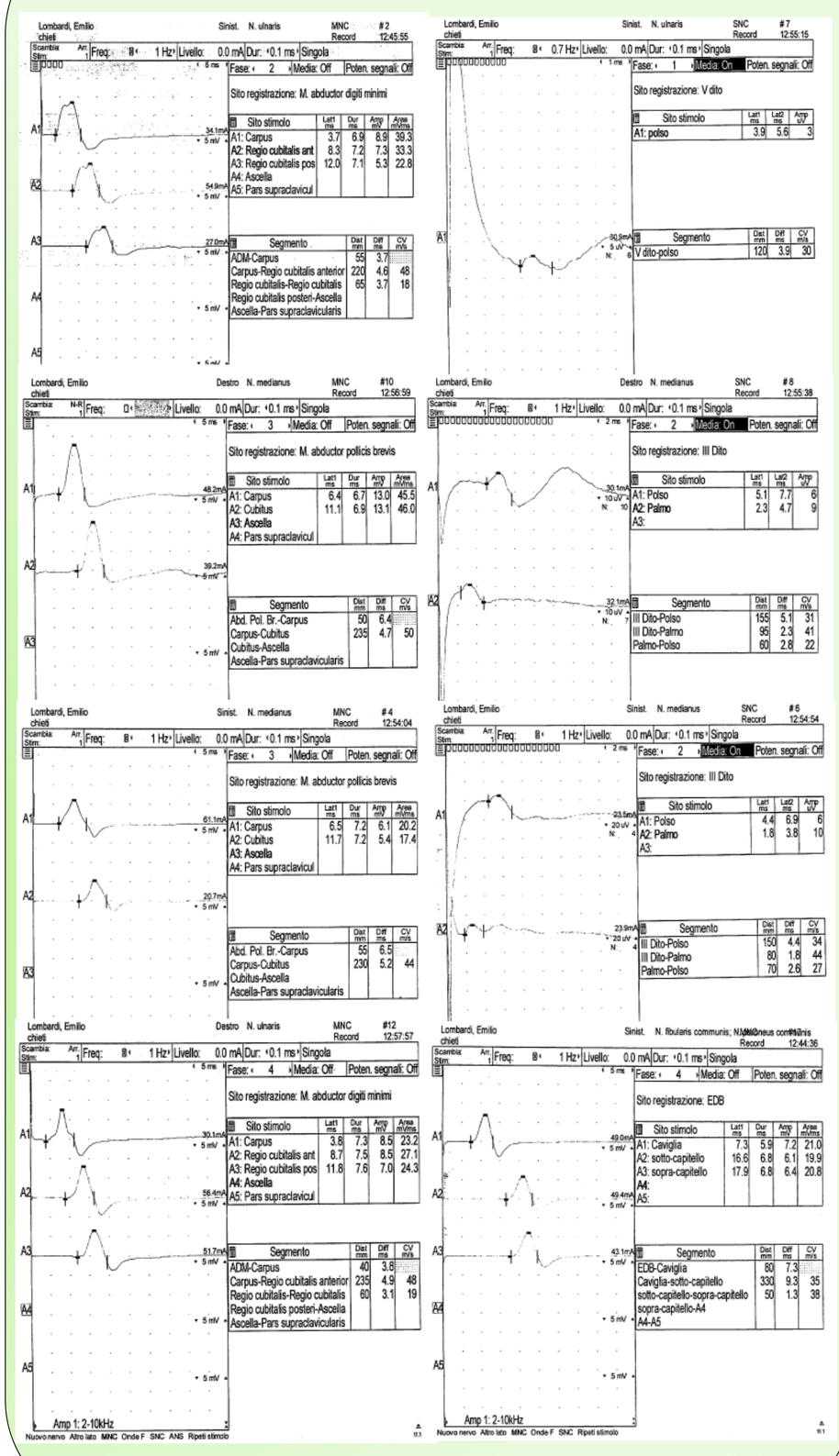

Fig 1

CASE REPORT: A 28-year-old male patient was suffering from recurrent episodes of dizziness, headache and impairment of attention and memory. He also reported a history of trigeminal neuralgia, migraine and optic nerve neuritis.
Previous **MRI brain scan showed several bilateral supratentorial white matter lesions, hyperintense areas on T2-weighted and on FLAIR images (Fig A,B,C,D,E) mainly periventricular and at the left optic radiation, without gd-enhancement, consistent with demyelinating diseases of the CNS**.
So he was admitted to our Clinic for suspected Multiple Sclerosis (MS). Battery of autoantibodies was negative. Cerebrospinal fluid (CSF) examination showed hyperproteinorrachia (100mg/dl) and blood-CSF barrier alteration (QAlb 12,0), while isoelectric focusing was normal. He presented normal visually evoked potential responses. Transcranial doppler for patent foramen ovale was negative.
Since patient complained numbness of IV and V fingers of the left hand, somatosensory evoked potential (SEP) and electroneurography (ENG) were performed. SEP showed bilateral peripheral conduction slowing on all four limbs. ENG revealed decreased motor and sensory nerve conduction velocities and prolonged distal motor latencies predominantly at nerve entrapment sites, consistent with HNPP (Fig. 1). DNA testing confirmed deletion in the 17p11.2 region.

