The association of dermatitis herpetiformis with thyrotoxicosis has been described by Smith (1966), and with thyroid antibodies by Fraser (1970).

REFERENCES
Fraser N G (1970) *British Journal of Dermatology* **83**, 609
Lynch F G (1973) *Archives of Dermatology* **107**, 1
Smith E (1966) *Transactions of the St John's Hospital Dermatological Society* **52**, 176

Dr R Marks: Two of my patients with dermatitis herpetiformis also suffered from thyroid disorder (both had myxœdema).

Dr M Feiwel: Kumar (1973) describes a patient with dermatitis herpetiformis and pernicious anæmia who in 1948 had a thyroidectomy for thyrotoxicosis.

REFERENCE
Kumar P J (1973) *Proceedings of the Royal Society of Medicine* **66** (in press)

Dr C J Stevenson: I have treated 7 patients with betamethasone valerate ointment under polythene occlusion. One limb was treated first and the circumference measured. All did well but none were quite as severe as the patient under discussion. One patient had pseudofibromata of the great toes removed surgically and grafted successfully.

Dr D S Wilkinson: The diagnosis of dermatitis herpetiformis is, of course, still doubtful but we will attempt to prove it by further investigation. One patient I treated with a topical steroid under occlusion grew coarse hairs on the site. Maybe this was a coincidence but I have not used such treatment since. However, we will do so in our patient.

Aluminium Hydroxide Granuloma

John Savage MD
(*Royal Infirmary, Doncaster*)

Man, aged 26

History: In 1965 he had two injections of tetanus toxoid adsorbed (purified toxoid aluminium hydroxide) into the left buttock. The two areas became red and painful and two hard lumps developed. There has been little change over the last eight years. There is now no pain. In 1954 he was under the care of a consulting pædiatrician with erythema nodosum thought to be due to a preceding streptococcal infection. At that time tuberculin jelly test was negative, Mantoux 1:1000 negative.

On examination: On the left buttock there were two firm nodules, 6 cm in diameter, at the site of the injections (Fig 1). X-ray of chest was normal.

Histopathology (H Lederer): 'There is thickening of the dermis which contains a dense infiltrate consisting mainly of lymphocytes, few histiocytes and eosinophil polymorphs localized around blood vessels and sweat glands. The interstitial collagen fibres appear hyalinized and show gross coarse thickening. The epidermis appears fairly normal. Congo red stained sections viewed in polarized light show greenish fluorescence of some fibres indicative of amyloid. No metachromia found in methyl violet stained sections.'

Treatment: Five 1 ml injections of triamcinolone at monthly intervals to the lower nodule have improved the condition.

Comment

Voss & Tolki (1960) reported histological findings in a granuloma removed about a year after experimental vaccination with aluminium oxide adsorbed antiviral vaccine. They claim to have demonstrated aluminium oxide crystals 'staining orange with azan or in the form of azan-blue-protein complex'.

Orell (1962) reported on 15 subcutaneous lesions from the upper arms of healthy patients after mass influenza vaccination. On testing each constituent of the influenza vaccine by inoculating adult guinea-pigs he noted that aluminium oxide adsorbed influenza vaccine produced the characteristic histological appearance and it could also be produced by suspension of aluminium oxide in saline with gelatin and phenol (as used in the vaccine) and even by a suspension in saline only. Orell concluded that in the causation of the granuloma the particle size of aluminium oxide was important, since injection of commercial aluminium oxide did not provoke granuloma formation in his experiments.

