HISTOPATHOLOGY OF PSORIASIS AT VARIOUS STAGES

By

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Psoriasis is one of the diseases recognized early by workers in Dermatology. Lot of work has been done on its histopathology but mostly this aspect of the disease has been dealt with in fourth decade of the present century. There is no single histopathological feature of psoriasis which is not found in other superficial inflammatory dermatoses. However, almost all workers agree about certain features, which collectively are sufficiently characteristic. These features according to Lever (1962) are :—

i) Parakeratosis.

ii) Thinning of suprapapillary portions of stratum malpighi.

iii) Elongation of the rete-ridges.

iv) Oedema and clubbing of the papillae.

Dilatation and tortuosity of the loops of the capillary vessels is another important feature as described by Ormbsy and Montgomery (1954). But there are occasions when while sitting in the Out-Patient department one comes across cases with healing or healed lesions with residual pigmentation only, and one is at one's wits ends about the diagnosis. Suspicion is aroused of its being Psoriasis because of history of recurrences, sites of eruption and its symmetrical distribution but unfortunately there is hardly any investigation which can be resorted to in such cases for its confirmation at this stage. This study is an attempt to find out if any of these recognized features persist even in the healed stage which might point towards its diagnosis.

MATERIAL AND METHOD

Twenty five patients suffering from Psoriasis were admitted in the Skin Diseases ward of V. J. Hospital, Amritsar for this study. These patients were subjected to detailed history taking, physical examination and necessary investigations.

Skin biopsies were taken from apparently uninvolved skin as well as from skin lesions present and patients were put on treatment. Skin biopsies were repeated at intervals of about two weeks as the lesions improved under treatment. As far as possible biopsies were taken from extensors of limbs, back and abdominal wall. Sections of biopsy specimens were stained by haematoxylin and eosin stain and studied.

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ANALYSIS

For purposes of analysis the lesions were divided into following groups:

(i) Apparently uninvolved skin.

(ii) Early lesions i e., macules or papules without scales with duration varying from two days to about a week.

(iii) Well-developed lesions i. e., lesions showing bright red erythema, several layers of silvery scales and positive Auspitz's sign.

(iv) Involuting lesions i. e., lesions showing dull red erythema and scaling of mild degree.

(v) Healed lesions with residual hyperpigmentation.

(vi) Healed lesions with residual hypopigmentation.

Apparently Uninvolved Skin: Twenty four specimens were studied. Abnormal histological findings of the same are shown in table I below:

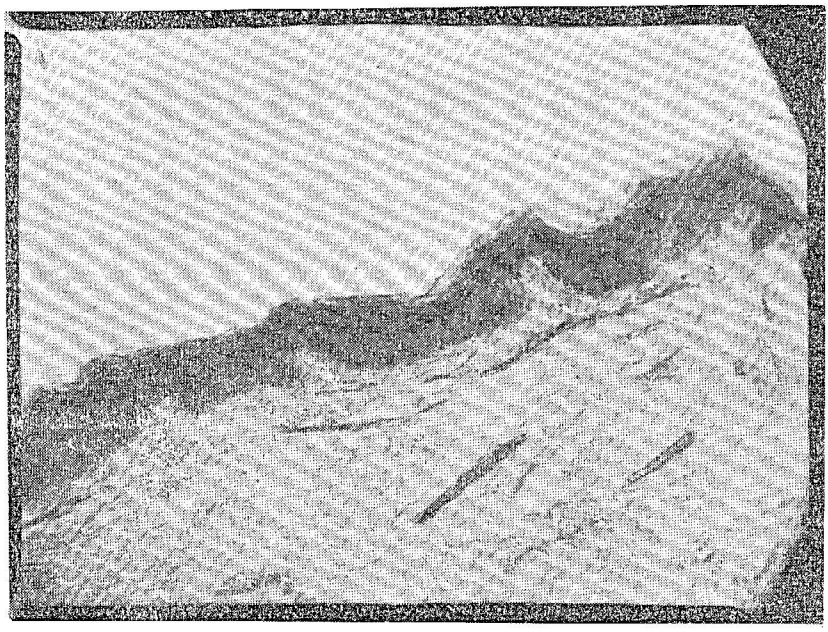
TABLE I

Showing abnormal histological features in apparently uninvolved skin

(24 Specimens)

	Acanthosis Mild	Dilated Capillaries	Cellular Infiltrate (Mild)
Number of Specimens	9	3	18

As is evident from Table I, 9 specimens showed mild acanthosis, 3 specimens dilated capillaries and 18 mild cellular infiltrate. All these three features are shown in Mic. No. I taken from a section of apparently uninvolved skin.



Mic No. 1

Early Lesions: Four specimens were studied. Abnormal histological features are given in table II below:

TABLE II

Showing abnormal histological features in early lesions (4 specimens)

	Parakeratosis (Patchy)	Micro-abscesses	Thinning of stratum granulosum	Acanthosis		Thjnning of supra-papillary	Dilated capillaries	Cellular infiltrate
				Mode rate	Mild			
Number of Specimens	3	1	2	3	1	4	4	4

Well Developed Lesions: Twenty-five specimens were studied. Abnormal histological findings are given in table III below.

