to establish the status of the immunity and response of lymphocytes to *Mycobacterium leprae* antigens would, if done, have gone far to further the case for the authors while arriving at the immunological diagnosis and ultimate classification of these cases.

The morphological and histopathological findings of the lesions, especially in patients 2 and 3, are clearly consistent with the histoid variant of multibacillary leprosy. This clinical entity has recently been the subject of several publications ([9-11]). It is characterized by translucent papules, nodules and/or plaques appearing over an apparently normal skin. The history of evolution of these lesions is fairly important. Demonstration of solid-staining, discrete *M. leprae* in slit-skin smears is an important supplement. Diagnosis is usually confirmed further by the characteristic findings in hematoxylin and eosin-stained paraffin sections, wherein spindle-shaped histiocytes displaying either crisscross, parallel or whorled patterns of alignment are observed. Sometimes the differentiation between histoid leprosy and histiocytoma cutis can only be made after histochemical studies. The lepromin skin test in patients with such lesions is usually negative.

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REFERENCES

1. Job, C. K., Kahkonen, M. E., Jacobson, R. R. and Hastings, R. C. Single lesion subpolar lepromatous leprosy and its possible mode of origin. Int. J. Lepr. **57** (1989) 12–19.
2. Lowe, J. and Chatterjee, S. N. Scarification tattooing, etc., in relation to leprous lesions in the skin. Lepr. India **11** (1939) 14–18.
3. Porrit, R. J. and Olsen, R. E. Two simultaneous cases of leprosy developing in tattoos. Am. J. Pathol. **23** (1947) 805–807.
4. Sehgal, V. N. Inoculation leprosy appearing seven years after tattooing. Dermatologica **142** (1971) 58–61.
5. Sehgal, V. N. Upgrading borderline tuberculoid (subpolar tuberculoid tuberculoid) leprosy developing in tattoos. Int. J. Dermatol. **26** (1987) 332–333.
6. Sehgal, V. N. Inoculation leprosy; current status. Int. J. Dermatol. **27** (1988) 6–9.
7. Sehgal, V. N. and Joginder. Tuberculoid (TT) leprosy, localisation on tattoo. Lepr. Rev. **60** (1989) (in press).
8. Sehgal, V. N., Rege, V. L. and Vadiraj, S. N. Inoculation leprosy subsequent to small-pox vaccination. Dermatologica **141** (1970) 393–396.
9. Sehgal, V. N. and Srivastava, G. *Histoid Leprosy.* New Delhi: CBS, 1985.
10. Sehgal, V. N. and Srivastava, G. Status of histoid leprosy—a clinical, bacteriological, histopathological and immunological appraisal. J. Dermatol. (Tokyo) **14** (1987) 38–42.
11. Sehgal, V. N. and Srivastava, G. A prospective diagnostic study of 38 patients. Dermatologica **177** (1988) 212–217.
12. Yoder, L. J., Jacobson, R. R. and Job, C. K. A single skin lesion—an unusual presentation of lepromatous leprosy. Int. J. Lepr. **53** (1985) 554–558.

Response by Dr. Job, *et al.*

To the Editor:

We are giving below our response to the letter from Sehgal and Bhattacharya with regard to our paper entitled "Single lesion subpolar lepromatous leprosy and its possible mode of origin."

The paper is a report on a retrospective study of three patients seen in our institution during the last 4 years. The diagnosis of lepromatous leprosy was made after obtaining a careful history, a detailed clinical examination, and a histopathological confirmation. Microbiological studies were done whenever necessary and possible for the management of the patient.

Highly positive skin smears for acid-fast bacilli from the lesions, the presence of in-

traneural acid-fast organisms, and the characteristic lepromatous granuloma during histopathological study were the criteria used for diagnosing all three patients as having lepromatous disease. It was possible to do the lepromin test in only one patient. It would have been better if all three patients were submitted to lepromin tests. Other immunological tests in leprosy are found to be rather unreliable and are not necessarily helpful in the classification of a patient.

We are grateful to Sehgal and Bhattacharya for their concerned comments. We note that Sehgal, *et al.* have reported inoculation leprosy in several patients classified as indeterminate, tuberculoid, and borderline tuberculoid leprosy. We do hope that they will look for and be able to find patients with an inoculation lepromatous disease and confirm our findings.

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Relapse or Late Reversal Reaction?

TO THE EDITOR:

Indeed, relapse or reaction is an important subject for a dialogue. Pannikar, *et al.* ([4]) may, therefore, be complimented for focusing readers. However, it is hard to share their view, that clinically it is often difficult to differentiate between the two. Should the cardinal clinical expressions of the disease be conceived well, the diagnosis can be made reasonably.

It is not only a question of differentiating relapse from "late reversal reaction," but also type 1 (lepra) reaction as a whole. At this state, therefore, it is imperative to con-

TABLE 1. *Histopathological and immunological features of upgrading (reversal) and downgrading type 1 (lepra) reactions*[8,10,11].

Upgrading reaction		Downgrading reaction
	Histopathology	
1) Well-formed compact granuloma	Granuloma	1) Loosening granuloma
2) Granuloma approximates the epidermis		2) Granuloma extends downward into the dermis (free subepidermal zone may be present)
3) Exocytosis		3) Relatively clear eosinophilic zone approximates the epidermis
1) Plenty of lymphocytes of epithelioid cells	Cells	1) Increasing macrophage representation in the granuloma, moderate epithelioid cells, and lymphocytes
2) Occasional, or a few, giant cells		2) Giant cells conspicuously absent
1) Increasing destruction of nerves	Nerves	1) Intensely infiltrated, prominent nerves in the granuloma
1) Reduction in BI from 4–5 to 0–2	Acid-fast bacilli	1) BI may increase
	Immunology	
1) A significant increase in T lymphocyte count		1) Decrease in T lymphocytes
2) Decrease in B lymphocytes and IgG level		2) Increase in B lymphocytes and IgG level
3) Significantly augmented NK-cell activity		3) Decreased NK-cell activity
4) Increase in interleukin 2 (IL-2) and IL-2 receptor (IL-2R)		4) No change in interleukin activity