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CLINICAL ARTICLES

HISTOPATHOLOGICAL CHANGES OF RETICULAR FIBERS IN DIFFERENT TYPES OF LICHEN PLANUS

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Studies on apparently normal skin of patients affected with lichen planus[1],[2] showed the presence of lichen planus lesion in the dermis prior to any clinical visible epidermal change led to the conclusion that lichen planus is primarily a lesion of the corium.

The involuting changes[2] were demonstrated in connective tissue of the corium before the epidermis did show any noticeable alteration indicating that the lesion of lichen planus was most probably of the dermis rather than epidermal.

Excluding the nerve fibers, 3 types of fibers: collagen, elastic and reticular fibers are histologically distinguishable in the connective tissue of the dermis. The reticular fibers of the skin are small in amount, making up about 0.38% of the original dry weight of collagen. Histologically both collagen and reticular fibers are two easily distinguishable substances. In a previous paper[3], the author had studied the histopathological changes of collagen and elastic fibers in different types of lichen planus. Reviewing the literature, very few studies on reticulum changes in lichen planus were found and so we decided to investigate the changes of reticular fibres histopathologically in different types of lichen planus.

Method and Material. 57 cases of different types of lichen planus with 123 biopsies have been studied. The clinical and pathological features of these cases had been published before [2],[3],[4],[5]. Two biopsy specimens for each were examined, one from the same patient and the other from the healthy volunteer taking into consideration the same age, sex, race and site of excision. The paraffin tissue sections were stained by :

(1) Foot modification of Bielschowsky

(2) Laidlow stain

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Results. Microscopic examination of control biopsy tissue sections stained by Foot and Laidlow method revealed meshwork of the fine fibrillary elements, rather finer than collagen fibrillae. They assume perifollicular and periglandular condensation as well as preponderance in the immediate subepithelial region and very closely applied to the basal cell layer. It is needless to say that when certain connective tissue fibers occured singly they gave the staining reaction of reticulum but that on joining a bundle of fibers they stained as collagen. In lichen ruber planus, the microscopic examination revealed proportionate increase in intensity of reticular network with degree of inflammation (Fig, 1). No relation however, could be postulated between the acuteness or chronicity of the lesion and the degree of affection of reticulum network. Outside the area of infiltrate the argyrophilic network did not show any unusual features. No morphological or tinctorial variations were noted in the reticular fibers in the inflammatory zone. Relative increase of the reticular fibers content was seen in the subepithelial network.

In lichen corneus hypetrophicus, the reticular fibers showed moderate increase in the perivascular areas (Fig. 2, 3). The immediate subepithelial network showed relative increase in their reticular fibers content (Fig 3) The reticular fibers in the area outside the perivascular infiltrate were not affected.

In lichen planus actinicus, the cases which had the same histopathological picture as classical lichen planus showed the same marked increase of intensity of reticular fibers in the area of inflammatory infiltrate (Fig. 4, 5). On the other hand those cases with sparse, dermal infiltrate below the epidermis, the reticular network showed moderate increase in the immediate subepithelial zone. Relative increase of the fibers could be seen in the inflammatory infiltrate (Fig. 6, 7).

In lichen planopilaris, the reticular fibers showed preponderance in the areas of infiltrate while they were normal outside it (Fig. 8, 9).

In involuting lesions of lichen planus, there were marked diminution of the reticular fibers in comparison with active lesions (Fig. 10, 11) and they return nearly to their normal amount.

Comment. A prominent increase of reticular fibers were found in the area of inflammatory infiltrate in lichen planus. This confirms Steiner's view 1957[6] on his study on four cases of lichen planus. We 1947[7], however, described moderate proliferation of argyrophilic fibers. In the author's opinion Way's report[7] is not reliable and he never presented detailed histologic study of his findings in that case. Such proliferation of the reticular fibers as noted by the author in tissue sections was, very much comparable to reticular proliferation in lymphomas.

The decrease in reticular fibers in the area of involution after their actual proliferation in active lesion might raise the question about the fate of the missing fibers. Different views have been expressed by various authors about the relation between collagen and reticulin. Some authors considered them as of entirely different entities[8,9,10,11,12]. Others[13,8], considered that reticula rfibers are an

early developmental stage of collagen. The third view was that the reticular fibers are basically collagen[14,15]. More modern views[16,17] point to the third conclusion where no differences have been detected between collagen and reticular fibers both by X-ray diffraction pattern[16,18] and by electron microscope[13,19] except that reticular fibers are some what finer. The decrease of reticular fibers in areas of involuting lichen planus, the author claims to have been used in the process of collagen formation. Maximo and Bloom[20] believe that "reticular fiber is an early developmental stage of collagen". They also considered that "reticulum dissociates *laterally* into collagen apparently forming its lateral border and is continous with collagen in most instances".

Summary. 57 cases of different types of lichen planus had been studied for histopathological changes of reticular fibers. Prominent proliferation of the fibers occured in the area of inflammatory infiltrate, with relative increase in sub-epithelial network. No morphological or tinctorial changes of these fibers were noted. The possibility of role of reticular fibers in formation of collagen is discussed.

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