INDIAN J DERMATOL VENEREOL LEPROL 1989; 55 : 305-307

HISTOPATHOLOGICAL PATTERN OF EARLY SYPHILIS

R V Koranne, P J Raju and P C Beohar

Thirty six untreated cases of early syphilis comprising 10 primary and 26 secondary syphilis were included in the study. Primary syphilis depicted classical histopathological features of ulceration, exocytosis, perivascular infiltrate of lymphocytes and plasma cells along with endothelial cell proliferation. Secondary syphilis, however, depicted intriguing features. Lichenoid infiltrate along with basal layer dissolution was seen in 3 and psoriasiform appearance in 1 case. Three cases showed granulomatous reaction. One case manifesting as pruritic follicular rash had classical features on histopathology. Vascular changes were absent or inconspicuous in as many as 22.2% and 8.3% respectively.

Key words : Syphilis, Histopathology.

The old adage that syphilis is the great imitator is perhaps true for the pathologists as well.[1] In an excellent clinico-pathological review Abell et al[2] described the changing histopathological pattern of the disease and stressed that some of the classically described features were now either absent or inconspicuous. Jeerapact and Ackerman[3] and Abell et al[2] examined the tissue sections without the clinical data and subsequently correlated the two. In the present study also, a similar attempt has been made.

Materials and Methods

Thirty six consecutive, fresh untreated cases of early syphilis were studied. Representative cutaneous and mucous membrane lesions were biopsied. Five micron thick sections were stained with hematoxylin-eosin and Warthin-Starry stains.[4]

Results

The histopathological observations in 10 cases of primary syphilis revealed ulceration of the epidermis in all the 10 cases. Spongiosis was observed in 4 specimens, and exocytosis, mainly of neutrophils and lymphocytes, was found in 3 cases. Eight cases showed a dense superficial and deep perivascular infiltrate comprising of a large number of plasma cells and lymphocytes. Further, 6 cases had a dense infiltrate of these cells in the mid-dermis as well. The blood vessels were dilated in 7 cases. Endothelial proliferation and swelling was observed in all the 10 cases. Warthin-Starry staining demonstrated the presence of *T. pallida* in 6 cases.

Cases having secondary syphilis revealed interesting features. Three cases had macular syphilides and exhibited mild spongiosis with exocytosis of mononuclear cells in 1, mild perivascular infiltrate in 1 and moderate superficial perivascular infiltrate consisting of plasma cells and lymphocytes in 2 cases. No treponemes were seen in the tissue sections.

Four cases had papular syphilides and exhibited patchy parakeratosis in 2, spongiosis in 2, exocytosis of neutrophils and a few mononuclear cells in 2, moderate acanthosis in 2 and basal cell dissolution in 1 case. Further, this case had a dermal infiltrate hugging the basal layer along with a band-like infiltrate mainly of lymphocytes in the upper dermis. The granular layer was normal. Proliferation and thickening of the endothelial cells were observed in 3 sections. One case showed a minimal superficial perivascular infiltrate consisting predominantly

From the Departments of Dermatology and Venereology and Pathology, Maulana Azad Medical College and Associated LNJPN and GB Pant Hospitals, New Delhi-110 002, India.

Address correspondence to : Dr R V Koranne, Z-48, Sarojini Nagar, New Delhi-110 023, India.

of lymphocytes and only occasional plasma cells, 1 case had a moderate perivascular infiltrate and 2 cases revealed dense superficial and deep perivascular infiltrates of these cells. Tuberculoid granulomatous reaction was observed in 1 case. Treponemes were demonstrated in 2 out of these four cases.

Five cases had papulo-squamous syphilides. The Malphigian layer showed spongiosis in 2 cases, acanthosis in 4 and exocytosis in 2. The epidermal changes in 1 case had great resemblence to psoriasis including exocytosis of neutrophils in the epidermis. The basal cell layer showed dissolution in 2 cases. The granular layer was normal. Lichenoid infiltrate was observed in these 2 cases. One case had a tuberculoid granulomatous reaction. One case showed mild superficial perivascular infiltrate, 1 case showed moderate superficial perivascular infiltrate and 3 cases revealed a dense superficial as well as deep perivascular infiltrate. The endothelial cell proliferation and thickening was present in 4 cases. *T. pallida* were seen in 3 cases.