There are only a few published reports on persisting nodules at the site of a previous injec-

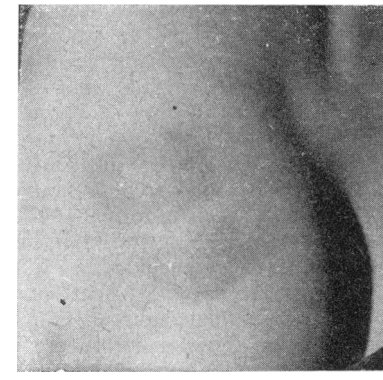

Fig 1 *Two firm nodules eight years after injection of tetanus toxoid adsorbed*

tion of tetanus vaccine. Lenz (1966) described a case which, on histology, showed a nonspecific chronic perivascular inflammatory infiltrate and degenerated collagen. The lesion was ascribed to the aluminium component of the vaccine. Erdohazi & Newman (1971) described 2 patients with aluminium hydroxide granuloma which persisted for months. The lesions were small enough to be excised. In one case X-ray crystallography proved the presence of aluminium hydroxide. I was unable to repeat this investigation in my patient.

Acknowledgment: I am grateful to the 'Expert' of the *British Medical Journal*'s 'Any Questions' for his assistance and for the list of references.

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(1971) *British Medical Journal* iii, 621
Lenz T R (1966) *Rocky Mountain Medical Journal* **63**, 48
Orell S R
(1962) *Acta pathologica et microbiologica Scandinavica* **56**, 127
Voss H & Tolki V (1960) *Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene* **178**, 291

Dr R Marks: It may be possible to detect the presence of elemental aluminium in this granuloma using the technique of electron probe analysis.

Lamellar Ichthyosis: Progress Over Twenty-one Years

D S Wilkinson MD FRCP
(*Wycombe General Hospital, High Wycombe, Buckinghamshire*)

M N, woman aged 21

History: Born February 1952 by Cæsarean section, five weeks premature. Mother had toxæmia. 'Collodion' baby. After a somewhat stormy course with bronchitis, the skin condition improved rapidly, though considerable scaling persisted for the first few years of life, particularly on trunk, scalp and axillæ. Since then the ichthyosis has continued to regress, with occasional setbacks at times of constitutional illness. The trunk and axillæ remained the sites worst affected. In 1966 she developed acne and it was noted that the ichthyosis was most marked in the flexures, on the neck and around the umbilicus. Mild keratosis pilaris. By 1973 the condition had become less marked but was still evident in these areas.

Family history: Only child. No history of ichthyosis or of other skin disease in the family.

Investigations (Dr R Marks): Histology of forearm biopsy: prominent rete ridge pattern, slight acanthosis and hyperkeratosis. Histometric observations: ratio between length of basal layer and length of granular layer 1.3 (normal 1.1–1.2). Mean epidermal thickness 6.4 cells (normal 3–6).

Enzyme histochemical tests: Normal distribution of nonspecific esterase activity in granular cell layer. Mitochondrial enzyme reactions – NADH diaphorase, lactic dehydrogenase, succinic dehydrogenase and glucose-6-phosphate dehydrogenase tests – all showed normal distribution and activity within the epidermis.

Rates of incorporation of tritiated precursor compounds (using keratotome specimen of skin from thigh): thymidine 7.6 (normal 3–12), proline 6.6 (normal 4–10), histidine 3.0 (normal 2–8) corrected counts per minute per mm^2 per hour.

Scanning electron microscopy of stratum corneum (using skin surface biopsy technique to obtain horn) showed pronounced irregularity of the scale surface with prominence and irregularity of the margins of the horny cells. The intercellular spaces seemed unduly prominent.

No abnormality of metabolism or proliferative capacity was detected despite obvious mild abnormalities of epidermal structure (increased basal/granular layer ratio) and of structure of the stratum corneum (increased prominence of scale margin and intercellular space).

Comment

This patient shows the transition of lamellar ichthyosis from a 'collodion' baby to a state of fairly mild and regional ichthyosis which affects trunk and flexures predominantly. Salicylic acid ointment and Calmurid cream have been of some help in controlling the scaling, though she finds bathing in warm water 'as good as anything'. She is engaged to be married.

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Lichen Striatus

W A D Griffiths MB MRCP (for S C Gold FRCP)
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A 36-year-old man presented with a linear eruption on the left leg of two weeks' duration. The lesion was erythematous, slightly scaly and extended from the internal malleolus up the posterior aspect of the calf and thigh to terminate