

TEACHING CASE REPORT

The rash of secondary syphilis

The Case: A 34-year-old homosexual man was referred to a dermatologist for evaluation of a nonpruritic skin rash. The rash had appeared on his abdomen 3 weeks earlier and, over 1 week, had spread to his entire body. During the first week of the rash, he had visited a walk-in clinic, where he received a diagnosis of guttate psoriasis and was prescribed a topical steroid cream. When the rash progressed, he sought another opinion. He had no history of travel, fever, joint pains, or medication or illicit drug use. He admitted to having performed unprotected fellatio with a new partner about 6 weeks before the onset of his lesions. Five years earlier, the patient had tested negative for HIV, but had not been retested since and he admitted to not having practised safe sex.

The patient appeared to be an afebrile nervous young man. Examina-

tion revealed generalized nontender lymphadenopathy. His entire body, including his palms and the soles of his feet, was covered with circular papulosquamous lesions that were violaceous (Fig. 1–3). His scalp and nails were unaffected. There was no hepatosplenomegaly.

Blood samples were taken for HIV antibody and VDRL testing. Both tests were positive; the VDRL titre was 1:16 (compatible with secondary syphilis). The patient received 3 weekly intramuscular injections of 2.4 million

units of benzathine penicillin each. At a follow-up visit 5 weeks after starting treatment, there was marked improvement in the skin rash. The patient is currently receiving highly active antiretroviral therapy. A repeat VDRL test 6 months after treatment was negative, indicating a response to therapy.

Syphilis, which is caused by *Treponema pallidum*, is acquired through sexual intercourse or vertical transmission (Fig. 4). For sexually acquired infections,



Fig. 1: Papulosquamous lesions on the patient's trunk.



Fig. 2: Mucous patches involving the lips.



Fig. 3: Involvement of the palm.

there is an incubation period of 10–90 days before a painless papule (chancre) appears at the site of inoculation (genitalia or oral mucosa) associated with regional adenopathy.¹ Fever is usually absent. The lesion, which may not be noticed by the patient, resolves in 2–6 weeks without treatment. Four to 8 weeks after the appearance of the chancre, the secondary stage develops. Symptoms include low-grade fever, generalized adenopathy, headache, malaise and a mucocutaneous rash. The rash is usually nonpruritic and covers the entire body in a symmetric pattern. The skin is indurated and there is often a superficial scale on the lesions, which may lead to a misdiagnosis of psoriasis in some patients.

A skin biopsy reveals numerous plasma cells with a mononuclear infiltrate and possibly an obliterative endarteritis. The rash is pink or dusky red and typically involves the palms and soles.

In the perineum, lesions may coalesce to form condyloma lata and the mucous membranes may be involved leading to mucous patches; both condyloma lata and mucous patches contain numerous spirochetes and are very infectious. The cause of the rash has been postulated to be an allergic or id reaction as spirochetes are rarely seen on biopsy. However, polymerase chain techniques may demonstrate the presence of *T. pallidum* in the skin lesions of patients with secondary syphilis, suggesting that the rash is a direct reaction to the infecting organism.²

The differential diagnosis includes pityriasis rosea, drug eruptions, psoriasis, lichen planus and acute febrile exanthems. Other manifestations of secondary syphilis are listed in Box 1. Left untreated, after 3–12 weeks the patient enters the latent (asymptomatic) stage. This can resolve spontaneously, remain latent or progress to the tertiary stage

involving the central nervous system (CNS), cardiovascular system or both.

The diagnosis of secondary syphilis can be determined by the presence of the typical skin rash and positive serologic tests for syphilis. In 1%–2% of cases of secondary syphilis, the VDRL test may be falsely negative because of an excess of antibodies (prozone effect), which interfere with test performance. This problem can be overcome by repeating the VDRL test using a higher serum dilution.

There has been an increase in the number of reported cases of syphilis in the last 5 years, particularly among men having sex with men.³ In this group, there is also a high incidence of coinfection with HIV, ranging from 8.3% of military recruits to 23% of those attending a sexually transmitted diseases clinic.³

Treatment of secondary syphilis is the same as for primary syphilis: a single dose of intramuscular benzathine penicillin. In patients with a penicillin allergy, a 2-week regimen of doxycycline or a 2-g dose of azithromycin has been used, although treatment failures have been reported with the latter. There is debate in the medical literature on whether single or multiple intramuscular doses of penicillin are adequate for people who are coinfecting with HIV.⁴ One study supports the use of a single dose of intramuscular benzathine penicillin to treat early syphilis in HIV-coinfected patients,⁵ but other authors recommend 3 weekly intramuscular injections.¹

