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Leprosy in Birmingham—a review

C. J. ELLIS
M.R.C.P.

Department of Communicable and Tropical Diseases, East Birmingham Hospital, Birmingham B9 5ST

Summary

Twenty-three men and seven women from the West Midlands conurbation (population 2·7 million) have been investigated and treated for leprosy since 1970. The clinical features of the patients at presentation are described with an account of treatment given and the outcome. The pattern of this disease in Britain is different from that seen in the U.S.A. and poses little threat to public health. The disease can be cured by chemotherapy but neuropathy is unlikely to recover if it is a presenting symptom. The diagnosis of leprosy should be considered in all patients who have lived in an endemic area who present with disorders of peripheral nerves or skin. Early diagnosis is essential to minimize nerve damage and resulting deformity.

KEY WORDS: leprosy.

Introduction

Leprosy is a disease which develops in a minority of those exposed to infection with *Mycobacterium leprae.* It probably affects about 12 million people world-wide, the vast majority living in the tropics. The disease presents with skin lesions and/or disorders of peripheral nerves in people who have lived for many years in endemic areas.

Patients

The 30 patients comprised 23 men and 7 women. All were born abroad and almost certainly acquired the infection in the place of origin which was the Indian subcontinent in 26 cases, the remainder coming from South Yemen, Singapore, Libya and Jamaica. Seven of the Indian patients were Gujeratis who had lived for several years in East Africa before coming to Britain. The patient from Singapore was of Indian extraction. Most of those coming direct from India originated in the Punjab.

Their age at presentation ranged from 14 to 74 with a mean of 45 years.

The interval between arrival in the U.K. and the diagnosis of leprosy ranged from less than 1 year to 18 years. Duration of presenting symptoms ranged from a few months to several years. In one patient 30 years elapsed between his noticing numbness of his foot and seeking medical advice at the age of 44 because of a skin eruption. Both patients with lepromatous disease stated unequivocally that their skin has been abnormal for less than 6 months.

Presenting symptoms and type of disease

Fourteen patients sought medical advice because of skin lesions, 11 because of the consequences of neuropathy and 5 because of an unrelated medical problem.

Seventeen patients were found to have neuropathy in addition to the skin lesions or *vice versa.* Six patients had skin lesions without evidence of neuropathy. Two patients had neuropathy without skin lesions.

The modern classification of leprosy (Ridley and Jopling, 1966) correlates clinical features with histopathological and bacteriological findings. At the 'lepromatous' pole of the disease spectrum are those patients with an ineffective immune response. They have widespread skin lesions which abound with bacilli. At the other extreme, patients with the tuberculoid form mount a vigorous cell-mediated response and have few skin lesions containing scanty or no bacilli but are liable to suffer damage to peripheral nerves caused by hypersensitivity; occasionally 'neural' cases with no skin lesions are seen. At presentation our patients were classified as follows:

Lepromatous	(LL)	2
Borderline lepromatous	(BL)	5
Borderline	(BB)	1
Borderline tuberculoid	(BT)	16
Tuberculoid	(TT)	6

One of the (lepromatous) LL patients came from

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Libya, one of the BL patients from Jamaica and one from South Yemen.

Bacilli were seen at presentation in skin smears from 10 patients (all those classified as LL, BL and BB and from two of those classified as BT).

Skin lesions. These were either macular or raised, the latter ranging from papules or nodules to more extensive plaques but in all patients the lesions were more or less discrete. Macular lesions were almost invariably less sensitive to pinprick than surrounding skin but, in about half the patients with raised lesions, sensation in affected areas was intact. The number and nature of the skin lesions accorded well with the other indices on which classification is based, tuberculoid patients having few lesions, usually macular and anaesthetic, while the number and elevation of lesions tended to increase towards the lepromatous pole.

Eight of the fourteen patients presenting with skin lesions were found to have a focus of neuropathy elsewhere. All 8 had borderline leprosy. In half, the neuropathy was purely sensory while the others were also found to have weakness of muscles supplied by the ulnar nerve (3) and median nerve (one).

Neuropathic presentation. The 11 patients with a neuropathic presentation sought advice because of ulceration or blistering secondary to sensory loss (6) or because of muscle weakness (5). In the sensory group, plantar ulceration was the most common symptom (4) while painless blistering of the hands was seen in 2. Four patients presented with clawhands from involvement of the ulnar nerve and 2 of these also had foot-drop from involvement of the lateral popliteal nerve. Foot-drop was the sole disability in two patients. All but 2 patients with a neuropathic presentation were found to have diagnostic skin lesions in the form of hypopigmented, hypoaesthetic macules. The 2 exceptions therefore exemplify pure neural leprosy.

Where neuropathy indicated involvement of a normally palpable peripheral nerve, the nerve was usually, but not invariably, enlarged or hardened. Conversely, thickened nerves were occasionally found with no evidence of loss of function.

Presentation with an unrelated condition. Five patients presented with an unrelated medical problem. In 3, the disease had already resolved spontaneously leaving some loss of skin sensation and one or more thickened peripheral nerves. These patients were given a course of dapsone as a precaution and are now under annual review.

Management and outcome

Until 1981, dapsone alone was usually given for at least 5 years to tuberculoid patients and for life to those with lepromatous disease. The emergence of dapsone-resistant strains of *M. leprae* led to the recommendation that all patients with leprosy should received combination chemotherapy (W.H.O., 1982). Patients with multibacillary disease now receive daily dapsone and clofazimine (Lamprene) with a single dose of rifampicin every month. This regime renders lepromatous patients non-infectious within 2 weeks and may allow treatment to be stopped after as little as 2 years. Tuberculoid patients receive daily dapsone and monthly rifampicin for 6 months. Patients are considered cured when they are free from reaction, skin smears are free of bacilli and they have received an appropriate course of chemotherapy. Cured patients are reviewed annually.

No patient with disease classified as BT or TT who has completed a course of dapsone has shown any sign of disease activity at follow-up. The lepromatous and borderline lepromatous patients are all receiving treatment at the time of writing.

Discussion

Despite the continuing and unnecessary stigma of leprosy, this disease does not appear to pose much risk to public health in modern Britain. Infectivity is greatest in bacilliferous patients and, in our group, most such patients were diagnosed by dermatologists who clearly have a high index of suspicion for the disease.

The population of the City of Birmingham in 1978 was just over one million and, in that year, it was estimated that 52000 residents were of West Indian ancestry and 70000 of Asian (City of Birmingham Central Statistics Office, 1979). The greater incidence of leprosy in Asian immigrants probably reflects a greater prevalence of the disease in the Indian subcontinent which in turn may reflect a greater susceptibility in Asians.

The relatively small proportion of patients who had bacilliferous disease contrasts with the situation in the United States of America where there were 412 cases of leprosy notified from 1971 to 1973 inclusive, of whom 80 had never lived or travelled abroad (Centre for Disease Control, 1977). Almost half of the total number had lepromatous disease and a substantial majority of the total were bacilliferous at presentation. Most of the American cases were in people of Spanish extraction which supports the contention that white Caucasians are more likely than Asian Indians to develop lepromatous disease, although early (indeterminate) and single-lesion self-healing TT leprosy may easily escape diagnosis in pale-skinned patients. It is probable that most individuals infected with *M. leprae* will never develop the disease, whatever their race.

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