Early malignant syphilis observed during infection and reinfection in the same patient

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SUMMARY Malignant syphilitic infections occurring in the same woman at an interval of 38 months is reported. The first infection was diagnosed as secondary papulopustular and ecthymatosus syphilis. The reinfection was more severe, taking the form of secondary ulcerative syphilis with fever, general deterioration, and loss of weight. Numerous Treponema pallidum were present in the serum expressed from the papulopustular lesions during the first infection, but they were absent from the secretion expressed from the margins of the ulcerative syphilides during the reinfection. Many treponemes were present in the plasma cell infiltrates in histopathological sections of the biopsy specimens taken from the margin of the ulcers.

Introduction

The destructive, ulcerating, and necrotic syphilides in early syphilis, commonly called malignant syphilis, are rare nowadays, although lately there have been reports of them (Agache et al., 1970; Degos et al., 1970; Laugier et al., 1970; Lejman and Starzycki, 1972; Jarowinski and Cholin, 1973; Buck, 1974; Petrozzi et al., 1974; Sehgal and Rege, 1974; Lomyskin and Lanne, 1975; Pariser, 1975).

We have, however, been unable to find any report concerning malignant syphilitic infection and reinfection in the same patient.

Case report

FIRST INFECTION

The patient, a 38-year-old woman, was admitted on 11 July 1969 with a generalised eruption present for at least two weeks. She complained of fever, headache, and photophobia of the left eye. She was a prostitute and admitted sexual contact with many partners, none of whose personal details was known to her.

Clinical examination

The patient was of normal build and moderately nourished. She was 1·66 m tall and weighed 52 kg. The axillary temperature was 38-2°C, and the pulse rate was 96 beats a minute.

The eruption covered the surface of her body (except for the palms of her hands and soles of her feet) particularly the trunk, abdomen, and genitals. The lesions ranged from papulopustular to papulo-necrotic, and many were covered with dark adherent crusts (Fig. 1). After desquamation of the necrotic crusts scattered, small, ecthymatosus lesions could be seen. All the lesions had an erythematous base. On the genitals many of the pustules were denuded and oozing (Fig. 2). There were no lesions of the oral mucosa or of the anal region. She had iridocyclitis of the left eye.

Laboratory investigations

Darkground examination of the serum from the pustular lesions on the genitals and forearms showed typical, numerous, motile T. pallidum. Haemoglobin was 11·2 g/dl (11·2 g/100 ml); erythrocyte sedimentation rate was 88 mm in 1 hour; and white blood count (WBC) was 6·1 × 10⁹/l (6·1 × 10⁹/mm³) with a normal differential count.

Serological tests

The Wassermann reaction (WR) was strongly positive; the Venereal Disease Research Laboratory (VDRL) test gave positive results at a titre 1:64; the T. pallidum immobilisation (TPI) test result was positive at 100% immobilisation; the result of the fluorescent treponemal antibody 200 (FTA-200) test was positive at a titre 1:24 000; the fluorescent treponemal antibody absorption (FTA-ABS) test also gave positive results.

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**Lumbar puncture**

The cerebrospinal fluid (CSF) cell count was 3 cells/mm³ and the protein was 0.12 g/l (12 mg/100 ml); the Pandy, Nonne-Apelt, and Weichbrodt tests gave negative results as did the WR,VDRL, and TPI tests; the FTA test was positive at a titre 1:50.

**Diagnosis**

Secondary malignant papulopustular and ecthymatous syphilis was diagnosed.

**Treatment and course of the illness**

The patient was given 600,000 units procaine penicillin daily to a total of 21 megaunits. Seven hours after the first injection the body temperature rose to 40.8°C, returning to normal after 20 hours. The eruption healed slowly. The ophthalmological features disappeared completely.

On discharge from the clinic on 14 August the serological tests showed no change. The patient then moved her address and did not attend for follow-up examination. Fifteen months later, however, she attended the venereological dispensary, and the result of her VDRL test was negative.

**Reinfection**

On 21 October 1972, 38 months after discharge from the clinic, the patient was again admitted with severe, ulcerating, partly necrotising, scattered cutaneous lesions.

She had noticed the onset of the lesions two months earlier, and since then had lost 8 kg in weight. The rash had been preceded by prodromal symptoms lasting one month—such as fever up to 38°-39°C, severe headaches, loss of appetite, and general weakness.

**Clinical examination**

She was undernourished; her weight was 48.5 kg, and the axillary temperature was 37.8°C.
The lesions (11 in number) were spread on the extremities (Fig. 3), the right shoulder (Fig. 4), the neck, the interscapular region, and the right hip. The lesions were ulcerating and had polycyclic margins encircled with inflammatory borders and covered with necrotic crusts. Some of them, particularly those on the right shoulder, were composed of confluent ulcers resembling noduleulcerative tertiary syphilides. The lesions were slightly tender and secreted sticky, foul-smelling, colourless exudate.

Laboratory investigations
Repeated darkground examination of the exudate from the ulcers, as well as of the tissue fluid aspirated from the base, were negative for *T. pallidum* and sterile for fungi and *Candida albicans*. *Staphylococcus aureus* coagulase-positive, β haemolytic *Streptococcus pyogenes*, and *Corynebacterium pseudodiphtheriae* were cultured from the ulcers.