Tissue sections from 10 condylomata lata lesions revealed ulceration in 3 and pseudoepitheliomatous hyperplasia in 2. Further, exocytosis of neutrophils and lymphocytes was observed in 8 cases and spongiosis in 6 cases. Mild superficial perivascular infiltrate was present in 1 case, superficial moderate infiltrate in 4; and dense superficial and deep perivascular infiltrate in 5 cases. One case showed granulomatous reaction comprising of epithelioid cells and lymphocytes. The blood vessels were dilated in 9 cases. Further, endothelial proliferation and thickening was observed in 9 and complete obliteration of the lumen in 4 cases. Warthin-Starry staining revealed *T. pallida* in 6 cases.

One case of follicular syphilide revealed follicular and keratotic plugging along with hyperkeratosis and acanthosis. The dermis showed mild superficial perivascular and dense perifollicular infiltrate. Treponemes were not detected in the section.

One case of pustular syphilide had massive exocytosis of neutrophils and ulceration of the epidermis. The dermis showed dense superficial and deep perivascular infiltrate. The blood vessels showed intense endothelial cell proliferation. At places, the lumen of the dermal blood vessels was completely obliterated. Treponemes were not seen in this case as well.

Comments

Changing pattern of morphological features of syphilis under antibiotic cover[5] is reflected in the histopathological manifestations as well. Abell et al[2] observed that the ritual textbook descriptions of plasma cell infiltration and vascular damage were absent in nearly 25% and 50% cases respectively. The coat-sleeve arrangement of the dermal infiltrate around the blood vessels is also less common.[5]

Our observations about primary syphilis are in agreement with those given in the ritual textbook.[6] However, secondary syphilis revealed interesting features. Jeerapaet and Ackerman[3] have laid emphasis on the various atypical histopathological features in their series viz absence of plasma cells in 4 out of 27 specimens, superficial disposition of the dermal infiltrate in 5 and the presence of neutrophils within the dermal portion of the eccrine sweat ducts.

Of the papular secondary syphilides in our study, one case depicted basal cell layer dissolution. This case concomitantly had dense dermal infiltrate hugging the basal cell layer along with a band like infiltrate in the upper dermis producing a lichenoid appearance. Two of the papulo-squamous syphilides also exhibited a similar picture. Occurrence of lichenoid infiltrate has been observed by others as well.[2,3,7] Furthermore, only 1 out of 3 patients of Lochner and Pomeranz[7] depicting lichenoid reactions

had a large number of plasma cells in the dermal infiltrate.

One case of papulo-squamous syphilides had histopathological resemblence to psoriasis including the presence of micro-vesiculation and neutrophils in the epidermis. Similar psoriasiform appearance has been reported by other workers.[1,6] Further, 2 cases of condylomata lata exhibited pseudoepithcliomatous hyperplasia.

Granulomatous infiltrate comprising of epithelioid cells and a few lymphocytes was seen in 3 cases of secondary syphilis.

One case each of follicular and pustular syphilides exhibited classical features.[6]

Another intriguing feature was the absence or inconspicuousness of classical vascular changes like perivascular cuffing of lymphocytes and plasma cells along with endothelial cell swelling and proliferation, in 22.2% and 8.3% cases respectively in our cases. Moreover, vascular dilatation was a prominent feature in more than 50% of tissue sections.

References

1. Montgomery H : Dermatopathology, Vol I, Harper and Row, New York, 1967; pp 418-421.
2. Abell E, Marks R and Jones WE : Secondary syphilis—a clinico-pathological review, Brit J Dermatol, 1975; 93 : 53-61.
3. Jeerapaet P and Ackerman AB : Histological patterns of secondary syphilis, Arch Dermatol, 1973; 107 : 373-377.
4. Warthin AS and Starry AC : A more rapid and improved method of demonstrating spirochaetes in tissues, Amer J Syphilol, 1920; 4 : 97.
5. Willcox RR : Changing patterns of treponemal disease, Brit J Vener Dis, 1974; 50 : 169-178.
6. Lever WF and Schaumberg-Lever G : Histopathology of the Skin, 6th ed, JB Lippincott Company, Philadelphia, 1983; pp 320-322.
7. Lochner JC and Pomeranz JR : Lichenoid secondary syphilis, Arch Dermatol, 1974; 109 : 81-83.