CASE REPORT

A case of lepromatous leprosy with multiple relapses

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Summary We report a case of multiple relapses in a lepromatous leprosy patient after treatment with World Health Organisation (WHO) recommended multibacillary multidrug therapy (MBMDT). The patient responded well to reintroduction of MDT after each relapse.

Introduction

A relapse in leprosy is defined as ‘the development of new signs and symptoms of disease either during the surveillance period or thereafter, in a patient whose therapy has been terminated after having successfully completing an adequate course of multidrug therapy (MDT)’.1 The relapse of treated leprosy cases has recently emerged as a challenge to leprologists and health workers in this field. Although relapse in leprosy is not uncommon, multiple relapses are rare. We report the case of a patient with lepromatous leprosy who had three relapses.

CASE REPORT

A 60 year old man from Mangalore reported with an ulcer over the right foot for the past 3 years and multiple painful lesions all over the body associated with fever for 15 days. A known case of Hansen’s disease diagnosed in 1967, he had been on dapsone monotherapy from 1967 to 1997 when his bacterial index (BI) was found to be 4+ and he was started on multibacillary multi drug therapy (MBMDT) for a period of 4 years (see Table 1).

Slit skin smears were taken by a trained technician and checked by a microbiologist or dermatologist; BI is a mean of smears from five sites. In 2001 the patient was released from treatment (RFT) with a negative smear for acid fast bacilli (AFB). After a symptom free period of 2 years, he reported again with a recurrence of the lesions. His slit skin smear
for AFB was positive (BI 4+), and he was restarted on MBMDT, which was continued for a further 2 years. He was released from treatment in April 2005 with a BI of 1.75+ and Morphological Index (MI) of zero. After a period of 2 years he came back with fresh complaints.

On examination there were found to be multiple, tender, firm, erythematous nodules measuring about 2 × 2 cms, bilaterally symmetrical distribution over arm, forearm, thigh and back. The skin over the nodules was shiny and the surrounding area was erythematous (Figures 1 and 2).

He had bilateral loss of eyebrows, depression of the nasal bridge and atrophy of the ear cartilage. In his right hand there was absorption of all the fingers and wrist drop. The bilateral ulnar nerves at the elbow, radial nerves at the wrist and common peroneal nerves at the knee were palpable and tender. There was swelling of his wrist and ankle joints with tenderness. There were no eye changes, testicular pain or organomegaly.

On investigation, he had a normocytic normochromic anemia (Hb 9.3 gm%), total leukocyte count 14 000/mm³ with neutrophilia (88%), raised erythrocyte sedimentation rate (24 mm/hour) and a normal urine analysis. Skin smears for AFB showed a BI of 3.75+ with MI of 3%. Histology of a biopsy from a nodular lesion showed dermal granulomas and leukocytoclastic vasculitis which are features of ENL (Figure 3).

A Fite Faraco stain showed acid-fast bacilli. The patient was restarted on MBMDT, oral prednisolone in a slowly tapering dose over a period of 2 months and clofazimine 50 mg three times daily for reaction. He was also treated for diabetes and hypertension. After about 1 month the lesions regressed and the patient improved. The smear for AFB was 2.75+ after completing 2 months of therapy and his AFB status after a period of 11 months was 1+.

Discussion

A clinical relapse in leprosy may be caused by persisters or by re-infection with exogenous Mycobacterium leprae. Persisters are bacilli that adapt to adverse conditions in their environment by reducing their metabolism to a minimum. The duration of this dormant state may be a few months to a few years. In borderline lepromatous (BL) and lepromatous leprosy (LL) patients, there is impaired host cellular immune response to M. leprae, so that a treated case of leprosy remains susceptible to re-infection with exogenous M. leprae after RFT. The risk is more prominent in areas where leprosy is endemic.

Two groups of relapses have been observed: early relapses occurring within 3-5 years of stopping treatment, with a median incubation time of 1 year and 10 months, and later relapse occurring more than 3.5 years after stopping treatment, with a median incubation of 5 years.

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<td>1.75+</td>
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Early relapses are probably due to insufficient treatment, and late relapses to persisting bacilli or to reinfection. In our patient the relapses occurred within a short period of stopping treatment suggesting insufficient treatment was given. Drug resistance in the current MDT era is quite rare. The bacilli still persisting after MDT have been reported to be sensitive to all three drugs. However, dapsone resistance was common in relapses after prolonged dapsone monotherapy.

Our patient, who hails from coastal Karnataka with a current prevalence rate of 0.29 per 10,000, was diagnosed as having lepromatous leprosy and received dapsone monotherapy for 30 years. At the end of which time he still had leprosy with a BI of 4+, and was presumably dapsone resistant. He then received MBMDT till smear negativity. However he relapsed...
twice more and each time he responded very well to MBMDT. His third relapse was manifest by a Type 2 reaction, but the 2-log increase of BI confirmed the underlying relapse. The history indicates that he had relapsed with organisms which were not resistant to the combination of drugs used in MDT, although they were never formally tested for resistance,

![Figure 2. ENL lesions over forearm.](image)

![Figure 3. Histopathology showing granulomas and leucocytoclastic vasculitis in dermis (H&E, 10 × 10).](image)
but resistance to an individual drug cannot be excluded. Probable reasons for multiple relapse in our patient include inadequate treatment due to partial resistance or poor compliance and poor immune response. If he were to relapse for a fourth time, there would be a case for testing his organisms for drug sensitivity and for modifying the regimen.

Relapse rates per 1000 person years have been reported as 0·15 for MB cases and 0·55 for PB cases in China.6 In a study in India, in patients treated up till smear-negativity, a relapse rate among patients with an initial BI of $4^+$ was higher than among patients with initial BI of $\leq 4^+$ (1·27 and 0·46 per 1000 person years respectively). Since a majority of relapses occur with BI $\geq 4^+$, it would be better to continue the treatment for a longer period in this group.7 Our experience supports the argument that patients who have a high initial BI should be treated till smear-negativity.8 Further, in view of frequent reactions, periodic follow-ups until the patients become smear-negative should be continued, as it would be beneficial in reducing deformities and help in early diagnosis of relapse.7 Molecular typing could assist in distinguishing between relapse and re-infection in patients with an initial high bacterial load who suffer from renewed episodes of disease following completion of therapy.9

No ethical committee approval was required.

References