TABLE III

Showing abnormal histological features in well developed and involuting lesions.

Histopathological Features	Well-developed lesions (25 Specimens)		Involuting Lesions (21 Specimens)	
	Number	Percentage	Number	Percent Age
Parakeratosis				
Uniform	6	24%	1	5%
Patchy	17	68%	12	57%
Micro-abscesses	5	20%	0	0%
Thinning of stratum granulosm	18	72%	2	9.5%
Acanthosis Marked	18	72%	3	14%
Moderate	6	24%	9	43%
Mild	1	4%	8	38%
Thinning of Suprapapillary plates	22	88%	12	57%
Dilated capillaries	25	100%	15	72%
Cellular infiltrate				
Marked	2	8%	1	5%
Moderate	10	40%	8	38%
Mild	13	52%	11	52%

Involuting Lesions: Twenty-one specimens were studied. Abnormal histological findings of the same are given along with those of well-developed lesions in table III.

Healed Hyperpigmented Lesions: Seventeen specimens were studied. Abnormal histological features of the same are given in table IV below:

TABLE IV

Showing abnormal histological features in healed hyperpigmented lesions (17 specimens)

	Acanthosis (Mild)	Thinning of Suprapapillary Plates	Dilated capillaries	Cellular Infiltrate	
				Mild	Moderate
Number of specimens	8	5	14	15	1

Healed Hypopigmented Lesions: Eight specimens were studied. Abnormal histological findings are shown in table V below.

TABLE V

Showing abnormal histological findings in healed hypopigmented lesions (8 specimens)

	Acanthosis (Mild)	Thinning of suprapapillary Plates	Dilated capiliaries	Cellular Infiltrate (Mild)
Number of specimens	7	1	4	8

DISCUSSION

Apparently Uninvolved Skin: Abnormal histological features present in apparently uninvolved skin in our study are mild acanthosis, dilated capillaries and mild cellular infiltrate. Histology of apparently uninvolved skin has been studied previously by various workers but their findings are conflicting and variable. Madden (1941) found acanthosis, cellular infiltrate and dilated capillaries in specimens taken from sites of predilection as well as unusual sites in cases of acute guttate and papular types and in specimens taken from sites of predilection only in other types. Kortanyshev (1939), however, could demonstrate histological findings simulating Psoriasis in specimens taken from the unusual sites also. Montgomery, on the other hand, found no histological evidence of psoriasis at all in the apprently uninvolved skin even just adjacent to the lesions themselves. Thus abnormal histological findings in our study are similar in nature and in accord with those of Madden.

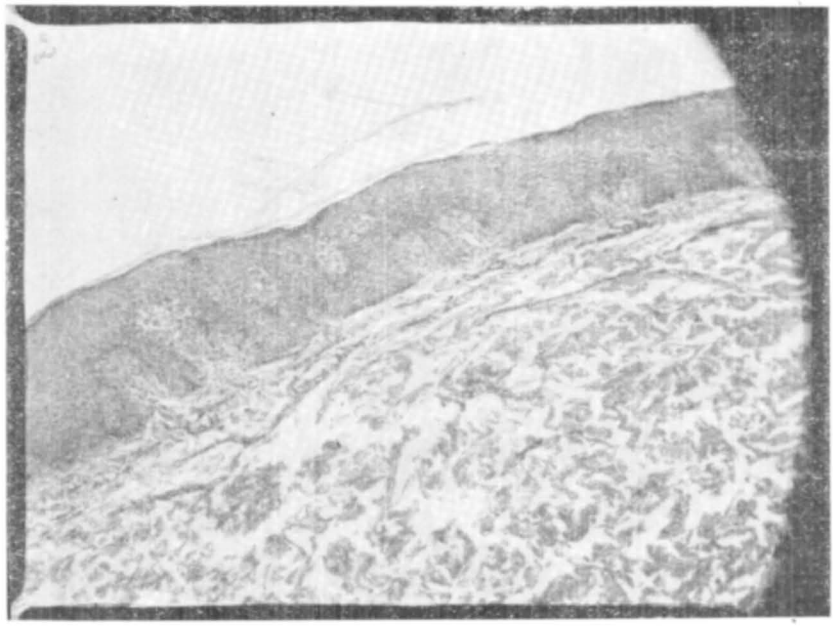
Early Lesions: All the four specimens in our study showed thinning of suprapapillary plates. Burks and Montgomery (1943) did not find thinning of suprapapillary plates in their study of early psoriatic lesions This could be explained, perhaps, on the basis that our lesions were of longer duration.

