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# CORRESPONDENCE

*This department is for the publication of informal communications that are of interest because they are informative and stimulating, and for the discussion of controversial matters. The mandate of this JOURNAL is to disseminate information relating to leprosy in particular and also other mycobacterial diseases. Dissident comment or interpretation on published research is of course valid, but personality attacks on individuals would seem unnecessary. Political comments, valid or not, also are unwelcome. They might result in interference with the distribution of the JOURNAL and thus interfere with its prime purpose.*

## Leprosy at the Age of 141 Years: a Case Report

TO THE EDITOR:

A 141-year old male, the oldest living human being in Nepal, presented with asymptomatic, multiple, erythematous plaques all over his body for the last 2 months. The lesions appeared suddenly on his face and progressed to involve the upper and lower limbs and trunk. There was a history of redness of the eyes and lacrimation for the previous 20 days. Fever, arthralgia, epistaxis, testicular swelling and pain in eyes were absent. The patient had never suffered from any major illness in his entire life. He was the documented oldest citizen of Nepal, according to the records of the Nepal Land Survey. He was a much revered figure and a lot of people used to visit his home to have audience with him daily. The patient had been living a simple life. He was married and had five children and three great-grandchildren. There was no history of leprosy in the family.

Examination revealed a frail old man alert and conscious but unable to respond to queries because of impaired hearing. His conjunctivae were congested and there was a scanty purulent discharge. There was no pallor, icterus, lymphadenopathy, pedal edema, trophic ulceration or plantar fissuring. There was an atrophic, 2 cm × 1 cm, depigmented scar on the depressed bridge of the nose. The systemic examination was within normal limits. Cutaneous examination showed well-defined, erythematous, indurated plaques on both eyebrows without any madarosis. Multiple, erythematous, ill- to well-defined plaques varying in size from 1 cm to 10 cm were present bilaterally in an asymmetrical pattern over bald areas of the scalp, the nape of the neck, the chin, cheeks, nose, trunk, buttocks and upper and lower extremities (Figs. 1 and 2). Multiple, nontender, erythematous nodules were present over the cheeks and chin. The left ulnar nerve was thickened and mildly tender. There were no deformities. Sensation over the lesions, hands and feet could not be tested because of his advanced age and inability to communicate.

A clinical diagnosis of borderline lepromatous (BL) Hansen's disease was made. Slit-skin smears for acid-fast bacilli (AFB) were positive from the lesions and earlobes (BI 1+). A skin biopsy from a lesion on the left forearm showed atrophy of the epidermis and multiple epithelioid cell granulomas in the upper and deep dermis. The granulomas were composed of epithelioid cells, lymphocytes, and a few giant cells. Nerve destruction was seen in places. The biopsy was negative for AFB. The histological diagnosis of borderline tuberculoid (BT) Hansen's disease was made. All hematological and biochemical investigations were normal. The patient was started on the World Health Organization multibacillary multidrug therapy (WHO/MDT) regimen. The patient expired 2 weeks later of an unknown cause at home.

Leprosy is a chronic infectious disease, caused by *Mycobacterium leprae,* affecting

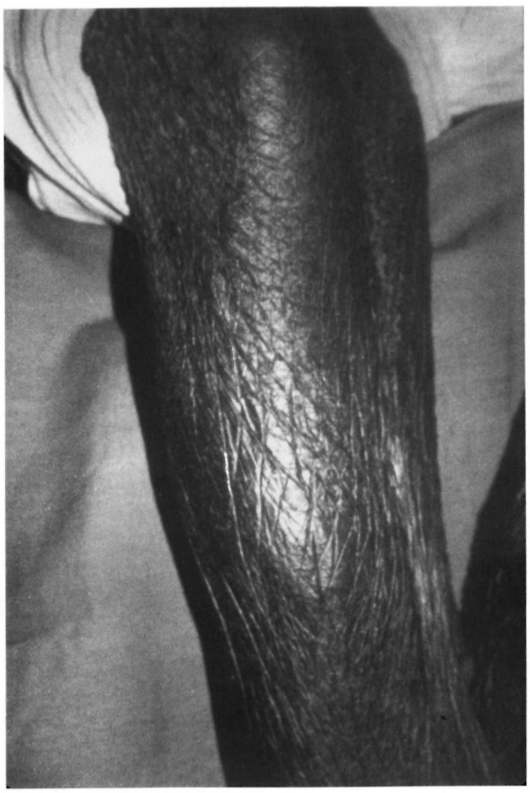

FIG. 1. Erythematous plaques on right lower limb.

