Tumour-like pulmonary lesion in secondary syphilis

A case report

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SUMMARY Radiographic studies have rarely identified tumours of purely syphilitic origin, which are more often present in tertiary syphilis. In this study, a pseudo-neoplastic lesion was detected in a patient with secondary syphilis and rapidly cured by penicillin.

Introduction

Pulmonary syphilis has been described by Howard¹ and Royce,² whose observations were, however, contested by McIntyre.³ Most cases occurred in patients with late syphilis and some had undergone a thoracotomy because of a suspected neoplasm.^{4 5a} Pulmonary lesions in patients with tertiary syphilis are considered to be of syphilitic origin if other causes can be excluded and particularly if the lesion disappears after antisyphilitic treatment. In this study, a pulmonary lesion was detected in a patient with secondary syphilis and was found to regress rapidly after treatment with penicillin.

Case report

A 31-year-old man was admitted on 15 January 1979 with fever, loss of weight (8 kg), dorsal pains radiating to the left shoulder, and a skin eruption; these symptoms had been present for 2-3 months. He had not noticed a chancre or skin lesions before the onset of his present symptoms, and there was no history of treatment with antibiotics.

CLINICAL FEATURES

On examination the patient was asthenic, anicteric, and very pale; his temperature was 38°C. During cardiac auscultation, an apical holosystolic murmur radiating to the underarm and a protomesosystolic murmur radiating to the carotids were present. Crepitating râles were heard at the base of the left lung. Dark red papular skin lesions (0.2 × 1 cm in

size) were present in the genital region; they were less visible on the palms and soles of the feet, and their appearance on the legs was psoriatic. The inguinal, infraclavicular, and axillary lymph nodes of the right side were palpable.

SEROLOGY

The Bordet-Wassermann, Pallida, and fluorescent treponemal antibody-absorption (FTA-ABS) tests gave positive results as did the Venereal Disease Research Laboratory (VDRL) test at a dilution of 1/8. *Treponema pallidum* was not found in the skin lesions by darkfield examination, but the clinical aspect of the lesions was typical of secondary syphilis. The patient was married but admitted extra-marital contact in July 1978. His wife showed no clinical or serological evidence of syphilis; his extra-marital contact could not be traced. Serological tests performed when the patient donated blood eight months before admission were known to have had negative results.

RADIOLOGY

X-ray films showed a basal retrocardiac round opacity on the left side suggesting an expansive process (fig 1). Some other focal opacities (1 cm in diameter) were observed close to the left anterior costal arch. The computed tomograph (CT scan) showed the lesion to be of inhomogenous opacity and of irregular shape (4.5 cm in diameter) (fig 2). A 1-cm pleural effusion was observed in the costo-diaphragmatic sulcus.

OTHER LABORATORY TESTS

ESR (Westergren) was 49 mm/1 h and 95 mm/2 h (normal values: 3 mm and 7 mm respectively); WBC count was $7.4 \times 10^9/l$ ($7400/mm^3$) with normal differential; serum electrolytes showed normal

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FIG 1 Radiograph of the chest on admission showing a round basal retrocardiac opacity.

values. Serum alkaline phosphatase was 63 U/l (normal values: 12-48 U/l) and gamma-glutamyl-peptidase 76 U/l (normal values: 0-56 U/l). Except for increased alpha-1 globulin, the protein electrophoresis was normal. Tuberculosis, actinomycosis, and moniliasis were excluded by bacterial examination, by culture, and by guinea-pig inoculation.

Complement-fixation reactions for adenovirus, influenza, Q fever, mycoplasmas, and the Paul-Bunnell-Davidsohn reaction remained negative. Pulmonary function tests and bronchoscopy showed no abnormalities. Darkfield examination of the lung aspirate did not show any malignant cells or *T. pallidum*. No remote neoplasm could be found (chorionic gonadotrophin, alpha-fetoprotein, and tests for melanuria remained negative; hepatic and bone scans were normal). Cardiac echocardiography did not show any abnormality.

TREATMENT AND RESOLUTION

On the basis of these negative results, the presence of clinically typical secondary lesions, and positive serological tests for syphilis the pulmonary infiltration was suspected to be syphilitic in origin, and treatment with procaine penicillin (1 megaunit daily for 10 days) was given. Twenty days later, the subjective

FIG 2 Computed tomograph of the chest on admission showing an irregular and inhomogeneous opacity.

FIG 3 Repeat radiograph of the chest after 10 megaunits of procaine penicillin.

complaints had disappeared, the skin lesions had improved, and the patient had put on weight.

