CASE REPORT

Autonomic neuropathy impairing quality of life after completion of MDT: Are we managing enough?

VIKAS ANAND*, SWETALINA PRADHAN** & PIYUSH KUMAR*
*Katihar Medical College and Hospital, Bihar, India
**All India Institute of Medical Sciences, Bhubneshwar, India

Accepted for publication 6 April 2016

Summary  A 26 year old male, treated case of lepromatous leprosy, presented with severe heat intolerance, loss of sensation and sweating over distal parts of both upper and lower limb of 12 years’ duration. On examination, there was definite sensory loss over the extremities in glove and stocking pattern and thickening of the bilateral ulnar, common peroneal and radial nerves. There were three trophic ulcers over the plantar aspect of the right foot, atrophy of the small muscles of hand, reabsorption of the distal index, middle and ring fingers along with total clawing of both hands. A slit skin smear for acid fast bacilli revealed fragmented granular bacilli. A starch-iodine test was used to document the pattern of sweating which coincided with the glove and stocking pattern of sensory loss found in lepromatous leprosy. Even though the patient had completed WHO MDT and bacilli were dead, the damage to the autonomic system was extensive in the patient leading to widespread loss of sweating and severe heat intolerance affecting his quality of life. Also the patient had motor deformity in the form of total clawing which added to his disability. Therefore all cases should be followed up even after completion of MDT, counselled regarding the course of the disease, and trained to tackle the consequences of nerve damage in their daily life. We report the case as autonomic dysfunction that has been rarely documented in leprosy patients and also we emphasise the use of the starch-iodine test in such cases along with management of the disease in part by using hydro-oleo therapy.

Case report

A 26 year old male patient presented to the skin Outpatient Department with a loss of sweating over distal parts of both his upper and lower limbs for which he couldn’t work during the day due to heat intolerance, and he had to wet his body repeatedly to gain some comfort. He was a treated case of lepromatous leprosy and had completed a 1 year course of

Correspondence to: Swetalina Pradhan, All India institute of Medical Sciences, Bhubaneswar, India (e-mail: dr.swetalinapradhan@gmail.com)
WHO MDT MB regimen 4 years after the onset of disease. Other personal and family histories were unremarkable. Other than a tender right inguinal lymphadenopathy, other general physical and systemic examinations were normal.

Dermatological examination revealed a hypopigmented anaesthetic patch on his right antero-lateral arm. Both upper and lower extremities showed glove and stocking anaesthesia. The bilateral ulnar, common peroneal and radial nerves were enlarged clinically with the left side being more pronounced than the right. There were three trophic ulcers with a sero-purulent discharge present over the plantar aspect of his right foot. Motor deformities in the form of atrophy of small muscles of his hands, and bilateral total ulnar clawing were present along with reabsorption of the distal index, middle and ring fingers. All routine laboratory tests were normal. Both the pattern and absence of sweating was documented by using the starch-iodine test which followed the similar glove and stocking distribution (Figures 1 and 2).

A slit skin smear showed fragmented granular dead bacilli. Therefore the patient was diagnosed as a case of autonomic dysfunction subsequent to lepromatous leprosy.

The patient was treated with oral antibiotics to treat the secondary infection in his ulcer and appropriate steps were taken for ulcer management. He was taught to practise hydro-oleo therapy using any vegetable oil to keep the area hydrated, along with passive exercises for ulnar clawing. The patient is now in the follow-up period and his quality of life with regard to heat intolerance is improving with hydro-oleo therapy.

Figure 1. Starch-iodine test – white area denotes absence of sweating and black area denotes presence of sweating.
Leprosy neuropathy is complex, with the superposition of acute and chronic sensory, motor and/or autonomic events. In many leprosy patients, nerve damage may occur with or without symptoms from the very beginning of infection and multibacillary leprosy cases are more susceptible to nerve damage.\textsuperscript{1–3} Leprosy has been shown to affect almost all systems of the human body and abnormalities in function of autonomic nerves innervating various parts have been observed in several studies.\textsuperscript{1,4–5} Autonomic nervous system (ANS) dysfunction manifests as anhidrosis, impaired sweat response and localised alopecia. Peripheral dysautonomia leads to damage of vascular autonomic innervations in the skin followed by a loss of vascular tone which results in stasis of capillary blood flow and consequently delayed ulcer healing. Anhidrotic skin fissures easily, thereby contributing to the vicious circle of

**Figure 2.** Starch-iodine test – white area denotes absence of sweating and black area denotes presence of sweating.
secondary infection and ulceration. Sensory loss and motor paralysis are the leading causes of morbidity and permanent severe disability in leprosy patients, and therefore remains the prime focus of clinical concern and research; but reports on the impact of autonomic neuropathy in leprosy in literature are scarce.

In the lepromatous pole, sensory loss has a ‘glove and stocking’ pattern and not much literature is available on the pattern of anhidrosis. Our case here shows a similar pattern of loss of sensation and sweating in the lepromatous pole which has been pictographically documented by the use of a starch-iodine test. The patient had heat intolerance due to the loss of his ability to sweat which impaired his quality of life. This case is a definite indicator that the long-term sequel of autonomic nerve dysfunction cannot be managed just by completing a full course of anti-leprosy treatment as seen in this case who has had leprosy for 12 years and had completed a full course of treatment 4 years after the onset of his illness.

This conclusion brings us to another issue: that completing the full course of MDT might not be of benefit in the long run in preventing the sequel of damage that has already occurred while the disease was active. Though sensory and/or motor impairment may be partially or completely reversible with adequate and early treatment, due to lack of data, no conclusion could be made till now regarding the reversibility of autonomic dysfunction. Reversal of autonomic function is not achieved just by use of anti-leprosy drugs.6,7 Those cases with autonomic dysfunction should be counselled and trained regarding hydro-oleo therapy, care of their hands and feet to improve their quality of life.

References

6 Yawalkar SJ, Saajana HB. Effect of DDS therapy on the acetylcholine sweat function test in fifty cases of tuberculoid and maculoanaesthetic leprosy. Int J Lepr, 1974; : 4255–4257.