

## SECONDARY SYPHILIS: A HISTOPATHOLOGICAL STUDY

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### Summary

The histopathological patterns were studied in 44 biopsies from 31 cases of secondary syphilis. The classical picture of syphilis was observed in majority of the cases, but it was lacking or inconspicuous in 22.72 % cases. Granulomatous reaction was observed in 15.9 % cases during early stage of the disease. Epidermal changes like hyperkeratosis, parakeratosis, exocytosis, spongiosis and acanthosis were frequently seen. Keratotic plugging was observed in 11.36 % ; hypergranulosis in 2.27 % cases and basal cell degeneration in 33.63 % cases.

Syphilis is well known as a 'great imitator' both clinically and histopathologically<sup>1</sup>. The classical histopathologic picture of syphilis has been described as perivascular cuffing by lymphocytes and plasma cells and associated endothelial cell swelling and proliferation<sup>1-4</sup>. Some of the changes particularly plasma cell infiltration has been reported either absent or very sparse in recent studies<sup>5,6</sup>. Moreover, the epidermis is found to be very frequently involved, but frequency with which this tissue is affected has not been sufficiently emphasised<sup>6</sup>.

### Material and Methods

A total number of 44 biopsies consisting of 10 macules, 10 papules, 10

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papulo-squamous lesions, 10 moist lesions, 3 mucous patches and one follicular lesion from 31 proved cases of secondary syphilis were studied. The majority (54.54%) of the lesions were of two weeks' duration, 10 (22.73%) were one month old, 4 (9.09%) were one to two months old and 6 (13.6%) were of more than two months' duration. All sections were stained with H & E.

### Results

The histopathological features of these biopsies are shown in Table 1.

### *The Epidermis*

The epidermis was found to be involved in varying degrees. Mild to moderate hyperkeratosis was observed in 18 biopsies, patchy parakeratosis in 16, follicular plugging in 8 (Fig. 1) and keratotic plugging in 5.

The granular layer was seen intact in all the biopsies, except in one mucous patch which showed patchy hypergranulosis (Fig. 2).

The malpighian layer revealed mild to moderate acanthosis in 2 papules and 7 papulo-squamous lesions, while

TABLE I  
Histological features of forty-four biopsies of secondary syphilis lesions

Histopathological Findings	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Lesions No.	%	Macules	Papules	Papulo-squamous	Moist lesion	Mucous patch	Follicular lesion
Total number of biopsies	44	100	10	10	10	10	3	1
Hyperkeratosis	18	40.90	—	2	9	4	2	1
Parakeratosis	16	36.36	—	5	5	5	1	—
Keratotic plugging	5	11.36	—	—	1	3	—	1
Follicular plugging	8	18.18	—	—	2	5	—	1
Hypergranulosis	1	2.27	—	—	—	—	1	—
Acanthosis	19	43.18	—	2	7	10	—	—
Spongiosis	26	59.09	5	7	6	5	3	—
Exocytosis	24	54.54	4	5	4	8	3	—
Microabscess	6	13.63	—	—	—	3	3	—
Ulceration	6	13.63	—	—	—	3	3	—
Thinning of epidermis	3	6.82	2	1	—	—	—	—
Basal cell dissolution	6	13.63	—	2	3	1	—	—
Dermal infiltrate								
Mild superficial perivascular	10	22.72	4	3	1	1	—	1
Moderate superficial perivascular	12	27.27	2	3	3	4	—	—
Dense superficial and deep perivascular	22	50.00	4	4	6	5	3	—
Periadnexal	24	54.54	4	6	6	7	—	1
Plasma cell very spare or absent	10	22.72	4	3	1	1	—	1
Granulomatous reaction								
Histiocytic	5	11.36	1	2	2	—	—	—
Tuberculoid	2	4.54	—	—	2	—	—	—
Blood vessel changes								
Dilatation	40	90.90	8	10	9	9	3	1
Endothelial cell proliferation	40	90.90	9	9	9	9	3	1
Papillary oedema	26	59.09	6	7	6	7	—	—
Papillomatosis	5	11.36	1	—	4	—	—	—



**Fig. 1** Follicular papule showing follicular plugging and perifollicular infiltrate of lymphocytes and few plasma cells, (H & E  $\times 40$ )

plasma cells in 12, and dense perivascular infiltrate involving both superficial and deep plexuses and occasional patchy collection of large number of plasma cells, lymphocytes and occasional other cells like histiocyte in 22. Periadnexal arrangement of infiltrate was observed in 24 biopsies.

Histiocytic reaction was seen in 5 specimens and tuberculoid reaction consisting of aggregates of epithelioid cells and multinucleated giant cells in 2 papulosquamous lesions.

Blood vessels were found to be dilated in varying degrees with endothelial cell proliferation in 40 specimens.

all the moist lesions showed marked and irregular acanthosis.

