Reinfection with disseminated gonococcal disease

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SUMMARY A 20-year-old prostitute was admitted to hospital with joint pains and a macular and pustular rash on the fingers and feet on two occasions. Disseminated gonococcal infection was diagnosed and successfully treated.

Introduction

Disseminated gonococcal infection (DGI) occurs in 1% to 3% of patients whose exposure to infection occurred within the previous two months (Brooks *et al.*, 1976). The disease principally affects women. Reinfection with disseminated gonococcal disease is uncommon, and its incidence at this time is unknown. This paper reports such a case, which might add to the understanding of this disease.

Case report

On 26 May, 1977, a 20-year-old, Caucasian woman was admitted to a hospital in New York City complaining of pain in the wrists and a rash on the fingers and feet. She worked as a prostitute and was well until one week before admission. At that time she had a sore throat, low abdominal pain, and a vaginal discharge. She admitted to oral and genital contact but not anal. The patient attended a clinic where cervical specimens were taken for smear examination and culture; a blood specimen was taken for detection of syphilis antibodies. She was given nine pills to swallow and asked to return in a week's time. At this time she was told that the results of the investigations were all negative; although her throat was no longer sore the pain in the joints, fingers, and wrists was worse, and the evening before she had had attacks of shivering and a high fever. The patient was referred to the nearest hospital. The admitting physician recorded the history as above. On examination her temperature was 101°F; respiration

rate, 16/minute; pulse rate, 80/minute; and blood pressure reading, 100/65 mmHg. On the extensors of the fingers, hands, anterior surface of the lower legs, and dorsum of the feet there were discrete, macular and pustular lesions and a tender swelling of the right anterior wrist. There was a right lower abdominal scar which the patient stated was the result of a laparotomy in February 1976 because she had 'gonorrhoea of the tubes'. (This was subsequently confirmed.) Examination of the ear, nose, and throat showed only pharyngeal infection. The cervix was non-tender and freely moveable, with a mucoid discharge. The physician then took specimens for culture of the blood, pharynx, cervix, urethra, and anus. The blood and cervical cultures gave positive results for gonococci. The patient was treated with 12 megaunits crystalline penicillin G intravenously for four days. On the fifth day she was discharged and was given oral ampicillin, 2 g to be taken daily for the next two weeks. On discharge from hospital she no longer had a rash or joint pains.

The patient went back to work as a prostitute but came to Boston in February 1978 because she was pregnant; she planned to have her baby delivered in Boston. On the morning of admission to the clinic (February 1978), however, the patient again complained of pain in the wrists (in the same place as previously described), and a rash on the backs of her fingers, dorsum of the hand, upper forearms, and dorsum of the toes and lower legs. She recognised it as being similar to the rash she had had in the previous May and came to the clinic at the Boston Dispensary immediately. The rash was discrete and macular but there were also some small, centrally located vesicles, none of which were pustular or purpuric. The patient had had no attacks of shivering; her temperature was 98°F, pulse rate 76/minute, respiration rate 16/minute, and blood pressure reading 110/65 mmHg. She volunteered her

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occupation and was accompanied by her consort. Specimens were taken for culture of the blood, pharynx, and cervix. Only the cervical culture gave positive results for gonococci; the rapid plasma reagin circle card (RPRCT) gave negative results. Her consort complained of no symptoms, but a calcium alginate swab of the urethra gave positive results on microscopical examination and later by culture. The contact was treated with 4·8 megaunits procaine penicillin G in aqueous suspension given intramuscularly. The patient was given the same dosage of penicillin to be followed the next morning with 2 g ampicillin to be taken daily for the next nine days. She returned on the fourth post-treatment day with no symptoms and no rash, but she was asked to complete the ampicillin treatment. Two weeks after finishing treatment the patient was clinically well and the cervical cultures gave negative results. This patient, therefore, had three documented gonococcal infections, two of them with bacteraemia.

Discussion

Acute disseminated gonococcal infection occurs in 1-3% of untreated patients. The onset is sudden, with shivering, fever, arthralgia, and tenosynovitis (particularly of the wrists and fingers). A rash subsequently appears on the peripheral areas (hands, fingers, feet, and toes) which at first consists of inflammatory macules, in the centre of which vesicles

form; these rapidly become pustular and then purpuric. Treatment is effective and the patient becomes free of symptoms within two or three days.

Patients with disseminated gonococcal infection may have a deficiency in complement, particularly C6, C7, or C8 (Handsfield, 1975; Petersen *et al.*, 1976). In view of this our patient was asked to return and a complement study was performed (by courtesy of Dr William McCormack, Channing Laboratory, Boston), which was normal.

A great deal needs to be known about immunity in gonorrhoea and host defence systems. With time and study these mechanisms will eventually be determined and then we can begin to understand the varied clinical syndromes of gonorrhoea (both asymptomatic and symptomatic), pelvic inflammatory disease, disseminated infection, and why some patients can be reinfected.

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