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CASE REPORT

Generalized lichen nitidus successfully treated with an antituberculous agent

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Summary We describe a Japanese girl with generalized lichen nitidus. She had been exposed to *Mycobacterium tuberculosis* at 6 years of age via her teacher. At 8 years of age, she developed severe contact dermatitis on sun-exposed areas after contact with Japanese lacquer trees. Shortly after, numerous tiny, shiny, flesh-coloured papules developed over the upper part of her body. At 10 years of age, she was exposed to a school outbreak of *M. tuberculosis*. Her eruption showed no response to topical corticosteroids or oral tranilast, but most of the papules completely disappeared after she had received oral isoniazid for 6 months.

Key words: antituberculous agent, delayed-type hypersensitivity, lichen nitidus

The causes of lichen nitidus (LN) are still unknown. It was originally suspected to be a type of tuberculide,[1] and antituberculous agents have been reported to be effective in the treatment of LN.[2,3] However, we have not found any recent reports on the treatment of LN with antituberculous agents. Alternatively, this disease is postulated to be a variant of lichen planus based on the fact that the two diseases occasionally occur together and may have a similar distribution.[4–6] Spontaneous regression may be seen,[7] but potent topical corticosteroids seem to be useful in treating 70–80% of cases of LN.[8]

We describe a Japanese girl with generalized LN that did not respond to topical corticosteroids or oral tranilast, but showed complete regression after administration of oral isoniazid for 6 months.

Case report

In July 1999, a 9-year-old Japanese girl presented with slightly itchy, generalized small papules of 2·5 years duration. She had been exposed to *Mycobacterium tuberculosis* at 6 years of age via her teacher. In 1996, she had developed severe contact dermatitis after coming into contact with Japanese lacquer trees. After the contact dermatitis initially improved over a 2-month period, she developed many small, shiny papules on her neck, back, buttocks and elbows.

On examination, many skin-coloured, flat, shiny papules measuring about 1 mm in diameter were densely distributed on her face, neck, trunk and elbows. Her scalp, palms, feet, nails and oral mucosa were not involved. No other abnormalities were observed.

Biopsy of a papule from her neck showed focal epidermal hyperplasia with elongation of the rete ridges. A well-circumscribed lymphohistiocytic infiltrate was observed in the papillary dermis in a 'claw clutching a ball' pattern, with flattened and focal parakeratosis of the overlying epidermis, and vacuolar alteration and cleft formation at the dermoepidermal junction. These features were consistent with LN (Fig. 1). She was treated with potent topical corticosteroids (0·12% betamethasone valerate ointment once daily) for 1 year and oral tranilast 200 mg twice daily for 1·5 months, but without benefit, as the papules increased in size and number (Fig. 2).

Meanwhile, in April 2000, she was exposed to an outbreak of *M. tuberculosis* at school. The result of a purified protein derivative skin test at 48 h was $(0 \times 0)/(14 \times 10)$ in February 2000 (where the numerator represents the extent of induration and the denominator the extent of erythema, both in millimetres), and $(13 \times 12)/(19 \times 17)$ in April 2000. However, chest X-ray was normal, and the only abnormal laboratory result was elevated lactate dehydrogenase (519 IU L^{-1}, normal 260–485).

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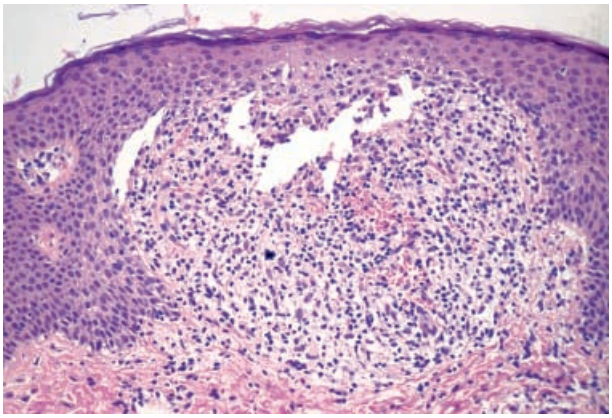

Figure 1. Biopsy of a papule from the neck showed a well-circumscribed lymphohistiocytic infiltrate in the papillary dermis in a 'claw clutching a ball' pattern (haematoxylin and eosin; original magnification ×100).

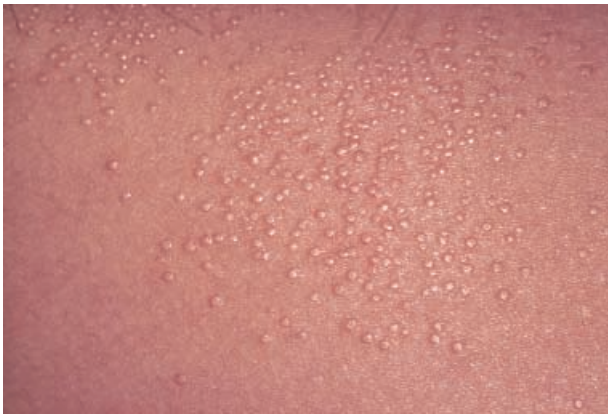

Figure 2. Many skin-coloured, flat, shiny papules measuring about 1 mm in diameter were distributed on the neck. The papules increased in size and number over a 1-year period.