Haemoglobin was 12.1 g/dl (12.1 g/100 ml); WBC was $8.4 \times 10^9/l$ ($8.4 \times 10^3/mm^3$) with normal differential count; and erythrocyte sedimentation rate was 97 mm in one hour.

Serological tests
The WR was strongly positive; the VDRL test gave positive results at a titre 1:64; the TPI test gave positive results with 100% immobilisation; and the FTA-200 test gave positive results at a titre 1:4000.

Lumbar puncture
The CSF cell count was 5 cells/mm$^3$; the protein was 0.26 g/l (26 mg/100 ml); the Pandy, Nonne-Apelt, and Weichbrodt tests gave results that were weakly positive. The WR and VDRL results were negative; the TPI result was positive with 100% immobilisation; and the FTA-200 result was positive at a titre 1:50.

Histopathology
Two biopsies from the margins of the lesions on the trunk and the hip were taken. Sections from both specimens were stained with haematoxylin and eosin and with modification of the Krajian silver impregnation method (Walter et al., 1969).

Sections stained with haematoxylin and eosin showed that the epidermis was hyperkeratotic and
partly parakeratotic, and contained scattered intra- 
corneal pustules. The malpighian rete was irre-
gularly acanthotic, and the outline between epi-
dermis and dermis was in places hazy. The capillary 
vessels of the papillary layer of the skin were greatly 
dilated and filled with blood. In the underlying 
layers of the skin the blood vessels were in places 
disrupted causing haemorrhages, and some of these 
were blocked by thrombi. The collagenous structure 
of the skin was almost completely distorted by a 
dense plasma cell infiltrate with a few lymphocytes 
and histiocytes (Fig. 5).

In the sections stained with modified Krajian’s 
method masses of treponemes were present within 
the infiltrates of plasma cells (Fig. 6) as well as in 
the walls of the blood vessels and, in a few places, 
within the intravascular vessel thrombi. The epidermis 
was free from treponemes.

Diagnosis
Reinfection in the form of early malignant, ulcer-
necrotic syphilis was diagnosed.

Experimental investigations
A healthy, seronegative (including WR, VDRL, 
TPI, FTA-200, and FTA-ABS tests) rabbit was 
inoculated intratesticularly with 0·3 ml of exudate 
and aspirate from the ulcerated lesions. Ten days 
later the animal remained asymptomatic; the VDRL 
test gave negative results but the WR became 
positive. One month after the inoculation the results 
of all the serological tests mentioned above, except 
the TPI test, became positive (the VDRL test at a 
titre 1:4 and the FTA-200 test at a titre 1:300). The 
rabbit died two months after inoculation without 
clinical signs.

Treatment and course of the illness
The patient was given 600 000 units procaine 
penicillin daily for three days, then 900 000 units 
daily up to a total dose of 30 megaunits. The first 
injection of penicillin was followed by a rise in 
temperature to 40·1°C, with concomitant chills 
and headaches. A few days later the foul-smelling 
exudate diminished, but healing was slow.

Observation after treatment
Two months after the patient’s discharge the result 
of the VDRL test was positive at a titre 1:32 and 
that of the FTA-200 test positive at a titre 1:16 000. 
The patient was not seen again until 21 October 
1975. The VDRL result was still strongly positive; 
the titre of the FTA-200 test, however, had in-
creased to 1:64 000.

From April to December 1976 the woman 
remained under observation, but there was no 
clinical evidence of recurrence. The CSF cell count 
was normal; the VDRL and FTA results in the 
CSF were negative; but the serum VDRL still gave 
persistent positive results at a titre 1:64; and the FTA-200 
test result was positive at a titre 1:1300. In January 
1977 she began further treatment with procaine 
penicillin in a municipal venereological dispensary.

Discussion
Treatment of the first infection with penicillin 
was followed by a negative VDRL result one year 
after the end of the treatment. During the next 
26 months the patient had had ample opportunity 
to acquire a fresh infection, and it seems reasonable 
to presume the second episode was a reinfection. 
The course of the reinfection was much more 
severe, and the signs of malignancy were accentu-
ated by the appearance of ulcerated and even necrotic 
lesions, resembling the tertiary syphilides; further-
more the general condition of the patient was 
worse.

The negative results in the search for T. pallidum 
in the exudates and in the aspirate of the ulcerous 
lesions during reinfection contrasts with the enor-
mous masses of these organisms in the plasma cell

Fig. 5 Dilated capillary vessel in the papillary layer 
filled partially with erythrocytes and surrounded almost 
exclusively by plasma cells (section stained with 
haematoxylin and eosin; × 1500 magnification).
Fig. 6 Enormous masses of T. pallidum within the infiltrate of plasma cells from the margin of an ulcerous lesion (section stained with modified Krajian silver impregnation method; × 1500 magnification).

infiltrates seen in the histopathological section stained with the modified silver impregnation method from the destructive lesions. The absence of the treponemes in the expressed serum may be explained by their deeper localisation.

Although some of the lesions during reinfection resembled tertiary lesions, their histopathological and microbiological features corresponded to the early stage of the disease.

The lack of clinical response in the infected rabbit suggests that the treponemal isolates were not equally virulent. This in turn suggests that the malignant course of the patient’s disease reflects the body’s response against treponemal infection.

References


