A case of progressive sensory-autonomic neuropathy

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Background

We report a case of a 71-year-old man with a 1-year history of unintentional weight loss (15 kg), distal neuropathic pain, and calf fasciculations. He also complained of insomnia and autonomic disturbances, including erectile dysfunction, new-onset constipation, and compensatory hyperhidrosis. A nerve conduction study (NCS) revealed mild sensory neuropathy in the lower limbs. First-level screening for acquired neuropathy was unremarkable. In the suspicion of hereditary transthyretin amyloidosis, *TTR* genetic analysis was performed, which was negative.

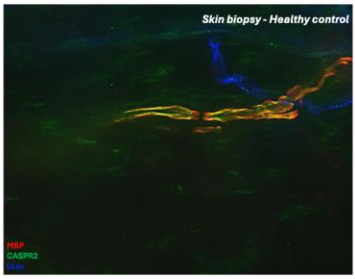
Methods

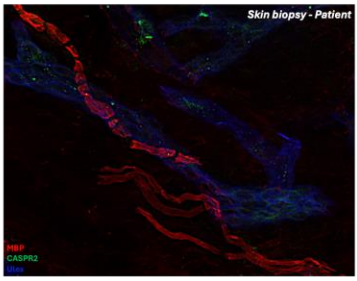
Subsequently, second-level work-up was conducted at our university. A comprehensive neurophysiological examination was performed, including NCS, needle EMG, cardiovascular reflexes (CVRs), thermal and tactile quantitative sensory testing (QST), and dynamic sweat testing (DST). Cerebrospinal fluid (CSF) analysis and research for neural antigen antibodies (CBA, IHC) were also performed. Skin samples were obtained from the V fingertip, thigh, and leg for the study of epidermal nerve fibres (ENFs).

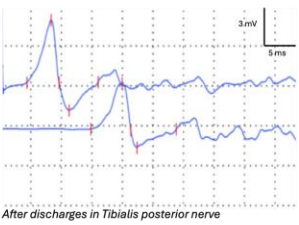
Results

Neurological examination revealed normal strength, reduced tactile and pinprick sensation up to the mid-calf, normal reflexes, and fasciculations in the calf muscles. Neurophysiological examination confirmed mild sensory neuropathy in the lower limbs but also showed after-discharges on motor NCS, fasciculation potentials and multiplets discharges on needle EMG. QST revealed impairment of Aβ, Aδ, and C fibres, while DST showed non-length-dependent hypohidrosis. CVRs demonstrated severe ortho-sympathetic dysfunction. CSF analysis was unremarkable. Anti-CASPR2 antibodies were detected, leading to the diagnosis of Morvan syndrome. Skin biopsies showed a marked reduction of ENFs with reduced annexal innervation and absent CASPR2 staining. Chest CT and total body PET-CT were negative. The patient was treated with plasma exchange (PEX), which resulted in partial and temporary improvement. Due to PEX dependence, Rituximab (RTX) treatment (1 g at T0 and at T15) was administered, leading to almost complete and sustained resolution at 2-month follow-up.

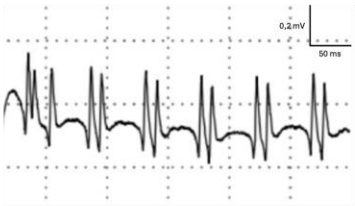
Nerve	DML (ms)	CMAP (mV)	MNCV (m/s)	F-wave (ms)	SAP (uV)	SNCV (ms)
L-Ulnar	3.4	12.4/11.7/11.1	54.9/49.8	30.9	13.1	42.2
L-Radialis					6.1	48.5
R-Tibialis	4.37	6.8/4.9	40.3	NR		
R-Suralis					5.1	41.2
L-Suralis					2.2	48.9
R-Peroneus sup					1.43	42.6







After discharges in Tibialis posterior nerve



Doublets in m. Biceps Brachi

Conclusions

This case highlights the diagnostic complexity of Morvan syndrome, a rare autoimmune disorder, in an elderly patient with neurological and autonomic symptoms that could resemble other conditions, such as TTR amyloidosis or malignancy. However, the neurophysiological tests pointed to neuromuscular hyperexcitability, raising suspicion for Morvan syndrome. Early diagnosis and targeted therapeutic approaches are crucial for symptom improvement and disease management. The positive response to treatment underscores the efficacy of Rituximab in controlling the underlying autoimmune phenomena, suggesting its potential role as a treatment of choice in similar cases.