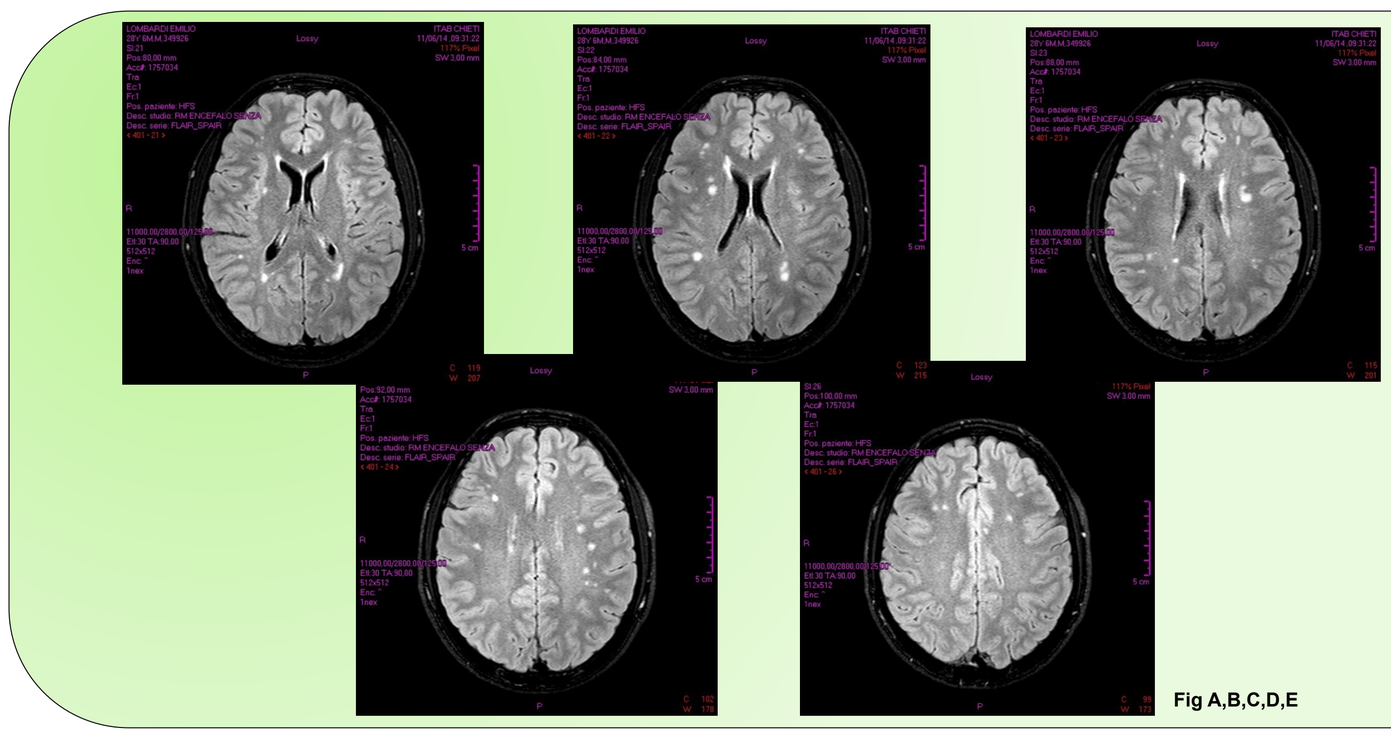

Fig A,B,C,D,E

CONCLUSION AND DISCUSSION: Our experience, according with similar cases described by Dackovic et al (2), suggests that **the presence of CNS involvement should not exclude the diagnosis of HNPP**, although in the EFNS Guidelines for the diagnosis of HNPP (1), predominant CNS involvement, including pyramidal tract or cerebellar signs, has been considered exclusion criteria for the diagnosis of HNPP. It is important to know this clinical presentations to distinguish them from MS.
Migraine-like headaches, cognitive impairment and blood-CSF barrier alterations were frequently reported in these patients suggesting analogous neuropathological mechanism. However, **the causes of structural and functional CNS impairment in HNPP patient are unclear: 17p11.2 region encode for peripheral myelin protein 22 (PMP22), which plays an important role in the formation and maintenance of compact myelin, but it is also implicated in cellular growth and differentiation, so altered PMP22 gene expression may induce CNS alterations including cognitive impairment and cerebral white matter abnormalities**, as demonstrated by Chanson et al (3). Definite evidence may only come from studies of clinical and genetic features related with biochemical and autopsy findings in large family harboring HNPP deletion.

References:
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2. Hereditary neuropathy with liability to pressure palsies associated with central nervous system myelin lesions. Dackovic J, Rakocevic-Stojanovic V, Pavlovic S, Zamurovic N, Dragasevic N, Romac S, Apostolski S. Eur J Neurol. 2001;8:689'92.
3. Central nervous system abnormalities in patients with PMP22 gene mutations: a prospective study. Chanson JB1, Echaniz-Laguna A, Blanc F, Lacour A, Ballonzoli L, Kremer S, Namer IJ, Lannes B, Tranchant C, Vermersch P, de Seze J. J Neurol Neurosurg Psychiatry. 2013 Apr;84(4):392-7.

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