Early varioliform syphilis

A case report

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SUMMARY A 25-year-old man developed a rare form of early syphilis with smallpox-like eruptions, mainly in the groins and axillae. Histological examination of the syphilids showed an unusual structure with an exceptional number of *Treponema pallidum* within the epidermis.

Introduction

Varioliform syphilis is a very rare form of secondary syphilis, which—according to its name—is characterised by syphilids resembling smallpox eruptions at the height of the disease. Kaposi¹ included this form among large pustular syphilids, which, in his time, could lead to an erroneous diagnosis of variola. Frieboes² defined varioliform syphilis as an eruption sometimes similar to variola with umbilicated vesicles filled with transparent purulent contents or necrotising centrally. Stokes *et al*³ pointed out that, "A severe pustular syphilid may suggest quite decidedly the pustular stage of a variola."

We have not been able to find any report of this form of early syphilis in papers published since the second world war.

Case report

A 25-year-old unmarried electrician was admitted to the clinic on 25 August 1976 with a pustular eruption on the genitals and in the axillary regions of five weeks' duration. He had had sexual intercourse in early May 1976 with an unidentified female partner. In early June he noted an ulceration near the urethral orifice, which healed after two weeks. In the middle of July inflammatory phimosis developed and papulopustular lesions appeared on the genitals. In early August he noted an eruption in the axillary regions. There was no past history of venereal disease.

CLINICAL EXAMINATION

The patient was afebrile, of average build, and was adequately nourished. In the inguinal regions, the

pubic area, the peno-scrotal angle, and the axillary areas, there was an abundant papulopustular eruption with oozing condylomatous lesions in the inguinal-scrotal folds. The papulopustular syphilids had a characteristic appearance; they were round and infiltrated, with inflamed pink borders and a yellowish surface; the centre was umbilicated with superficial necrosis. They measured 0.3 to 1.2 cm in diameter (figs 1 and 2). The margin of the phimotic prepuce was covered with small ulcerated papules. Both the soles of the feet and the regions between the toes were covered with abundant scales after dessication of the papulopustular eruption (fig 3). A few crusted papules were present on the scalp. The lymph nodes were generally moderately enlarged. The skin of the face, trunk, upper extremities, palms, anal region, and the oral mucosa were free of any lesions.

LABORATORY INVESTIGATIONS

Microscopy

Dark-field examination of serum from the scrotal lesions showed typical actively motile *Treponema pallidum*, approximately 3-6 per high-power field, without accompanying saprophytic treponemes.

Culture

Cultures of the material from axillary and inguinal pustules on 11-day-old chicken embryos gave negative results for both *Herpesvirus hominis* and vaccinia virus.

Blood chemistry

Routine haematological and biochemical test results were within normal limits.

Serological tests

The Venereal Disease Research Laboratory (VDRL) test gave a strongly positive result (1/128). The *T pallidum* immobilisation (TPI) test result was also

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FIG 1 *Varioliform syphilis.*

FIG 2 *Varioliform syphilids in the axilla.*

positive (100% immobilisation); the result of the fluorescent treponemal antibody-200 (FTA-200) test was positive at a titre of 1/12 000; the fluorescent treponemal antibody absorbed (FTA-ABS) test also gave a positive result.

FIG 3 *Dessicated varioliform syphilids on the soles of the feet.*

CSF analysis

The cerebrospinal fluid cell count was $15 \times 10^6/l$ ($15/mm^3$); protein concentration was 0.26 g/l (26 mg/100 ml). The Pandy, Nonne-Appelt, and Weichbrodt tests gave weakly positive results; the FTA-200 test result was positive at 1/30; the VDRL and TPI test results were negative.

HISTOPATHOLOGY

Two varioliform syphilids were removed from the axillary and femoral regions. A third biopsy of the large condylomatous lesion in the inguinal fold was performed. Each section was stained with haematoxylin and eosin (HE) and with the modified Krajian silver stain reported by Walter *et al.*⁴

The varioliform syphilid from the axillary region, which was excised totally and undamaged, enabled observation of its histopathological structure. A striking feature was the formation of several (3-4 per section, or probably a few more if the whole syphilid was taken into account) intraepidermal pustules of an irregular funnel-shaped configuration (fig 4). The pustules caused a complete distortion of the rete Malpighii, reaching the papillary layer of the skin. They were filled with numerous neutrophils, serous exudate, and the fragments of distorted rete. In the vicinity of the large pustules some small multilocular pustules were seen. Near the surface of the lesion the pustules coalesced forming a large gradually desiccating crust. The rete pegs of the epidermis

adjacent to the pustule were filled with migrating neutrophils. The papillary and subpapillary layers of the skin were heavily infiltrated with plasmacytes and an admixture of lymphocytes. The capillary and precapillary vessels were dilated and filled closely with erythrocytes.

