LEPROSY

A reappraisal of histological features.

By

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The clinical features and histology of different types of leprosy are well recognised. The histological aspect of the disease are extensively reviewed laying emphasis on the most of the organs affected in leprosy including skin by various authors ([1],[5],[6]) The appraisal of histopathogenesis of leprosy has, however, been nicely brought out by Khanolkar ([1]). The present study was undertaken to assess the histological pattern of the disease as seen in this part of our country which is considered to be relatively non-endemic region for leprosy.

Material and Methods. Seventy two patients of leprosy, comprising sixty of tuberculoid, five of dimorphous and seven of lepromatous leprosy formed the material for the present study. These patients were collected from the University Hospital, Aligarh Muslim University, Aligarh. The diagnosis in all the cases was made by the cardinal clinical features and the patients were grouped according to the classification of Indian Leprologists.

The skin biopsy in each case was taken from the margin of skin lesions. The sections were stained with haematoxylin and eosin. The skin sections in cases of lepromatous and dimorphous types of leprosy were also stained for lepra bacilli using Ziehl-Neelson's tenchnique.

Histologic-al Observations Lepromatous Leprosy. epidermal changes were characterised by atrophy varying from mild (+) to severe (+ + +) degree seen in 1 and 6 cases respectively. The dermal changes were marked by the presence of well formed granulomas (Fig. 1) to diffuse infiltration (Fig. 2) comprising predominantly vacuolated cells, a few epitheloid cells and lymyhocytes. The infiltrate was distributed in the upper and mid dermis leaving a free zone just beneath the atrophied epidermis (Fig. 1). The skin adnexae were absent in two cases while in rest of the cases periadenexal infiltrate was seen.

Lepra bacilli could be dcmonstrated in all cases in the histological sections (Fig. 1).

Dimorphous Leprosy. Severe (+ + +) degree of epidermal atrophy was noticed in four cases especially at the sites where the granulomas were hugging the epidermis. In one case no significant epidermal change was observed.

The lesions in the dermis were characterised by diffuse and well localised granulomas which consisted mostly of epitheloid cells, lymphocytes and plasma cells. A few foam cells were interspersed here and there. The adnexa could be

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located in four cases, surrounded by diffuse infiltrates. Lepra bacilli could be demonstrated in three histological sections.

Tuberculoid Leprosy. The epidermal changes were marked by presence of varying degree of atrophy; it was severe (+ + +) in 28 cases (Fig. 4), moderate (+ +) in 16 cases, mild (+) in 8 while no atrophy was seen in 8. No obvious hyperkeratosis or parakeratosis was seen in any of the cases.

The striking change in the dermis was the presence of granulomas which were distributed in whole of the dermis in 42 cases while they were present in the subepidermal region in 18 cases only (Fig. 5). The granulomas were well localised in the form of tubercles in 14 cases (Fig. 6), in the form of linear streaks in 12 whereas in rest of the cases both types of distribution was noticed (Fig. 7). The granulomas were comprised mostly of epitheloid cells lymphocytes, occasional giant cells and plasma cells (Fig. 6).

Discussion. The histological study of leprosy has engaged the attention of leprologists since long and many studies to investigate this aspect have been directed ([1],[2],[3],[4],[5],[6]). Despite all these efforts by and large the pathogenesis of leprosy remains a dilemma to all concerned in the field of leprosy research. It is the consensus opinion that the primary diagnosis in leprosy is based on clinical features, demonstration of lepra bacilli; supplemented by histological observations.

The present study is an attempt to demonstrate the significance of histological observations and to correlate in retrospect to the clinical impressions. It is interesting to record here that in majority of cases the histological diagnosis was in conformity with the clinical features, thus reaffirming our conceived concept that histological diagnosis is as important as clinical features. It may be remarked here that no special histological techniques were undertaken to elicit the nerve tissue in the sections.

In tuberculoid leprosy well formed granulomas comprising mononuclear cells, giant cells and a few histiocytes were important diagnostic criteria histologically. A significance was also attached when they were associated with atrophy of the epidermis. An involvement of adnexae of the skin was invariably associated in these sections. Very striking histological feature, however, was the disposition of the infiltrate in a linear fashion 'Streaks'. This feature was also associated in sizable number of sections with well formed granulomas. The authors feel this observation to be of great significance in case it is associated with atrophic epidermal changes. It is thought likely that the distribution of an infiltrate in the form of 'streaks' is along the nerve fibres, an expression akin to what is described by Khanolkar (4).

Lepromatous leprosy, on the other hand, showed characteristic granulomas composed mainly of vacuolated cells and a few lymphocytes. These collections of cells were disposed diffusely in the mid and lower dermis leaving behind a relative free zone the so called 'zone of Unna' which is considered helpful in histological

diagnosis. The demonstration of lepra bacilli of course in the skin sections definitely confirmed the diagnosis. The associated epidermal atrophy is invariably present and is an important pointer depending upon the stage of the disease. In one patient of this group who was definitely on diaminodiphenlye sulphone, the presence of scanty cellular infiltrate could be seen, but because of the fragmented acid fast bacilli along with striking atrophy of the epidermis, the diagnosis was not in doubt.

Dimorphous leprosy presented the combination of histological features of tuberculoid and lepromatous leprosy. It is important to mention that lepra bacilli could be demonstrated only in three cases.

The pattern of clinical features does vary in endemic and non-endemic regions, but the experience with histological sections of one of the authors (V.N S) in an endemic area of Varanasi, Eastern Uttar Pradesh shows that there is no essential difference in any types of leprosy from the histological point of view.

SUMMARY

The histological features in 72 cases of different types of leprosy are reviewed laying emphasis on the salient histological criteria. An opinion is expressed regarding the importance of histological diagnosis in leprosy. No essential difference from the histological aspect seem to exist between an endemic and non-endemic regions.

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