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Letter to Editor

Dermatology Section

A New Grading System for Macular Lesions of Paucibacillary Leprosy

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Dear Editor,

In macular, paucibacillary leprosy (TT/BT), the histology does not usually correlate [1], with the Ridley-Jopling classification [2], as the infiltrate and granuloma is quite scanty. Hence, greater care and precision are required for evaluation. A new grading system is being proposed to carry out the precise recording of such skin biopsies for evaluating the resolution (or increase) of the histology in the same case, and also for comparison in studies.

The [Table/Fig-1-5] are an illustration of this grading system in a 30-year-old man with a hypopigmented, anaesthetic macule on the left cheek (TT) and left claw hand [Table/Fig-1]. He was bacteriologically negative.

This is a numerical grading from 1-4, with intervening decimals to quantify either the infiltration or destruction of a specific dermal appendage or nerve. Zero indicates no infiltration/destruction and 1, 2, 3 and 4 indicate 25%, 50%, 75%, or 100% infiltration/destruction respectively. An intervening range of 2-3 (50%-75%) would be expressed as 2.5 (62.5%) for addition or comparison. This system is a detailed equivalent of the pictorial histopathology seen under the microscope.

The nine categories studied (with their abbreviations) are shown in the left column of [Table/Fig-1], or as footnotes. Infiltration/destruction was studied for 4 out of the 9 categories-hair follicles (with sebaceous glands), arrectores pilorum muscles, sweat glands and dermal nerves.

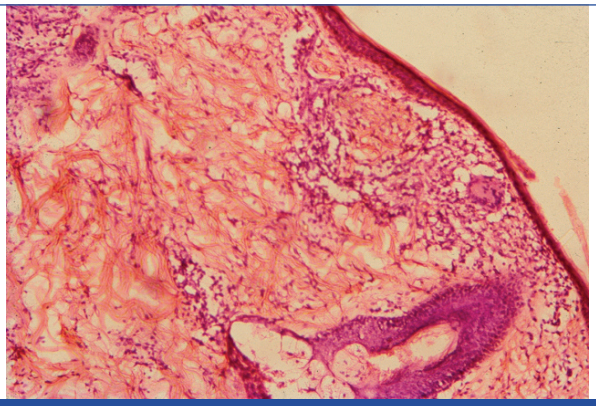
Dermal pathology	Pre-treatment Grade	Post-treatment* Grade
BC†	3	2-3
Subep. Gr.‡	2-3	3
LSI§	0.5-1	0.5
DDI‖	1.5	3.5
Dermal granuloma	2-3	4
Hair Follicle		
Infiltrated	3 (Granuloma)	3
Destroyed	0	0
Arrectores pilorum		
Infiltrated	0.5-1	2
Destroyed	0.5-1	1-2
Sweat glands		
Infiltrated	1	3
Destroyed	0.5	3
Nerves		
Infiltrated	2	2
Destroyed	2	2

[Table/Fig-1]: Illustration of this grading system.
*Repeat biopsy one year later (Lepra reaction Type 1) Received PB MDT with daily Rifampicin for two months, and then defaulted; †BC: Basal cell layer is infiltrated (reached); ‡Subep Gr.: Subepidermal granuloma; §LSI: Linear serpiginous infiltrate (horizontal) (serpiginous–Latin: serpere–to creep); ‖DDI: Deep dermal infiltrate

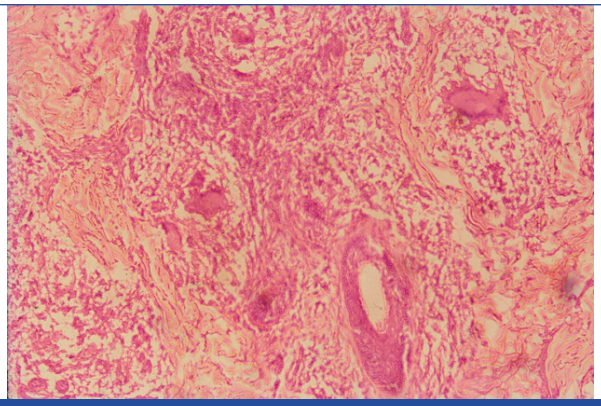
In the [Table/Fig-1], it is seen that several parameters such as subepidermal and dermal granuloma, the deep dermal infiltrate and the infiltrate around arrectorespilorum muscles and sweat glands were increased in the post-treatment biopsy, which was most probably due to Lepra reaction Type 1. A characteristic feature found in many other biopsies was a linear, serpiginous infiltrate present in the superficial/and mid-dermis, which was slow to disappear with treatment [Table/Fig-6]. This was from another patient of macular BT leprosy, with deformities, who had already been treated with MB MDT for eight months outside.

This grading system could be used by the pathologist to quantify the improvement in repeat biopsies, e.g., the infiltrate around sweat glands has reduced from Grade 3 (75%) to Grade 1 (25%). This system could also be used for evaluating newer drugs causing faster clearance of the infiltrate [3]. In many other pre-treatment biopsies the nerve was heavily infiltrated and almost unrecognisable. In the same vein as William Boyd's excellent dictum "Rheumatic fever licks the joints but bites the heart", it could be stated that "Leprosy licks the skin but bites the nerve". A few limitations of this grading system are that it is time consuming and subject to some inter-observer variation. It is hoped that this grading system could be improved or simplified in future.

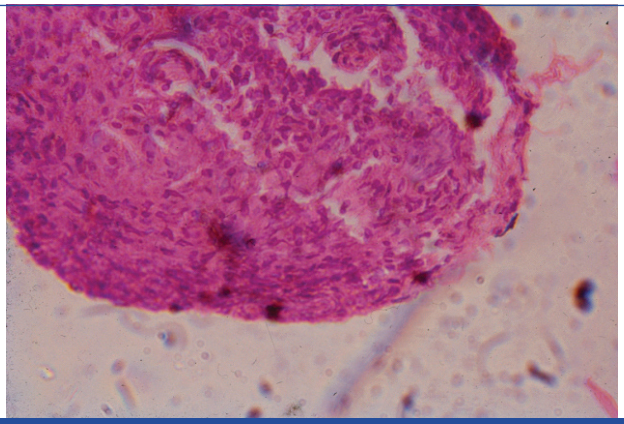
[Table/Fig-2]: Hypopigmented macule on left cheek (pre-treatment).



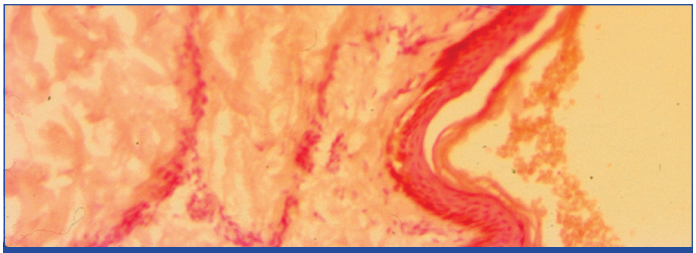
[Table/Fig-3]: Pre-treatment-subepidermal granuloma 2-3 (average 2.5) (H&E 100X).



[Table/Fig-4]: One year later-granuloma around hair follicle has remained Grade 3 (H&E 100X).



[Table/Fig-5]: One year later-nerve, infiltrated Grade 2, destroyed Grade 2 (H&E 400X).



[Table/Fig-6]: LSI, Grade 2 (H&E 100X).

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