In the preparations stained with the modified Krajian method the distribution of *T pallidum* was both intraepidermal and intradermal (figs 5 and 6). The treponemes were very numerous in the walls and in the lumina of the dilated capillaries, which were frequently blocked by thrombi in the dermal papillae. The treponemes passed through the subepidermal basement zone, accumulated above it, and penetrated in enormous numbers into the intercellular spaces of the rete Malpighii. The wandering of the treponemes within the rete was accompanied by transepidermal migration and an accumulation of neutrophils, leading to the formation of small and large pustules. In the walls of the pustules the accumulation of treponemes reached its peak, forming almost a colony (fig 5). Within the

FIG 4 Histopathology of the varioliform syphilid—one of the several centrally situated funnel-like pustules. (Haematoxylin and eosin; $\times 160$ magnification).

FIG 5 Enormous accumulation of *T pallidum* in the margin of the intraepidermal pustule. (Modified Krajan silver stains $\times 1800$ magnification).

FIG 6 Abundant *T pallidum* within the intraepidermal pustule. (Modified Krajan silver stain; $\times 1800$ magnification).

pustules the treponemes mixed with neutrophils were also numerous and stained well (fig 6); near to the crust covering the pustules they underwent some deterioration, although they were still recognisable even within the crust.

The structure of the large condylomatous lesion in the genito-femoral fold, as observed in the sections stained with HE and with the modified Krajan method, showed certain differences from the typical histopathology of condyloma latum: there was an

almost complete lack of superficial pustulation; in addition to parakeratosis of the epidermal cover, there was pronounced hyperkeratosis with keratotic plugs penetrating relatively deeply into the rete Malpighii; and numerous treponemes were present in the walls of the hyperaemic capillaries within elongated and compressed dermal papillae and between the cells of the preponderantly plasmocytic infiltrate in contrast to a complete absence of treponemes within the extremely acanthotic and voluminous rete pegs.

DIAGNOSIS

Early secondary varioliform syphilis was diagnosed.

TREATMENT AND COURSE OF ILLNESS

The patient was treated with procaine penicillin G 1·2 megaunits intramuscularly daily for 30 days; the total dose was 36 megaunits. Seven hours after the first injection the patient developed malaise and chills; the temperature rose to 40·1°C and returned to normal after 10 hours.

At the end of treatment the syphilids were completely resorbed leaving only small brownish patches, which disappeared within the following two months. The VDRL test result became negative one month after completion of treatment and remained negative. After observation for two years the TPI and FTA-ABS tests gave negative results. The titre of the FTA-200 test decreased from 1/4000 on 20 May 1977 to 1/300 on 20 March 1978.

Discussion

The data on the clinical, histopathological, and microbiological appearance of the early varioliform

syphilids suggest that their pathogenesis is bound up with an especially violent and massive intraepidermal invasion of treponemes. The multiplication of these within the rete Malpighii in the apocrine regions of the axillae and groins under the effect of the local conditions of constant humidity and favourable temperature may play a part.

The cellular response in the form of massive migration and accumulation of neutrophilic leucocytes, leading to pustulation with subsequent necrosis, destruction, and crusting of the centre of the syphilids, together with death of the treponemes (independently of the possible phagocytic activity of the neutrophils) may be regarded also as a form of transepidermal elimination of the treponemes by the infected host.

The patient responded normally to penicillin therapy.

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References

1. Kaposi M. *Pathologie und Therapie der Syphilis*. Stuttgart: F Enke Verlag, 1891:159.
2. Frieboes W. *Atlas der Haut und Geschlechtskrankheiten*. Vol 2. Leipzig: FCW Vogel Verlag, 1928:178.
3. Stokes JH, Beerman H, Ingraham NR jun. *Modern Clinical Syphilology*. Philadelphia, London: WB Saunders, 1944:547.
4. Walter EK, Smith JL, Israel CW, Gager WE. A new modification of the Krajian silver stain for *Treponema pallidum*. *Br J Vener Dis* 1969;45:6-9.