A 27-year-old MSM, presented to care with a rash. The rash appeared several weeks prior to presentation and involved the face, chest and back, arms and legs and was not accompanied by pruritus. He denied fever, chills, but complained of fatigue. No respiratory, gastrointestinal or urinary symptoms were present. He disclosed a diagnosis of HIV infection a year earlier, but has not kept his follow up appointments and was not receiving anti-retroviral medications or opportunistic infection prophylaxis. His most recent CD4 count was 109/mm$^3$. He admitted sexual encounters with several male partners with inconsistent condom usage, and recalled a penile lesion that was present several weeks before the rash had appeared. The lesion has healed without specific therapy.

On physical examination: in no apparent distress, vital signs were within normal limits.

Notable finding on the examination included multiple small and non-tender anterior cervical, posterior cervical, axillary and inguinal lymph nodes. Genital examination revealed a healed lesion on the glans penis. A macular skin rash was widely distributed over face, trunk and extremities with several lesions on palms and soles (figure 1. and 2.)

1. What is your diagnosis?
2. Would you obtain a lumbar puncture?

**Answers to photo quiz and discussion:**
Answer to Question 1. Secondary syphilis.
Serology for Syphilis was ordered. Non-treponemal, using rapid plasma regain (RPR) was positive at a titre of 1:32 and *Treponema pallidum* antibody using *Treponema pallidum* particle agglutination TP-PA and fluorescent treponem-
mal antibody test (FTA-Abs) were positive as well.

Over the last decade syphilis infections have been increasing in the United States, with approximately 2/3 of cases occurring in men and 20% of these individuals are infected with HIV.\(^{1,2}\) Similar trends have been observed in Canada, with a peak population rate of 5/100,000 in 2009, and 9/100,000 among men.\(^3\) A generalized skin rash is a common manifestation of secondary syphilis and may be accompanied by fever, malaise, sore throat, and lymphadenopathy. The rash may be variable and tends to involve palms and soles as well as mucosal surfaces. The clinical presentation of Syphilis among individuals co-infected with HIV is similar to that of syphilis occurring in the absence of HIV. Although the manifestations are not different, co-infected patients may have multiple genital ulcers, an accelerated transition between stages of syphilis with some individuals having concurrent genital ulcers along with manifestations of secondary syphilis, and a greater propensity for development of early neurosyphilis.\(^4\)

**Answer to Question 2.**

Lumbar puncture was performed, and revealed elevated protein and a total nucleated cell count of 22.

Although variable criteria have been used for the diagnosis of neurosyphilis, the following have been suggested: positive CSF VDRL or a positive CSF FTA-Abs; CSF pleocytosis of greater than 20 in patients not on HAART; elevated CSF protein > 50 mg/dL.\(^5,6,7\) The presence of uveitis or other ocular manifestations are commonly associated with neurosyphilis and should be managed as such. The indications for performing a lumbar puncture in the syphilis-HIV co-infected have been a source of controversy due to the absence of studies demonstrating improved clinical outcomes with routine CSF
examination in asymptomatic HIV-infected patients, the presence of nonspecific CSF abnormalities in a large proportion of HIV infected patients, and the logistics associated with an invasive procedure. Recently, Ghanem et al., demonstrated that the presence of neurosyphilis was more frequent in patients with a CD4 count ≤350 cells/mL and/or RPR titer ≥ 1:32, and this has been incorporated into the CDC’s Sexually Transmitted Diseases 2010 Guidelines.

Figure 2: Macular rash present on palms. Similar lesions were observed on soles (not shown).

acknowledging the fact that in the absence of neurologic symptoms CSF examination has not been demonstrated to impact clinical outcomes. HIV-infected persons respond to standard benzathine penicillin for primary and secondary syphilis, and should be evaluated clinically and with serology after 3, 6, 9, 12, and 24 months to detect treatment failure. The use of antiretroviral therapy may improve clinical outcomes in HIV-infected persons with syphilis.

No competing financial interests declared.

References: