

ORIGINAL CONTRIBUTIONS

HISTOPATHOLOGIC SPECTRUM OF LICHEN STRIATUS

E M Abdul Razack

Out of 67 patients with classical lichen striatus, consisting of discrete lichenoid papules or plaques in a linear fashion, occurring mostly on the extremities and followed up for over 3½ years, the skin lesions on 49 subjects were biopsied and studied. The different histopathologic changes could be classified into 3 groups. Perivascular dermatitis (51%) was the commonest pattern, followed by perivascular and periappendageal dermatitis (26.5%) and lichenoid dermatitis (22.5%). Three specimens showed in addition, islands of epithelioid cells.

Key words : Lichen striatus, Histopathology.

The dermatological entity of linear or zonal distribution has been discussed under various names in the European literature by different authors since 1914. But, Senear and Caro¹ were probably the first to separate lichen striatus (LS) from the other linear dermatoses. It was Staricco² who first studied 15 patients with a special emphasis on histopathologic changes.

The important clinical criteria enunciated by Senear and Caro¹ to label a linear lesion as lichen striatus were, its sudden onset, rapid extension to form a linear band and short duration. Classical cases conforming to the above criteria, however, may turn out histopathologically to be one of eczema, lichen planus, or even psoriasis, although morphologically one cannot discern such conditions. Thus, the clinical observation is not in itself sufficient to arrive at a diagnosis of lichen striatus.² It is for this reason, a histopathologic study of classical cases of lichen striatus was planned, to find out whether it is an entity by itself or a reaction pattern; if so, to try to group them under definite heads in an orderly fashion.

The different clinical observations made in this study are under separate publication.

Materials and Methods

The patients were collected during the period January 1973 through December 1976. Not all the patients, with a linear or zoniform lesion, were included; only those patients whose lesions fulfilled the criteria laid down by Senear and Caro¹ to label them as lichen striatus were taken in for the study. Biopsy of the skin lesions was performed in all the cases except in children below 3 years and a few others who were unwilling. The patients were reviewed periodically, once in 3 months, till the lesions cleared.

Thus, 67 patients in all came to be included during the period. Skin biopsies were performed in 49 patients and the sections were stained with haematoxylin-eosin (H&E) for the study.

Results

Out of 67 cases, 32 were males and 35 females. There were 23 (34.3%) patients between 1 and 5 years of age, 13 (19.4%) between 6 and 10 years, 9 (13.4%) between 11 and 15 years, 15 (22.4%) between 16 and 25 years and the rest were between 26 and 40 years, the youngest

From the Department of Dermatology, Madras Medical College and Government General Hospital, Madras-600 003, India.



Fig. 1. Perivascular dermatitis showing irregular acanthosis with mononuclear cells around the blood vessels. Note the deep staining eosinophilic body in the stratum malpighii (H & E x 80).

patient being one-year-old. Right side of the body was involved in 37 (55.2%) patients and the left side in 30(44.8%). patients. Total duration of the affection varied from one week to 24 weeks at the time of the first interview.

Clinically, the linear bands consisted of discrete lichenoid and/or skin-coloured papules; in a few, these papules were seen coalescing into plaques of varying dimensions at a few sites. The bands were relatively uniform in width in most of the patients, while in others there were tapering either at one end or at both ends. The bands on the whole showed no morphological configurations suggesting psoriasis, lichen planus, porokeratosis or lichen nitidus. Review of the patients at regular intervals revealed gradual, yet, complete regression of the lesions in all between 3 weeks and 13 months.

except in 2 who showed the presence of some remnants of the linear bands even after 18 months.

The histopathological changes could be classified into three patterns : (1) perivascular dermatitis, (2) perivascular and peri-appendageal dermatitis, and (3) lichenoid dermatitis.

Perivascular dermatitis (25 cases)

This was the commonest (51%) histopathological pattern observed. Moderate to dense foci of lymphoid cells were seen around the blood vessels of the papillary dermis, and in 2 specimens, they were seen to involve the deeper dermis also (Fig. 1). Eleven specimens showed spongiosis of the overlying epidermis, including 3 which showed spongiotic bullae.



Fig. 2. Perivascular cells in papillary as well as reticular dermis with cells invading a hair follicle (H & E x 40).

Perivascular and periappendageal dermatitis (13 cases)

This was seen in 26.5% of the cases. Mild to moderate collections of histiocytes and lymphoid cells were observed not only around the blood vessels of papillary and reticular dermis but also around the hair follicles (Fig. 2), and in some, the sweat apparatus as well. Three specimens showed islands of epithelioid cells (Fig. 3).

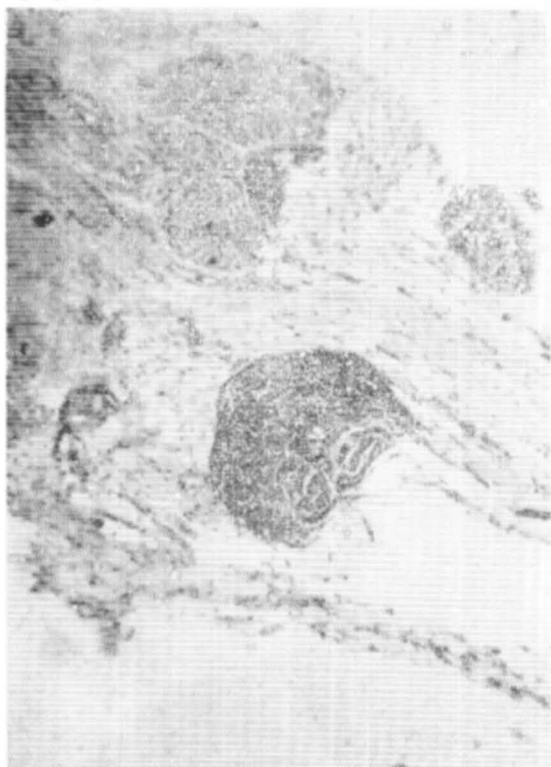


Fig. 3. Distinct islands of epithelioid and mononuclear cells in the dermis (H & E x 40).

Lichenoid dermatitis (11 cases)

This pattern was observed in 22.5% of the total number of cases. Six specimens showed a band of lymphocytes close to the epidermis (Fig. 4) in addition to the mononuclear cells seen around the blood vessels; in 5 others, the cell collections were observed around the hair follicles also.



Fig. 4. Focal parakeratosis, pigmentary incontinence and lymphocytic infiltrate in a sub-epidermal band (H & E x 40).

In addition, 16 specimens showed focal parakeratosis and 14 exhibited pigmentary incontinence in the upper dermis. One curious feature noted in 10 specimens was the presence of an amorphous eosinophilic material either at the level of stratum granulosum or upper stratum malpighii.

Comments

LS, as a separate clinical entity, differs from its linear counterparts such as linear lichen planus, linear psoriasis, linear porokeratosis, linear naevus etc. It is characterised by sudden onset, rapid extension in the course of a few days and/or weeks into a linear band and self involution within a few months or a year, unlike the other linear entities which evolve slowly, stay for longer periods of months and

years and are resistant to treatment.¹ Besides, histopathologically they exhibit characteristic features. In contrast, the histopathologic patterns of LS are variable and non-specific.³ According to Pinkus,⁴ the primary pathologic process involves principally the blood vessels, and the epidermal changes appear to be only secondary. Moderate to heavy mantles of mononuclear cell collections were seen in 43 (87.8%) out of 49 specimens studied. There was also a periappendageal collection in a considerable number of cases. Staricco in his study of 15 cases, noticed perivascular lymphocytic and histiocytic infiltrates present at different levels in the corium and also around hair follicles and sebaceous glands. The latter finding, according to him, may produce atrophy of these structures. The present study showed the presence of mononuclear cells around the hair follicles as well as the sweat apparatus in 18 (36.7%) cases.

Another curious feature observed, was the presence of epithelioid cell islands in three specimens. The sections exhibiting this histopathological picture relate to two females aged 8 and 11 years and a male aged 21 years. Their skin lesions were linear bands consisting of coalescing lichenoid papules seen on the right forearm, left arm and left leg respectively and they were present for 4 weeks, 12 weeks and 4 weeks respectively when seen for the first time.

The presence of epithelioid cells in the histopathologic sections of lichen striatus, though hitherto undescribed, might probably have some bearing on the immunological status of the individual concerned. Epithelioid cells arise from macrophages, (1) after the macrophages have completed phagocytosis of a digestible product such as bacteria, (2) after the macrophages have eliminated by exocytosis an indigestible product such as certain foreign material or metabolic by-product, (3) in immunogenic granulomas in which as a result of delayed hypersensitivity, only a few

organisms are present, and (4) when there is nothing to phagocytize, as in some non-infectious granulomas. Thus, although epithelioid cells can develop in granulomas without delayed hypersensitivity, it is evident that delayed hypersensitivity greatly augments and accelerates the development of epithelioid cell granulomas.⁵ However, most epithelioid cells appear to evolve from macrophages that have never ingested any bacteria or antigen-antibody complexes.⁶ Similarly, the collection of mononuclear cells around the appendages may indirectly reflect the invasion of the neural elements that innervate them. Considering the facts that morphologically these lesions did not exhibit any peculiarity and that these lesions resolved by themselves without any treatment like all other cases of LS, the presence of epithelioid cells in the 3 patients is quite unusual.

Another interesting feature was the presence of a peculiar amorphous eosinophilic material in the upper epidermis in 10 (21%) out of 49 specimens. Even though Staricco found eosinophilic dyskeratotic cells in about half of his cases and Pinkus considered them to be corps ronds-like nucleated bodies in his single case, this eosinophilic material, on careful study, did not conform to that of corps ronds in our specimens. Although the material was not uniformly observed in all the specimens and its exact nature could not be that of corps ronds, yet its presence in a considerable percentage of specimens cannot be ignored.

Acknowledgement

The author wishes to thank Dr. A. S. Thambiah and Dr. Patrick Yesudian for reviewing the histopathologic sections.

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