Well-developed lesions: There is disparity between findings of our study and recognised histopathological features of a well developed lesion of psoriasis. Some specimens in our study showed absence of uniform parakeratosis, presence of normal stratum granulosum and normal thickness of suprapapillary plates. This can be explained on the basis of varying degree of activity of different specimens. Madden (1941) points out that uniform histopathological picture is often not seen in well-developed psoriatic lesions.

Involuting Lesions: From the table III it is evident that whereas the trend in the involuting lesions is its reversal to normai histology in epidermis, there is no appreciable change in the histology of dermis. For instance, intensity of infiltrate is not less than before the regression of the lesions had set in and even dilated capillaries are present as before in a considerable number of specimens. These findings are in agreement with Braun-Faulco. Findings of Komisaruk et al (1962),

however, are slightly different in as much as they found decrease in cellular infiltrate as well.

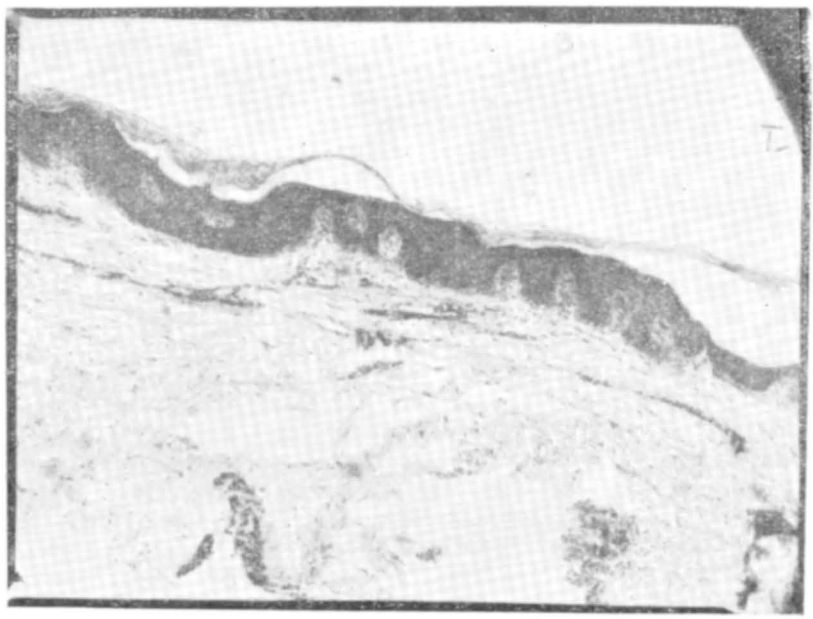
Healed Hyperpigmented Lesions: It is evident from table IV that mild cellular infiltrate, dilated capillaries and mild acanthosis continued to persist in significant number of specimens even at this healed stage. These features are shown in Mic. No. 2 taken from a section of healed hyperpigmented lesion. The histological abnormalities found by Madden (1941) in his specimens taken from residual hyperpigmented lesions were similar to our findings. Komisaruk et al (1962) found persistence of vascular dilatation but no cellular infiltrate in healed lesions. Burks and Montgomery (1954), on the other hand, found no histological abnormality at all in such psoriatic lesions.



Mic No. 2

Healed Hypopigmented Lesions: It is evident from table V that abnormal histological features, which were present in significant number of specimens, are similar to those found in healed hyperpigmented lesions, i. e., mild acanthosis, dilated capillaries and mild cellular infiltrate. These features are shown in Mic. No. 3 taken from a section of healed hypopigmented lesion. No report giving histopathological features of residual hypopigmented lesions could be found inspite of thorough search of literature.

Persistance of acanthosis, dilated capillaries and cellular infiltrate in healed lesions, though nonspecific, can be considered significant and sufficiently suggestive when history of characteristic clinical criteria like symmetrical distribution on extensor surfaces, seasonal variation and relapses and remissions, is also present.



Mic No. 3

Still further, as almost similar histopathological features were seen in sections of specimens taken of clinically uninvolved skin as well as of healed hyper-pigmented and hypopigmented lesions of psoriasis, it can be inferred that:—

(a) The sites of biopsy for clinically uninvolved skin specimens were the sites of old lesions which left no abnormality clinically on healing and patients had forgotten about them.

(b) The sites of biopsy for uninvolved skin were perhaps the sites where histological changes had appeared first and where future clinical lesions had to become manifest later on.

CONCLUSIONS

Following conclusions are arrived at from the present study :

(1) Well developed lesions of psoriasis did not show all the characteristic histopathological features of psoriasis in all the cases studied.

(2) Regression of the histopathological changes of psoriatic lesions under treatment was first seen in epidermis especially stratum corneum and stratum granulosum. Modification or reversal of other histopathological features in epidermis and dermis occured later and some of these persisted for a much longer time.

(3) Healed lesions, whether hyper-pigmented or hypo-pigmented showed acanthosis, capillary dilatation and cellular infiltrate in dermis in a significant proportion of the specimens studied.

(4) Apparently uninvolved skin of psoriatic showed changes similar to those seen in healed lesions of psoriasis in a significant proportion of the specimens studied.

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