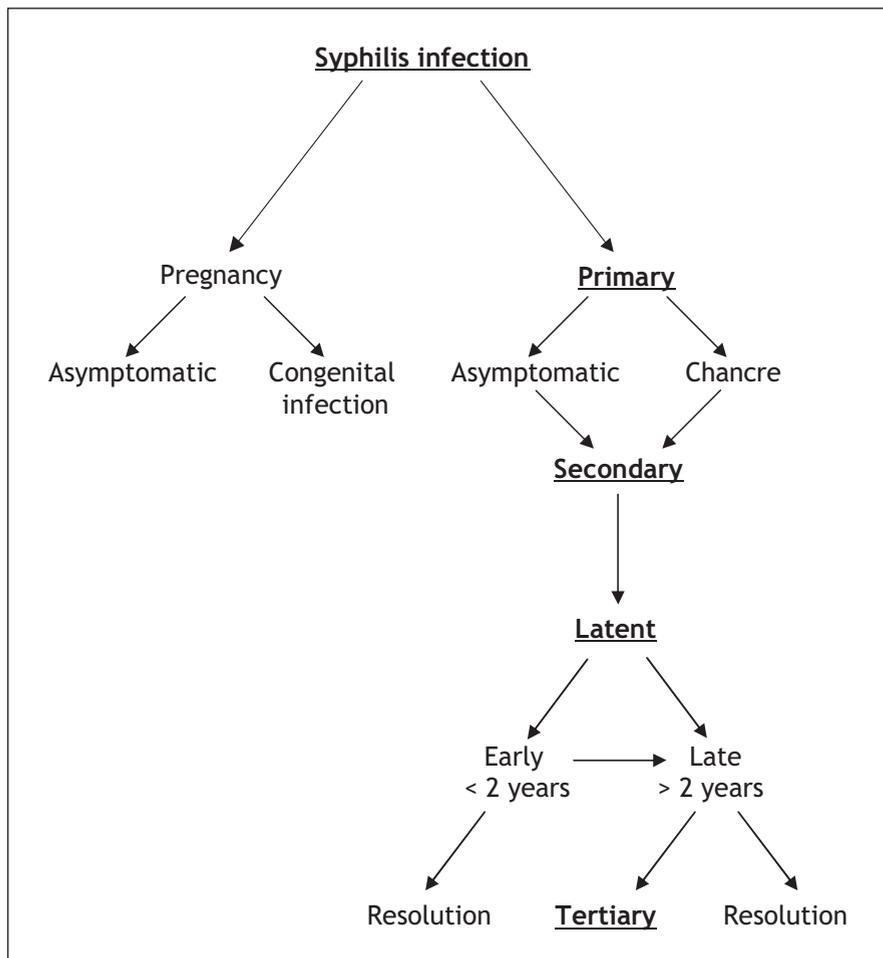


Fig. 4: Stages of syphilis.

Box 1: Clinical manifestations of secondary syphilis

- Skin rash/condyloma latum
- Adenopathy
- Fever
- Arthralgias/arthritis
- Headache
- Meningitis
- Anterior uveitis/retinitis
- Cranial neuropathies
- Glomerulonephritis
- Hepatitis
- Osteitis/periostitis
- Alopecia
- Malaise/anorexia

Studies indicate that 4%–9% of non-HIV-infected patients with presumed early syphilis have CNS involvement, and this figure is higher in HIV-infected individuals.⁶ There are reports of continued evidence of CNS infection after the standard benzathine penicillin regimen for early syphilis in those coinfecting with HIV.⁴ This has led some to recommend that a lumbar puncture be routinely performed and that intravenous penicillin be used for those found to have CNS involvement. A recent review⁶ of the topic offers guidelines on who is a candidate for lumbar puncture.

Patients being treated for secondary syphilis should be warned of the risk of developing a Jarisch–Herxheimer reaction (70%–90% of patients). This re-

sponse is characterized by low-grade fever, myalgias, headache and malaise that begin within a few hours after initiation of therapy and last for 12–24 h. The adequacy of therapy should be monitored post-treatment by checking VDRL titre every 3 months until it becomes undetectable. This can take up to 24 months. A rising VDRL titre suggests inadequate treatment or reinfection. Patients who fail treatment should have a lumbar puncture to rule out CNS syphilis.

Joseph Dylewski
Departments of Medicine and
Laboratories
Minh Duong
Department of Medicine
St. Mary's Hospital
Montréal, Que.

Competing interests: None declared.

REFERENCES

1. Goh BT. Syphilis in adults. *Sex Transm Infect* 2005;81:448-52.
2. Wenhai L, Jianzhong Z, Cao Y. Detection of *Treponema pallidum* in skin lesions of secondary syphilis and characterization of the inflammatory infiltrate. *Dermatology* 2004;208:94-7.
3. HIV and syphilis coinfection: trends and interactions. In *Journal Watch* [Web site of the Massachusetts Medical Society]. Available: aids-clinical-care.jwatch.org/cgi/content/full/2003/201/1 (accessed 2006 Oct 4).
4. Walter T, Lebouche B, Mialhes P, et al. Symptomatic relapse of neurologic syphilis after benzathine penicillin G therapy for primary or secondary syphilis in HIV-infected patients. *Clin Infect Dis* 2006; 43:787-90.
5. Rolfs RT, Joesoef MR, Hendershot EF. A randomized trial of enhanced therapy for early syphilis in patients with and without human immunodeficiency virus infection. *N Engl J Med* 1997;337:307-14.
6. Chan DJ. Syphilis and HIV co-infection: When is lumbar puncture indicated? *Curr HIV Res* 2005;3: 95-8.

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Paula Wilson
Corporate Affairs
Canadian Medical Association
1867 Alta Vista Drive
Ottawa ON K1G 3Y6
Fax 613 526-7570
Tel 800 663-7336 x2047
involved@cma.ca

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