

## NEUROPATHOLOGY OF PSORIASIS

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**Summary**

The histopathology of nervous tissue elements was studied with three different stains in the lesions and the uninvolved skin of psoriasis vulgaris patients. No abnormal change was detected.

In psoriasis, the neuro pathology has been studied by very few workers and that too with controversial reports<sup>1,2</sup>. Weddell et al<sup>3</sup> studied the neural tissue changes in detail.

The present study was undertaken to study the nervous tissue status of the psoriatic skin and confirm the findings of Weddell et al<sup>3</sup>.

**Material and Methods**

Thirty clinically typical cases of psoriasis vulgaris were selected from the skin department of Irwin Hospital, New Delhi for this study. Some of the patients were under treatment while others were untreated patients getting psoriasis for the first time. Control group was constituted by 15 subjects who had neither suffered from psoriasis nor had any family history of the disease.

From the psoriasis patients two biopsies were taken, one from the lesion and another from the uninvolved skin on the contralateral side.

Paraffin sections were stained with Bielschowsky's, Sevier Munger's and Bodian's methods and studied.

**Results***Dermis*

The axons were uniform in thickness and did not show any abnormality in their branching or terminations (Fig. 1). Immediately below the epidermis there were fine terminal nerve twigs with few Schwann cells and no myelination. A thin zone of tissue, free of neural elements was seen just beneath the basement membrane of the epidermis. A careful search showed that this zone did not show any nerve twig in any case.

*Epidermis*

With all three stains the dendritic processes of the melanocytes were seen well delineated. In psoriatic skin at the sites of acanthosis these melanocytes appeared separated out by the proliferating cells. The dendritic processes appeared prominent, the main fibres running up into the epidermis. Because of this separation

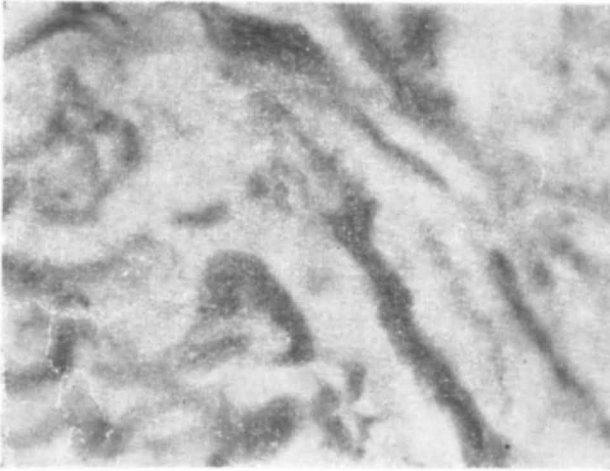
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**Fig. 1** Shows a normal nerve twig in dermis from the psoriasis lesion. (Bodian's stain  $\times 400$ )

the epidermis appeared pale at the zone of lesion, but individual cells showed normal pigmentation. Apart from the dendritic processes no nerve twigs were visualised in the epidermis.

**Discussion**

The present work was conducted to study the relationship between the cutaneous nerves and the lesions of psoriasis. In psoriasis, there is an abnormal proliferation of the epidermal cells<sup>4</sup> where the exact etiopathogenesis is not known. The cutaneous nerves arising from the same ectodermal elements are intimately related to the epidermis. Hence there is a distinct possibility that the pathogenetic mechanisms involving the epidermis may cause changes in the nerves.

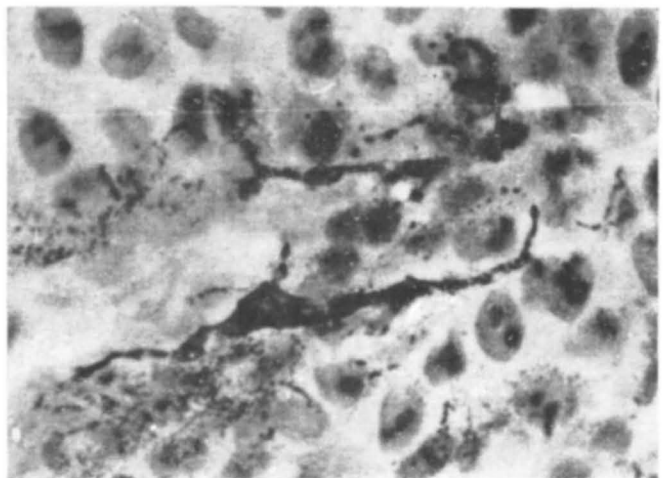
A previous very well authenticated work is that of Weddell et al<sup>3</sup>, who found that there is a definite proliferation

of Schwann cells and neurites with degenerative as well as regenerative changes in superficial nerves.

Our study in contrast to Weddell's revealed no change in the dermal axons or Schwann cells with any of the stains, either in the psoriatic skin or in the normal skin of psoriatics. Moreover, no degenerating nerves could be seen.

Weddell et al<sup>3</sup> reported the regular presence of numerous intraepidermal nerves and invasion of the epidermis by Schwann cells. What they have described as the Schwann cells in the epidermis can be Merkel cells<sup>5</sup>, though we have not been able to see any such cells, with the present methods of staining.

The breaks in the basement membrane were studied carefully to see the invasion by the neural tissue elements but at no place was there any



**Fig. 2** Shows epidermal dendritic processes of melanocytes and a neural tissue free zone beneath the basal layer (Sevier Munger's stain  $\times 400$ )

suggestion of these changes. However, the dendritic processes of melanocytes which were very well visualised by the Sevier Munger's stain were seen running upto the upper layers of the epidermis (Fig. 2). Though they had resemblance to the nerve fibres reproduced by Weddell et al, they could be traced to the melanocyte bodies only. These fibres never penetrated the basement membrane.

Thus from our finding it is seen that there is no change in the cutaneous nerves in psoriasis. Clinically, this is borne out by the fact that even in severe cases there is no change in the cutaneous sensations in psoriasis.

### Reference

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### Congratulations :

To Dr. H. J. Shroff of Bombay who has been elected as the founder 'Vice-President of the College of Hansenology of the endemic countries' and would be representing this body as the representative from Asia. Dr. Shroff participated in the panel of therapeutics' at the first congress of Hansenology of the endemic countries in Rio de Janeiro, Brazil from November 12-15, 1980.

—*Managing Editor*