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Amyotrophic Lateral Sclerosis in a Patient with Leprosy Peripheral Neuropathy[1]

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Peripheral neuropathy leading to sequelae is the most important complication of leprosy. The radial, ulnar, median, common peroneal, and posterior tibial nerves are the most commonly involved peripheral nerves in leprosy. Clinical manifestations of such involvement include anaesthesia, paraesthesia, and paralysis, and commonly found disabilities are clawing of the fingers and weakness of pinch, loss of opposition of the thumb, clawing of toes, and foot drop ([5]). At early stages of the disease, only the nerves of the cutaneous lesions are involved and there is loss of sensitivity and autonomic function in those skin areas ([5]). Isolated motor symptoms are not usual in leprosy, and paralysis and loss of sensitivity occur simultaneously. However, motor neuropathy could be caused by dapsone, one of the drugs used in the multidrug therapy (MDT), but not typically with increased reflexes and diffuse fasciculations. The neuropathies due to dapsone involve distal axonal degeneration, and the most commonly involved nerves are the ulnars and medians. These neuropathies may be dose related and are usually reversible when the dapsone is discontinued ([4]).

Amyotrophic lateral sclerosis (ALS) is a degenerative disorder of the central nervous system characterized by progressive paralysis, which is a consequence of degeneration of upper and lower motor neurons. The main clinical manifestation of patients with ALS is slowly progressive weakness that involves the limbs, trunk, respiratory muscles, the throat, and the tongue. Lower motor neuron involvement manifests as weakness, atrophy, cramps, and fasciculations. Stiffness and slowness of movement are common manifestations of upper motor neuron involvement. Slurred speech may be seen with either upper or lower motor neuron involvement ([8]).

ALS is diagnosed on clinical grounds. Differential diagnoses such as multifocal motor neuropathy, siryngomyelia, sensorimotor polyneuropathy and others are ruled out by appropriate tests including electroneuromyography (EMG) and magnetic nuclear resonance. EMG is essential to rule out multifocal motor neuropathy in which there is a persistent conduction block, that does not occur in ALS. Determination of anti-GM1 antibodies have been reported in ALS, but their presence is found more often in multifocal motor neuropathy ([3]). In ALS, if a patient is examined during the early course of the disease, denervation signals may be difficult to detect ([3]). However, with the progression of ALS there is a widespread denervation, that does not happen in siringomyelia. The sensory action potentials are usually spared in ALS, that does not occur in sensorimotor polyneuropathy. We report a case of a patient who completed treatment for borderline tuberculoid leprosy (BT) and then developed ALS, the early manifestations of which were initially interpreted by the attending physicians as a reverse reaction with neuritis.

A 60-year-old male had a diagnosis of BT leprosy in 1993, according to Ridley and Jopling criteria ([6]), and was treated with rifampicin, dapsone, and clofazimine for 2 yrs, according to the policy of the Brazilian Ministry of Health at the time ([2]). He then

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presented paraesthesia of ankles and feet, and bilateral thickness of the posterior tibial and peroneal nerves. Slit-skin smears were negative. The patient was discharged in 1995, but 3 years later he sought medical help complaining of plantar anaesthesia and impaired dorsiflexion of his right foot. Lost eversion of that foot and atrophy of his right calf were observed. These manifestations were thought to be due to a reverse reaction, and therefore the patient was given prednisone. He had been receiving a daily dose of 60 to 80 mg of prednisone without any improvement for one year before he was directed to State Reference Center of Leprosy and Sanitary Dermatology in Minas Gerais. On the contrary to the previous diagnosis, atrophy of his right calf and thigh were noted and the medial pubic reflex in the thighs had an adductor response and the patellar reflexes were increased. Neurological assessment revealed predominantly proximal, asymmetric tetraparesis, atrophy of both thighs and right leg, and generalized fasciculations. The progression to involvement of proximal muscles, quite atypical for the neuropathy of leprosy, suggested that the patient had another neuropathy (or myopathy), independently of the leprosy-related neuropathy. EMG revealed: a) sequelae of chronic asymmetric sensorimotor neuropathy of mild to moderate severity; b) widespread active denervation of lower limbs, mostly on the right, including paraspinal muscles and, less extensively, on upper limbs. After the result of a normal myelotomography of the lumbar spine, the presumptive diagnosis of ALS was made. Follow-up assessments have revealed progressive clinical deterioration with symmetric involvement of the lower and upper limbs and dysarthria. The patient can only walk with the help of a cane, and fasciculations are generalized.

About 20 to 30% of the patients who received discharge for leprosy presented late reaction until 3 to 5 years after release from treatment ([1, 7, 9]). The incidence of lepra reaction seemed to be three times more common in borderline than lepromatous leprosy ([10]). These patients usually improve substantially when treated with corticosteroids within days to weeks, and the medication may be tapered in 3 to 6 months ([2, 4]). Even though in this case there wasn't an improvement with the prednisone treatment and the proximal muscles were involved, the attending physicians kept on applying the drug for one year, and only after this period did they direct the patient to the State Reference Center of Leprosy and Sanitary Dermatology in Minas Gerais.

In the case reported here, the absence of improvement with steroid therapy along with the presence of muscle atrophy in an atypical distribution for tuberculoid leprosy, as well as diffuse fasciculations and hyperreflexia, suggested an additional diagnosis of motor neuron disease, exclusive of any effects of dapsone, since the patient had been released from MDT 3 years before the onset of the symptoms.

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