Radiographic films and CT scans showed a noticeable decrease in the size of the pulmonary lesion to 2.5 cm in diameter (figs 3 and 4). The ESR had fallen to 4 mm/1 h and to 8 mm/2 h, and the haemogram was normal. The Wassermann reaction was doubtful and the VDRL test result positive at a titre of 1/8. Examination four weeks later confirmed the favourable resolution, as the retrocardiac mass had decreased to 2 cm in diameter, the Wassermann reaction was negative, and the VDRL test result positive at a dilution of 1/2. In May 1979 the WR was positive, the VDRL test result negative, and the Pallida and FTA-ABS test results positive. All serological test results had become negative four months later. The patient received a total of 10 megaunits of procaine penicillin followed by three injections of 2.4 megaunits of benzathine penicillin.

Discussion

Pulmonary lesions due to syphilis are observed less and less frequently. In 1924 Howard¹ collected 200 cases, whereas McIntyre³ reported only 97 cases between 1851 and 1920. Royce² detected 31 cases from 1923 to 1950, and recent observations are

FIG 4 Computed tomograph of the chest showing decrease in the size of the lesion after 10 megaunits of procaine penicillin.

scarce. Stokes^{5b} in 1944 mentioned three clinical forms of acquired pulmonary syphilis; solitary gumma, diffuse fibrosis, and diffuse syphilitic bronchopneumonia. Congenital pulmonary infiltrations are well known under the name of "pneumonia alba". Pulmonary manifestations of acquired syphilis can be of the bronchitic type observed during the tertiary stage and consist either of solitary lesions with the appearance of an abscess or of multiple lesions which are frequently of smaller size and do not produce clinical symptoms. The less frequent diffuse pulmonary fibrosis should also be mentioned.^{5b}

Radiological evidence of a round pulmonary lesion, accompanied by slight fever, loss of weight, and dorsal pains, may lead to a differential diagnosis of tuberculosis, pulmonary infarct, mycotic or bacterial abscess, and primary or metastatic carcinoma.^{6,7} Very few references have been made to cases where a lobar or pulmonary resection, performed because a tumour was suspected, have shown a gumma on histological examination.^{4,5} These radiological cases of tumour-like pulmonary lesions have always been reported in the context of late syphilis,⁸⁻¹⁰ and, whenever examined histologically, have always shown a gumma.^{5a, 11, 12} Radiological examination has shown possible neoplasms of other organs during tertiary syphilis, more particularly the stomach¹³ and the lymph nodes.^{14, 15} Tumour-like lesions have been detected during the secondary stage in the stomach¹⁶ and in lymph nodes.^{17-19a} Only one case of secondary syphilis associated with multiple pulmonary nodules in the bases of both lungs has been reported.^{19b}

Lord (quoted by Hegglin⁶) said in 1925: "The diagnosis cannot be made with assurance during life and is often uncertain post-mortem". This statement can still be considered valid as pulmonary syphilis does not have a pathognomonic appearance, either clinically or radiologically. Hartung and Freedman¹¹ and Pearson and De Navasquez²⁰ have suggested criteria for the diagnosis of pulmonary syphilis insisting, however, on the fact that such a diagnosis can only be made by exclusion. These criteria, which have also been adopted by Royce,² are: previous syphilitic symptoms, signs and symptoms of pulmonary illness, exclusion of other pulmonary diseases, positive serological test results, demonstration of *T pallidum* in the lesion, radiological evidence of pulmonary disease, therapeutic test, and the presence of syphilitic lesions in other organs.

These criteria were applied to this patient, who, like most others with similar symptoms, claimed never to have had any chancre, genital lesion, or other venereal disease. The investigations performed excluded tuberculosis, pulmonary infarct,

pulmonary mycosis, and a primary or metastatic pulmonary neoplasm. Sarcoidosis was excluded by localisation of the lesion. Specific serological test results for syphilis (FTA-ABS test) were clearly positive, which excluded an inflammatory process of the lung with false-positive reactions in tests for antilipoidal antibody,²¹ and the patient was known to have had negative serological test results eight months before admission to hospital. It was not possible to demonstrate *T pallidum* in the lung tissue by aspiration as Wilson²² and Smith²³ described. The disease in the lung is clearly shown on the x-ray film (fig 3) and is confirmed by the CT scan (fig 4). The rapid decrease of the pathological mass during treatment seems to confirm the syphilitic nature of the lesion. This confirmation is supported by the progressive decrease of non-specific and specific serological reactions, the rapid improvement of the general health of the patient, and the disappearance of cutaneous lesions after treatment. The cutaneous lesions were indicative of the nature of the pulmonary mass, thus preventing an unnecessary thoracic exploratory operation and resection of lung tissue in a young patient.

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