Perforating Lichen Nitidus

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A healthy 18-year-old woman presented with an asymptomatic tiny papular eruption on the hands, forearms, legs and trunk. A skin biopsy from the left forearm revealed a typical lichen nitidus lesion associated with an adjacent transepidermal perforating lesion. We report a case of perforating lichen nitidus, and briefly review the relevant literature of perforating lichen nitidus. (Ann Dermatol 14(3) 171~173, 2002).

Key Words : Perforating lichen nitidus

Lichen nitidus was first described by Pinkus in 1907. In 1981, Bardach[1] described the first case of perforating lichen nitidus(the variant of lichen nitidus). Perforating lichen nitidus is quite rare. To our knowledge, only three cases of perforating lichen nitidus have been reported in English literature, and no case of perforating lichen nitidus has previously been reported in Korea.

CASE REPORT

A healthy 18-year-old woman presented with an asymptomatic tiny papular eruption, of 5 years duration, which began on the left hand and progressed to involve the forearms, legs and trunk.

Multiple pinpoint to pinhead-sized round or polygonal flesh-colored flat shiny papules were distributed over the hands, arms, legs and trunk, especially on the extensor surfaces of the elbows, forearms and knees (Fig. 1).

A biopsy sample was obtained from the left forearm. A dense lymphohistiocytic infiltrate confined to a single dermal papilla was closely apposed to the overlying epidermis. The epidermis showed parakeratosis, pronounced atrophy, absence of granular layer, extensive liquefaction degeneration of the basal cell layer, destruction of melanocytes and pigment loss into dermal melanophages. A transepidermal perforating lesion was observed adjacent to the typical lichen nitidus lesion. The epidermis was flattened and permeated by the infiltrate, which broke through to the skin surface(Fig. 2 and Fig. 3). Routine laboratory tests revealed no abnormality.

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DISCUSSION

Lichen nitidus is a chronic dermatitis, usually asymptomatic, which begins commonly in childhood or early adulthood[2]. It is characterized by round, flat-topped, flesh-colored papules 2 to 3 mm in diameter that may occur in groups but do not coalesce. The lesions appear frequently as a localized eruption affecting predominantly the arms, trunk, or penis. In some patients the eruption may become generalized[3] and Koebner's phenomenon may be observed[4]. A few cases were reported to occur on the palms, soles, nails, and mucous membranes[5].

Histologically, each papule of lichen nitidus consists of a well-circumscribed mixed-cell granulomatous infiltrate that is closely attached to the lower surface of the epidermis and confined to a widened dermal papilla. The infiltrate is composed of

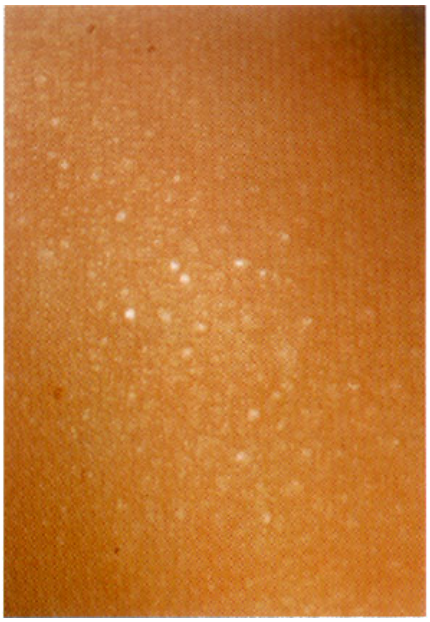

Fig. 1. Multiple pinpoint to pinhead-sized round or polygonal flesh-colored fiat shiny papules on the forearm.

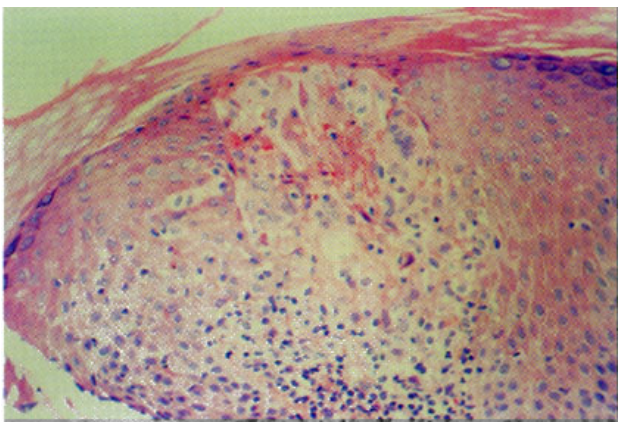

Fig. 3. A perforating lesion : A transepidermal perforation lesion was observed adjacent to the typical lichen lesion. The epidermis was flattened and permeated by the infiltrate, which broke through to the skin surface.

