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Letters to the Editor

ERYTHEMA NODOSUM LEPROSUM IN SUBGROUPS OF LEPROMATOUS LEPROSY

Editor,

Lepromatous leprosy has two subgroups, subpolar lepromatous leprosy (LLs) and immunologically stable and anergic polar lepromatous leprosy (LLp).[1–3] This subgrouping is based on genesis of lesions, clinical and histological examination[2] (Table 1). LLs patients acquire lepromatous status by gradual downgrading whereas LLp is de novo lepromatous.

Erythema nodosum leprosum (ENL) is an acute immune complex mediated reactional episode, occurring in patients at or close to the lepromatous end of leprosy spectrum and characterized by widespread crops of evanescent, erythematous and indurated subcutaneous nodules mainly on face and limbs, usually accompanied by fever and other constitutional symptoms.[4,5] Classical histological features of active ENL lesions include increased vascularity with many dilated capillaries in the upper dermis and neutrophilic infiltration, oedema and vasculitis in lower dermis.[4,5] We have retrospectively studied 659 lepromatous leprosy (LLs-552, LLp-107) patients out of 3500 leprosy patients registered in our leprosy clinic, over a 19-year period for the development of ENL with or

Table 1. Clinical profile of LLs and LLp

Observations	LLs	LLp
Genesis of lesions	Lesions arise by gradual down grading from higher spectrum	Lesions arise de novo
Clinical features		
– infiltration	Patchy	Diffuse
– peripheral neuropathy	+	++
– oedema hands & feet	+	++
– neuritis	++	–
– deformitis	++	+ (Late)
– trophic ulcers	++	+ (Late)
– nodules	+	+
Histopathology		
– compact macrophage granuloma	++	++
– lymphocytes	Moderate number	Scanty
– foamy change	+	++
– nerves	Onion skin appearance	Normal/Hyalinised
Bacteriological Index	Significant variation from site to site	Uniformly high at all sites (4^+-6^+)
Upgrading reactions	+	–
Lepromin conversion with immunotherapy	+	–

Table 2. ENL in patients of LLs & LLp

		Patients	ENL
LLs	M	432	110 (25·4%)
	F	120	35 (29·0%)
	Total	552	145 (26·2%)
LLp	M	82	9 (10·9%)
	F	25	3 (12·0%)
	Total	107	12 (11·2%)

(p. value < ·001).

without antileprosy drugs. ENL was diagnosed by clinical and histopathological findings. We have been giving rifampin daily for at least 1 year in all lepromatous leprosy patients along with dapsone and clofazimine as per WHO–MDT since 1984. Prior to this period some patients also received dapsone monotherapy. It may be mentioned here that about 31% of LL patients dropped out before completing two years treatment.

ENL was observed in 26·2% (M, 25·4%, F, 29·01%) patients of LLs while only 11·2% (M, 10·9%, F, 12%) patients of LLp showed ENL reaction ($p < 0{\cdot}001$) (Table 2). Interestingly, in our study, all patients of LLp who developed ENL, developed so on antileprosy drugs, while about 25% of LLs patients developed ENL before starting treatment. It is possible that in immunologically unstable LLs other factors such as intercurrent infections, stress, vaccination, etc., may precipitate ENL. Antileprosy drugs can precipitate ENL by disintegration of *M. leprae* and release of antigenic material.[6] Presence of raised levels of C3 break down product C_3d in ENL episodes is compatible with presence of extravascular complement fixing complexes at the sites of antigen release,[4,5] while circulating immune complexes, are not likely to cause ENL, because they occur equally commonly in patients of LL with or without ENL.[5]

Modlin *et al.*[7] showed that ENL tissue had more numerous cells of the helper–inducer phenotype and less suppressor/cytotoxic phenotypes as compared to nonreactional lepromatous tissues suggesting role of cell-mediated immune response in the pathogenesis of ENL.[7] Laal *et al.* also demonstrated a transient increase in cell-mediated immunity in ENL.[8] Transient changes in cell-mediated immune response may act directly, leading to the release of mycobacterial antigens in situ or permit production of an antibody critical to formation of the immune complex.[7,8] These changes in cell-mediated immunity are, however, expected to be less common in anergic and immunologically stable LLp. These immunological observations may explain our observations of an increased frequency of ENL in LLs and that none of our LLp patients developed ENL before antileprosy drug treatment.

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