Spongiosis was observed in more than half of the biopsies (26) while exocytosis of mononuclear cells and occasionally mixed cells were seen in 24 biopsies. Spongiotic microabscess was seen in 3 moist papules and all the mucous patches (Fig. 3).

Six biopsies comprising 2 papules, 3 papulosquamous lesions and one moist lesion showed basal cell dissolution with incontinence of pigments (Fig. 4).

Superficial ulceration was seen in all the mucous patches and 3 moist lesions.

### *The Dermis*

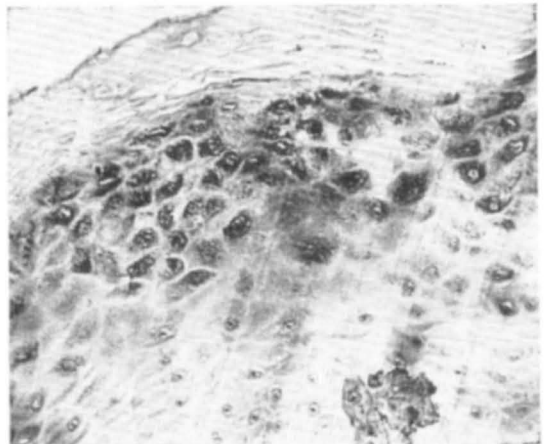
Mild perivascular infiltrate consisting predominantly of lymphocytes and only occasional plasma cell in the upper dermis was seen in 10 specimens, superficial perivascular cuffing by moderate amount of lymphocytes as well as

Oedematous papillae were observed in 26 biopsies and papillomatosis in 5 sections.

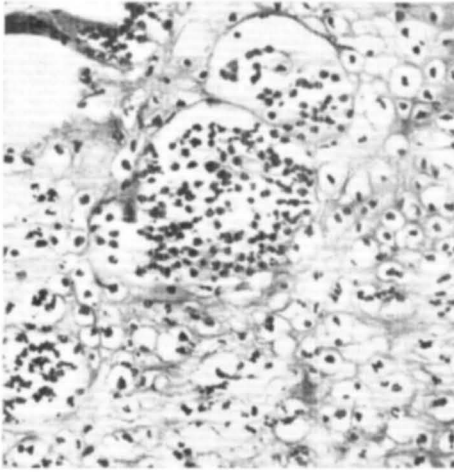
The subcutis was essentially normal in all the cases.

### **Discussion**

Wide variations in the histopathologic patterns were observed. Majority



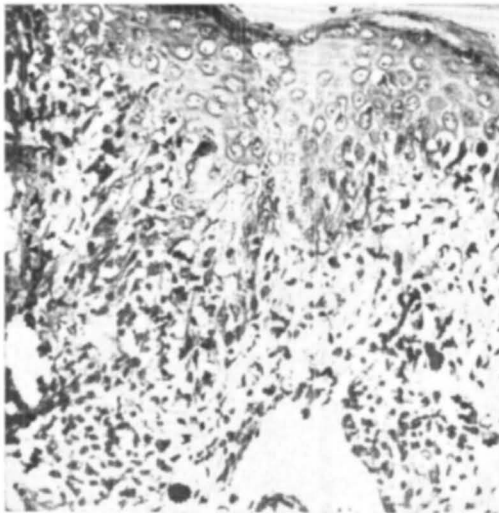
**Fig. 2** Mucous patch showing patchy hypergranulosis (H & E  $\times 100$ )



**Fig. 3** Mucous patch showing spongiotic microabscess (H & E  $\times$  100)

of the cases showed the characteristic features of syphilis but in about one-quarter of the cases, plasma cell infiltration, which was described as the hallmark of syphilis<sup>7</sup> was very inconspicuous or lacking. Jeerapaet and Ackerman<sup>5</sup> and Abell et al<sup>6</sup> reported similar findings.

Granulomatous reaction was observed in this study even in the early cases



**Fig. 4** Papular syphilide showing basal cell degeneration (H & E  $\times$  100)

contrary to the observations of several workers<sup>4, 8, 10</sup> who found such reaction only in long standing cases of secondary syphilis.

The epidermis was found to be very frequently involved. The epidermal changes like hyperkeratosis, parakeratosis, acanthosis, spongiosis and exocytosis have been described by several investigators<sup>1-6</sup>. However, basal cell degeneration in the lesions of secondary syphilis has not been reported earlier. Again, keratotic plugging in commoner types of lesions has not been described in the literature.

Mucous patches presented features more or less similar to those observed in the skin; but in addition showed ulcerative changes. However, one case showed patchy hypergranulosis.

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TRUE

There has been controversy on the origin of Langerhans cells (LCs) since they were discovered in 1868. Some of the most critical experiments to-date have excluded an ontogenic relationship between LCs and cells of the melanocytic series. Considerable evidence however has accumulated to show that LCs are probably mesenchymal in origin. Their distribution in mesodermal tissues like dermis, lymphnode and thymus with surface marker characteristics similar to monocyte-macrophage series is one of these.

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