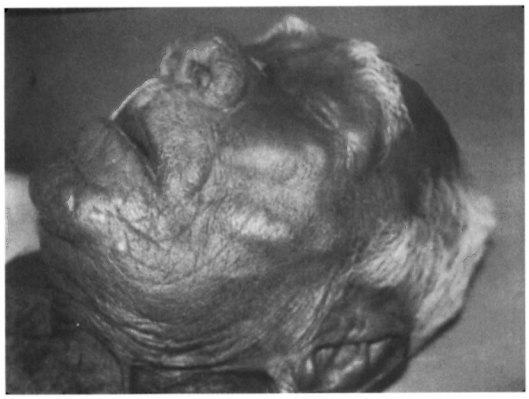

FIG. 2. Erythematous plaques and nodules over the chin and right cheek.

the peripheral nerves, skin and certain other tissues ([2]). It is transmitted from one person to another, probably by contact with untreated patients hosting contagious forms of the disease. In highly endemic regions, a very large percentage of the population is exposed to the infection but only 5% develop the disease, depending on the cell-mediated immunity of the individual. The prevalence of leprosy is highest among young adults ([1]). It has been reported in all age groups but the prevalence is only 0.09% for those over 80 years of age. In an article by Monteiro, *et al.* from Brazil on ocular changes in leprosy patients, it is mentioned that their oldest patient was aged 89 years ([3]). There were no reports of any patient older than this, to the best of our knowledge.

We report here a case of borderline lepromatous Hansen's disease in a 141-year-old person. Our patient was unique not because of his advanced age alone but because the onset of disease was at the age of 141 years. This case highlights the long incubation period of leprosy. We believe that the patient must have acquired the infection at an early age, as is true for most of the people living in endemic areas. The late onset of the disease in our patient may be because of decreased immunity in old age ([4]). However, the possibility of his acquiring infection even later in life from the people who had started visiting him from far and wide, after recognition as the oldest living person of Nepal, cannot be discounted.

—Sudha Agrawal, M.D.
*Assistant Professor*

—Arun Joshi, M.D.
*Senior Resident*

—Mary Jacob, M.N.A.M.S.
*Professor and Head*
*Department of Dermatology and Venereology*

—Shatrughan P. Sah, M.D.
*Assistant Professor*
*Department of Pathology*

—Arun Agarwalla, M.D.
*Senior Resident*

—Vijay Kumar Garg, M.D.
*Associate Professor*
*Department of Dermatology and Venereology*
*B. P. Koirala Institute of Health Science*
*Dharan, Nepal*

Reprint requests to Dr. S. Agrawal at the above address or FAX 977-25-20251; e-mail: sudha92@hotmail.com

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# Apoptosis in Leprosy Patients

To the Editor:

The protection-associated host response to *Mycobacterium leprae* infection is strongly dependent upon subsequent cellular immunity ([1]). Apoptosis appears as a physiological mechanism that leads to cell elimination without inducing inflammation or damage to contiguous cells ([3, 5]). In this study, we have tested the hypothesis that among the various factors potentially responsible for the lymphocyte alterations in leprosy, apoptosis could be implicated. Along this line, we evaluated the impact of leprosy infection on the level of spontaneous apoptosis and the type of cells ($CD4^+$, $CD8^+$, $CD19^+$) that were likely concerned.

After informed consent, 19 newly detected leprosy patients (11 males, 8 females) were included in the study before receiving any treatment. Nine of them had multibacillary (MB) leprosy and 10 had paucibacillary (PB) leprosy. Seven (5 males, 2 females) Senegalese healthy adult donors were enrolled as controls.

Peripheral blood mononuclear cells were isolated from heparinized whole blood by Histopaque®-1077 density gradient (Sigma Diagnosis, St. Louis, Missouri, U.S.A.) and cultured at $10^6$ cells/ml in 24-well plates under unstimulated (medium alone) conditions. The plates were thereafter incubated for 2 days (determined after a preliminary kinetic study) at 37°C in a water-saturated atmosphere containing 5% $CO_2$. Quantification of apoptosis was performed by flow cytometry as already described ([8]) by staining the lymphocytes with 7 amino-actinomycinD (7AAD; Sigma) which discriminates live from early apoptotic cells. $CD4^+$, $CD8^+$ and $CD19^+$ cells were identified using monoclonal antibodies (Becton Dickinson Immunocytometry Systems, San Jose, California, U.S.A.). The nonparametric Kruskal-Wallis test was used to compare the data between the different groups; a p value of $<0.05$ was considered as significant.

The proportions of apoptotic lymphocytes were compared in leprosy patients and controls. A highly significant increase ($p = 0.01$) in the level of spontaneous apoptosis in leprosy patients was found as compared to controls, suggesting a notable impact of the *M. leprae* infection. Hence, apoptosis seems to be an active phenomenon in leprosy as previously found for several other intracellular infections ([7, 10]), including malaria ([9]). However, the percentage of 7AAD-positive cells was not significantly different between the two groups of PB and MB patients. Such observation has to be confirmed with a greater number of patients.

The relative distribution of the lymphocyte subset within apoptotic cells was studied (ratio of the percentage of the apoptotic subpopulation studied on the percentage of total apoptotic cells of the culture). We found that the distribution of $CD4^+$, $CD8^+$ and $CD19^+$ cells within apoptotic cells did not differ between patients and controls, suggesting that the infection simply induced an exaggeration of a naturally occurring mechanism.

Another type of analysis was performed in calculating the ratio of the percentage of the apoptotic subpopulation on the percentage of the population concerned. This allowed us to determine the number of apoptotic cells within each subset separately.