M. tuberculosis was not detected in any biopsy specimens by Ziel–Neelsen stain or by polymerase chain reaction (PCR). Our patient was considered at risk of *M. tuberculosis* infection, and was therefore given isoniazid 300 mg daily from May 2000. After 3 months, most of the papules had either become flattened or had disappeared, and all had completely cleared after 6 months of isoniazid treatment (Fig. 3).

Discussion

This case is considered to demonstrate typical LN both clinically and histopathologically. Some cases resolve spontaneously[7] but others remain active indefinitely. Potent topical corticosteroids,[8] and antihistamines including selective H1 antagonists such as astemizole[9] and tranilast,[10,11] have been reported to induce regression in LN. Tranilast [*N*-(3,4-dimethoxycinnamoyl) anthranilic acid] is an antiallergic drug that inhibits the release of histamine and prostaglandins from mast cells. It has also been reported to improve keloids and hypertrophic scars. Tranilast suppresses collagen synthesis by fibroblasts by inhibiting transforming growth factor-β and prostaglandin E_2 production, and suppresses fibroblast proliferation by inhibiting interleukin (IL)-1 production by inflammatory cells such as macrophages.[12,13] It is suggested that epithelioid cells could play an important role in fibrosis, possibly by the secretion of a fibroblast-activating factor.[14] It is therefore speculated that tranilast may be of benefit in LN.

The view that LN represents a variant of lichen planus has recently been supported by several authors because of similarities in the clinical and histological findings.[4–6] In addition, LN has never been previously

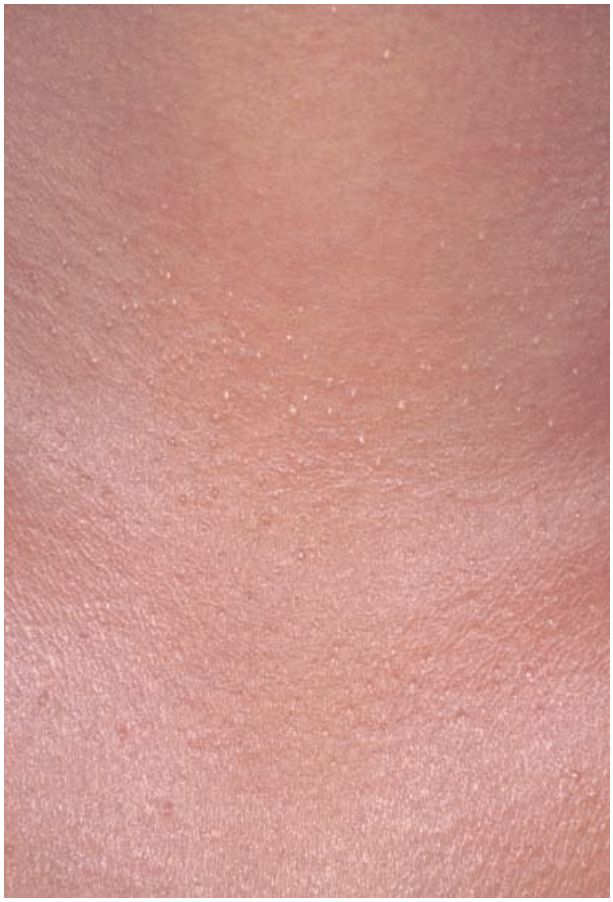

Figure 3. Six months after starting oral isoniazid, most of the papules had completely disappeared.

reported to be caused by *M. tuberculosis* infection. As we could not demonstrate tuberculosis in our patient, any causative relationship remains speculative. PCR results are, however, imperfect: a reported case of facial granuloma showed an excellent clinical response to antituberculous agents despite the absence of *M. tuberculosis* DNA amplification.[15]

In both *M. tuberculosis* infection and contact dermatitis, the T-helper (Th) 1 cell-derived cytokines IL-2 and interferon-γ are believed to play an important role in eliciting a delayed-type hypersensitivity reaction.[16,17] Our patient developed numerous shiny papules on her face, neck, trunk and elbows, at the same sites where she previously developed severe contact dermatitis. In our case, we speculate that Th1 cells, continuously activated by contact dermatitis and possibly *M. tuberculosis* infection, produced immunological activation promoting or inducing LN. Alternatively, isoniazid, in addition to its antituberculous action, may have beneficial anti-inflammatory properties in this unusual dermatosis.

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