Post-Surgical painful sensorimotor axonal multineuropathy

Eros Cerantola[1], Alessandro Salvalaggio[1], Mario Cacciavillani[2], Benedetta Tierro[1], Roberto Gasparotti[3], Maurizio Corbetta[1], Chiara Briani[1]

[1]Neurology Unit, Department of Neurosciences, University of Padova, Padova, Italy; [2]Datamedica Group, CEMES SynLab, Padova, Italy; [3]Neuroradiology Unit, Department of Medical and Surgical Specialties, Radiological Sciences, and Public Health, University of Brescia, Brescia, Italy

INTRODUCTION

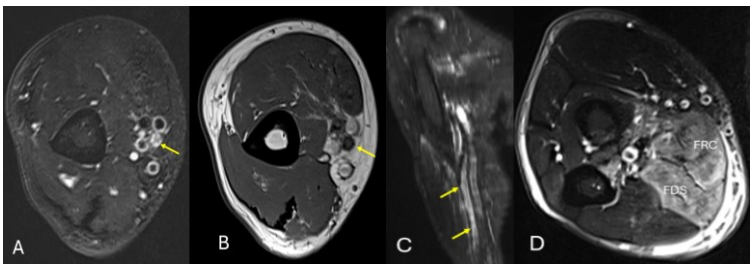
Non-systemic vasculitic neuropathies (NSVN) are typically characterized by patchy, asymmetric, sensory-motor involvement, without extraneural involvement. A subgroup of NSVN disorders — including diabetic and non-diabetic radiculoplexopathy, postoperative inflammatory neuropathy, and neuralgic amyotrophy — shares a clinical picture characterized by severe neuropathic pain followed by focal/asymmetric limb impairment, with histopathologic findings of microvasculitis. These disorders often present with a monophasic self-limiting course with incomplete recovery, and associations with predisposing factors such as diabetes, surgery, infections, or trauma. Weight loss may also occur.

MATERIALS AND METHODS

A 61-year-old man developed hypoesthesia, paresthesia, and pain in the right median nerve territory, which gradually spread to the left side and left leg over three months. Symptoms onset began a few weeks after right rotator cuff surgery.
Diagnostic workup included neurophysiological/EMG examination, MR Neurography (MRN)(brachial plexus, cervical spine, and right upper limb), high-resolution nerve ultrasound, blood tests, and lumbar puncture.

RESULTS

Neurological examination (2 months after the onset) revealed bilateral median (MRC 3/5 on the right, 2/5 on the left) and left radial nerve (MRC 3/5) weakness, absent pallesthesia in the first three fingers of both hands and reduced deep tendon reflexes in the upper limbs and left patella, with preserved Achilles reflexes. The neurophysiological study confirmed axonal multineuropathy affecting the proximal median nerves, left lateral cutaneous nerve, left radial nerve, and left femoral nerve. MRN showed a right median nerve lesion extending from the axillary region with signs of brachial plexopathy. Nerve ultrasound detected swelling of the affected nerves. Blood tests were unremarkable, including negative autoimmune screening. Cerebrospinal fluid was unremarkable. High-dose intravenous corticosteroids, gabapentin, and duloxetine led to both subjective and objective improvements in motor and sensory function.



A) Axial MR Neurography. B) Axial T1 at the level of right mid-arm. Enlarged median nerve with fascicular hypertrophy (arrows) and increased signal intensity. C) MR Neurography, sagittal reformatted view along the course of the right median nerve at the arm, significantly enlarged and hyperintense. D) axial MR Neurography at forearm. Muscle denervation of flexor radialis carpi (FRC) and flexor digitorum superficialis (FDS).

CONCLUSION

Our patient presented with subacute painful sensorimotor axonal multiple mononeuropathy, temporally and spatially separated from a surgical event. Clinical, radiological, and neurophysiological findings were consistent with vasculitic neuropathy. Alternative inflammatory causes, systemic vasculitis, and potential triggers such as infections, vaccinations, minor trauma were excluded.
The most likely diagnosis was post-surgical inflammatory neuropathy, though primary peripheral nerve vasculitis cannot be ruled out, lacking nerve biopsy. Sensory symptoms (hypoesthesia, paresthesia, pallesthesia) and motor deficits partially improved with corticosteroid therapy and physiotherapy over 16 months, though pain persisted, highlighting the need for improved therapeutic strategies.