

Extragenital Primary Syphilis Acquired by Scratching with the Fingernails

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A 46-year-old woman was admitted with an ulcerative lesion on the posterior neck. Four months before admission, the patient took part in a faith healing ritual, which the pastor performed with his fingernails causing wounds. This abnormal method of healing caused repeated injury to the patient in the posterior neck area. Treatment with cefazolin was begun, but the lesion did not improve. Biopsy of the skin lesion and cervical lymph nodes was performed. Microscopical examination revealed findings highly suggestive of syphilis. Serological tests for syphilis were positive and a computed tomographic (CT) scan of the neck showed enlargement of regional lymph nodes and tonsils. A single dose of penicillin G 2.4 million units

was given intramuscularly. Two weeks later, the wound had healed. Eight weeks after treatment, the Venereal Disease Research Laboratory titer had decreased and a CT scan of the neck showed a decrease in the size of the lymph nodes. We reasoned that syphilis was non-sexually transmitted, and that the healing ritual was the cause. Our case suggests that skin trauma by scratching with the fingernails may cause an accidental direct inoculation of *Treponema pallidum*, resulting in extragenital primary syphilis. (Korean J Infect Dis 32:164~166, 2000)

Key Words : Syphilis, Skin, Scratching

INTRODUCTION

Nearly all cases of syphilis are acquired by sexual contact with infectious lesions - the chancre, mucous patch, or condyloma latum. Less common modes of transmission include infection in utero and blood transfusions. Infection by non-sexual contact with a contaminated article is extraordinarily rare and can occur by a needle prick or when handling infected clinical material¹⁾.

We report a case of extragenital primary syphilis acquired by scratching with the fingernails during a faith healing ritual.

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CASE

A 46-year-old woman was admitted with an ulcerative lesion on the posterior neck. Four months before admission, she participated in a religious retreat in order to cure headaches, and took part in a faith healing ritual, which the pastor performed with his fingernails causing wounds. This abnormal method of healing caused repeated injury to the patient in the posterior neck area. Two months before admission, a skin lesion developed on her posterior neck. Subsequently, bilateral cervical lymphadenopathy developed. She was referred to this hospital. The patient was a housewife. She denied any sexual contact since she had entered the religious retreat. She never had a transfusion. There was no history of syphilis.

The temperature was 36.5°C, the pulse was 80/min, and



Figure 1. Slightly elevated, reddened, ulcerative lesion on the posterior neck. Ten days after penicillin injection, the lesion had healed nearly completely.

the respirations were 18/min. The blood pressure was 100/60 mmHg. On examination, a localized, relatively ill-defined, slightly elevated, palm-sized erosion was noted on the posterior neck (Figure 1). The lesion was painless and had no exudate. The base was smooth. Enlargement of cervical lymph nodes, 1~2 cm in diameter, was found. The nodes were firm, nonsuppurative, and painless. No lymphadenopathy other than of the cervical lymph nodes was evident. There was no organomegaly. Gynecological examination revealed no abnormality. There was no lesion in the oral cavity.

The urine was normal. Hematologic tests revealed mild iron-deficiency anemia. Blood chemical values were normal. A computed tomographic (CT) scan of the neck showed enlargement of regional lymph nodes and tonsils.

Treatment with cefazolin was started. However, the lesion did not improve. On the 13th hospital day, biopsy of the cervical lymph nodes was performed. Microscopical examination revealed scattered sarcoid-like granulomas (Figure 2) and an intense infiltration of plasma cells and lymphocytes along with capillary endothelial proliferation (Figure 3). The findings were highly suggestive of syphilis. However, silver staining and darkfield examination of the skin lesion revealed no spirochetes. The Venereal Disease Research Laboratory (VDRL) titer was 1:64. The *Treponema pallidum* (*T. pallidum*) hemagglutinating antibody test and the fluorescent treponemal antibody-absorbed test were also positive. Human immunodeficiency



Figure 2. Follicular hyperplasia in lymph node surrounded by dense fibrotic capsule with active inflammatory process (H&E, $\times 10$).

