

Ultrasonographic imaging of the peripheral nerves in a Wegener granulomatosis patient with multiple mononeuropathies

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To the Editor,

A 70-year-old man (with a diagnosis of Wegener Granulomatosis (WG)) was seen for weakness in his hands and feet predominantly on the right side. His complaints had started with a right-sided paresthesia and drop foot 6 months ago, and laboratory studies (at that time) had been as follows – erythrocyte sedimentation rate: 84 mm/h (0-20 mm/h), C-reactive protein: 47.6 mg/l (0-3 mg/l), perinuclear anti-nuclear cytoplasmic antibody (p-ANCA): positive, cytoplasmic ANCA (c-ANCA): negative. Skin biopsy was compatible with the diagnosis of WG. The patient had been under pulse cyclophosphamide and daily prednisolone treatment since then. His medical history was unremarkable except for chronic bronchitis.

In physical examination, the patient was observed to ambulate using a cane with small steps. In addition, there were thenar and interosseous muscles atrophies in right hand. Neurological examination revealed asymmetric motor weakness in the upper and lower extremities, predominantly in the distal muscles groups: right thumb flexion/palmar abduction and second finger flexion (0/5), right ankle/toes dorsiflexion (3/5) and right ankle eversion (2/5), left hand intrinsic muscles (4/5) and left ankle dorsiflexion and eversion (4/5). Sensory testing displayed hypoesthesia on the right-sided median, ulnar and sural sensory nerves' distribution. All deep tendon reflexes were diminished and pathological reflexes were absent.

Nerve conduction studies showed absence of right-sided median nerve sensory-motor and ulnar nerve sensory amplitudes. Ulnar, tibial and peroneal nerve

motor amplitudes were also reduced on the right side. Left-sided median and bilateral sural nerve sensory amplitudes were also reduced. Accordingly, with the findings of denervation on electromyography, the clinical scenario was considered to be severe sensory-motor mononeuritis multiplex. Thereafter, a detailed ultrasonographic evaluation (with a 7-12 MHz linear probe) for the upper/lower limb peripheral nerves was also performed by an experienced sonographer (LÖ). Multiple lesions were detected at both sciatic nerves and the right median nerve (Figure 1). Overall, the patient was diagnosed to have multiple mononeuropathies of the aforementioned peripheral nerves in addition to WG. A physical therapy program including electrical

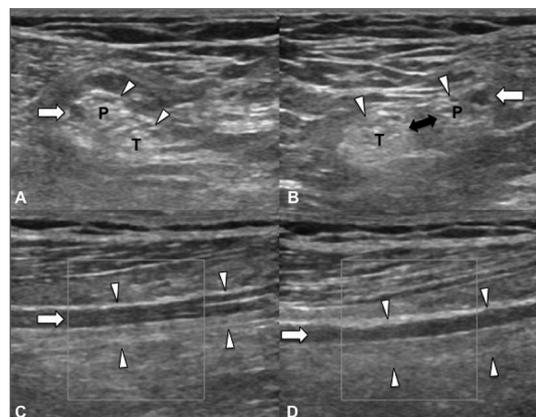


FIGURE 1. Ultrasonographic imaging of the patient's sciatic nerves (A-B; axial views, C-D; longitudinal views)
A: Left sciatic nerve (white arrowheads) is visualized proximal to its bifurcation with an anechoic enlargement (white arrow) on the peroneal side. **B:** Right sciatic nerve (white arrowheads) is seen immediately distal to its bifurcation (black arrows) with an anechoic enlargement (white arrow) on the peroneal side. **C-D:** Confirmation of the anechoic lesions (white arrows) on both sciatic nerves (white arrowheads) where power Doppler imaging is also used to distinguish any vascular structure (P: Peroneal nerve, T: Tibial nerve)

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stimulation, posterior leaf spring (for the right side) and strengthening exercises were prescribed.

WG is one of ANCA associated vasculitides that may affect many organs resulting in high morbidity/mortality rates. Mostly of patients have positive test for c-ANCA; however, 5-20% of patients may have p-ANCA¹, as in our patient. Neuropathy in WG - like in other ANCA associated vasculitides - is a well-known issue and generally ensues in the form of mononeuropathy or mononeuritis multiplex. The underlying mechanism is generally ischemia caused by vasculitic involvement of the vasa nervorum and generally peroneal (90%), tibial (38%), ulnar (35%), and median (26%) nerves are involved².

Although electrodiagnostic studies are still the gold-standard for the diagnosis and classification of the neural injury, ultrasound is recently used as an adjunct for imaging the structural changes as well³⁻⁸. Further, due to its wide availability, high spatial resolution, lack of radiation and easy applicability, we imply that the use of ultrasound seems to overweigh in the daily clinical practice of musculoskeletal physicians. Likewise, in our WG patient, we readily scanned all the peripheral nerves and have reported clinically relevant lesions in the form of mononeuritis multiplex - to our best notice for the first time in the pertinent literature.

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