lymphocytes, numerous foamy or epithelioid histiocytes, and a few multinucleated giant cells. The dermal infiltrate often extends to a slight degree into the overlying epidermis, which is flattened and shows vacuolar alteration of the basal cell layer, focal subepidermal clefting, diminished granular layer, and focal parakeratosis[2]. The surrounding rete ridges are hyperplastic and encompass the in-

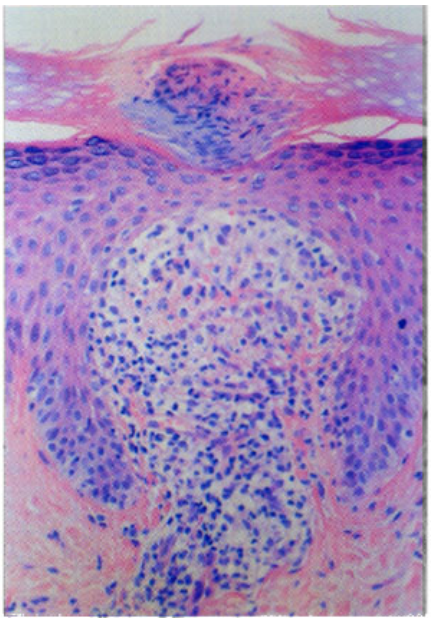

Fig. 2. A nonperforating lesion ; A dense lymphohistiocytic infiltrate confined to a single dermal papilla was closely apposed to the overlying epidermis. The epidermis showed parakeratosis, pronounced atrophy, absence of granular layer, extensive liquefaction degeneration of the basal cell layer, destruction of melanocytes and pigment loss into dermal melanophages.

filtrate like "a ball in a claw." Transepithelial perforation of the infiltrate through the thinned epidermis may occur.

Transepithelial elimination, initially defined by Mehregan[6] in 1968, refers to "the elimination of foreign material from the dermis to the surface through the epidermis or follicular epithelium without producing major changes in these structures." Mehregan[6] hypothesized that the epidermis with its adjacent dermal papillae and the hair follicles with their supporting connective tissue form biologically interdependent units. He inferred that alterations produced in the dermis or the perifollicular connective tissue induced corresponding changes in the epidermis or follicular epithelium. Respectively, he delineated the dermal events of collagen alteration in reactive perforating collagenosis, increased abnormal elastic fibers in elastosis perforans serpiginosa, rupture and displacement of hair shaft and keratin flakes in perforating folliculitis, and infiltration of inflammatory or neoplastic cells in epidermotropism, all leading to transepithelial elimination. Transepithelial elimination is

Table 1. Summary of cases of lichen nitidus with transepithelial elimination

Case	Age	Sex	Location	Associated Disease
Case 1	8	M	Arms, trunk and legs	(-)
Case 2	22	M	Forearm, trunk, thighs and penis	Lichen planus
Case 3	32	M	Left hand and fingers	(-)
Our case	18	F	Forearms, trunk and leds	(-)

considered to be an active cutaneous elimination mechanism targeted on endogenous or exogenous materials. Several mechanisms have been postulated to explain transepithelial elimination, including an abnormality of epidermal proliferation and differentiation, alteration of connective tissues, mechanical disruption, and participation of immunologic factors[7,8], but the etiology of this phenomenon has not been established with certainty. Granulomatous diseases with transepithelial elimination include granuloma annulare, necrobiosis lipoidica, rheumatoid nodule, sarcoidosis, tuberculosis, deep mycosis, suture granuloma, Monsel's solution-induced granuloma[9], tick bite, acne keloidalis, and lichen nitidus.

Three cases reported in the literature and our case are summarized in Table 1. Lenise Banse-Kupin, et al[10] reported a case of perforating lichen nitidus, noting the existence of associated lichen planus. The view that lichen nitidus represents a variant of lichen planus has been supported by several authors because both diseases are occasionally present simultaneously[3], and ultrastructural findings are similar11. However the subsequent evolution is different: in lichen nitidus the papule remains small and develops parakeratosis and epidermal flattening, whereas in lichen planus the papule develops acanthosis and hyperkeratosis[3]. Occasional deposits of fibrinogen can be observed by direct immunofluorescence in lichen nitidus, in contrast to lichen planus, where most of the lesions have globular deposits of immunoglobulins at the dermoepidermal junction[12].

In comparison with ordinary lichen nitidus, there seems to be no distinguishing clinical features involving the age of onset, site of lesion, morphology of papules.

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