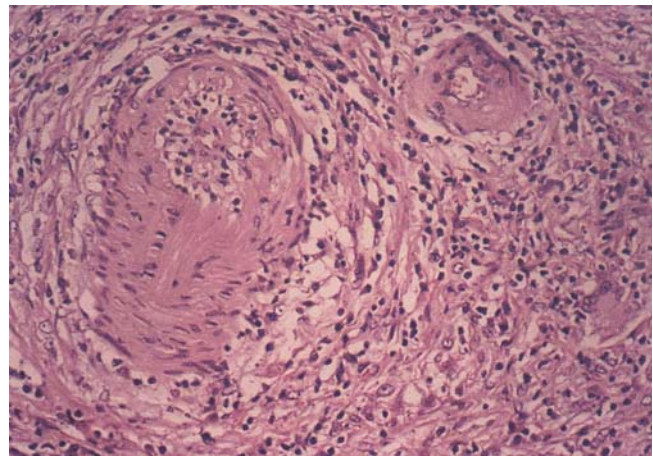


Figure 3. Obliterative vasculitis and lymphocytes, and plasma cell infiltration, together with fibrosis in the perivascular area (H&E, $\times 200$).

virus antibody was negative. Her husband was tested for syphilis, and the VDRL was negative.

A single dose of penicillin G 2.4 million units was given intramuscularly. Two weeks later, the wound had healed. Eight weeks after treatment, the VDRL titer had decreased to 1:16, and a CT scan of the neck showed a decrease in the size of the lymph nodes.

DISCUSSION

In the presenting case, we concluded that the patient had primary syphilis in the posterior neck. Histopathologic examination of the lymph nodes demonstrated characteri-

stic findings of syphilis, plasma cell infiltrates and obliterative endarteritis²⁾. Moreover, the skin lesion healed dramatically after penicillin treatment, with decrease in the VDRL titer and in the size of the regional lymph nodes at follow-up CT scan of the neck. We were unable to demonstrate spirochetes in the skin lesion. Anderson et al.³⁾ reported that spirochetes were not seen in 211 (22%) of 884 patients with primary syphilis on darkfield examination. We cleaned the wound after the patient's admission, which may have confused the results of the dark-field examination¹⁾.

Our patient was sexually inactive, and gynecologic examination revealed no abnormality. We reasoned that syphilis was non-sexually transmitted, and that the healing ritual was the cause. There are two possible explanations. First, the pastor might have been only a carrier without being infected with *T. pallidum* itself. The religious retreat held 1,500 believers, and the pastor performed the healing ritual in succession without taking any antiseptic precautions. Thus, the pastor's fingernails may have been contaminated with *T. pallidum* from the blood of a believer with secondary syphilis, and *T. pallidum* could have penetrated the skin, which was already abraded by previous trauma. There have been few reports on transmission of syphilis by abnormal imposition of hands^{4, 5)}. Second, the pastor might have primary syphilis of the fingers. There have been several reports on primary syphilis in the fingers^{6, 7)}. Unfortunately, we were not able to examine the pastor.

T. pallidum can penetrate mucosal surfaces, but not intact skin. Rabbits resist syphilis when *T. pallidum* is placed on normal skin. However, minimal trauma caused

by shaving the animals allowed the same skin to be infected⁸⁾. In our case, *T. pallidum* could have penetrated the abraded skin resulting from previous scratching.

Our case suggests that skin trauma by scratching with the fingernails during the faith healing ritual may have caused an accidental direct inoculation of *T. pallidum*, resulting in extragenital primary syphilis.

REFERENCES

- 1) Tramont EC: *Treponema pallidum* (Syphilis), In: Mandell GL, Bennett JE, Dolin R, eds. *Mandell, Douglas and Bennett's principles and practice of infectious diseases*. 4th ed. p 2117-2133, New York, Churchill Livingstone, 1995
- 2) Samuelson J, von Lichtenberg F: *Infectious disease*, In: Cortran RS, Kumer V, Robbins SL, Schoen FJ, eds. *Robbins pathologic basis of disease*. 5th ed. p 343-345, Philadelphia, Saunders, 1994
- 3) Anderson J, Mindel A, Tovey SJ, Williams P: *Primary and secondary syphilis, 20 years' experience*. 3: *diagnosis, treatment, and follow up*. *Genitourin Med* 65: 239-243, 1989
- 4) Bong HW, Lee SJ, Chung KY, Lee MG, Lee JB: *Abnormal imposition of hands as a possible cause of syphilis*. *Korean J Dermatol* 32:542-546, 1994
- 5) Jang HC, Yoon YM, Kim DS, Kim SW: *A case of syphilis probably transmitted by abnormal imposition of hands*. *Korean J Dermatol* 36:1143-1145, 1998
- 6) Ieperen LA: *Non-sexual transmission of syphilis*. *S Afr Med J* 10: 196, 1979
- 7) Starzycki Z: *Primary syphilis of the fingers*. *Br J Vener Dis* 59:167-171, 1983
- 8) Lossick JG, Kraus SJ: *Syphilis*, In: Evans AS, Brachman PS, eds. *Bacterial Infection of Humans*. 2nd ed. p 675-695, New York, Plenum Medical, 1991