# An abdominal skin lesion: to lump or split? a case presentation

Albert T Young[1] MD MAS, Raagini S Yedidi[1] MD, Paul J Marano[2] MD, Laura B Pincus[3] MD, Andrew R Lai[2] MD MPH

Affiliations: [1]School of Medicine, University of California San Francisco, San Francisco, California, USA, [2]Department of Medicine, University of California San Francisco, San Francisco, California, USA, [3]Dermatopathology and Oral Pathology Service, University of California San Francisco, San Francisco, California, USA

*Corresponding Authors: Albert T Young, 2213 Heritage Way, Fullerton, CA 92833, Tel: 626-757-8630, Email: albert.young@ucsf.edu; Andrew R. Lai, Division of Hospital Medicine, University of California San Francisco, 505 Parnassus Avenue, Box 0131, San Francisco, CA 94143, Tel: 415-476-6760 , Fax: 415-502-1963, Email: Andrew.Lai@ucsf.edu*

## Abstract

Syphilis has many atypical morphologies which can present a diagnostic challenge, especially in patients with HIV/AIDS who may have multiple concurrent conditions. We describe a 41-year-old man with recently diagnosed HIV who was admitted for acute right vision loss and a diffuse rash with involvement of the palms and soles. He received diagnoses of secondary syphilis and Kaposi sarcoma in the setting of AIDS. Examination revealed an unusual dark brown-to-purple umbilicated papule with a necrotic center on the abdomen, raising a diagnostic dilemma. Skin biopsy showed secondary syphilis, despite the concurrent diagnosis of Kaposi sarcoma. The patient was treated with antibiotic and antiretroviral therapy and symptoms resolved. This case aims to share the clinical reasoning behind diagnosing a patient with HIV/AIDS with multiple concurrent conditions and to raise awareness of the many atypical cutaneous manifestations of secondary syphilis.

*Keywords: case report, clinical reasoning, HIV, Kaposi sarcoma, syphilis*

## Introduction

When faced with a new clinical presentation, clinicians often encounter the tension between paring down to a single diagnosis using Ockham's razor and invoking multiple processes to explain a presentation via Hickam's dictum. This is particularly true in patients with HIV/AIDS, in whom multiple concurrent conditions and atypical presentations may be more prevalent, particularly regarding diseases like syphilis that can present with both variable and changing manifestations.

## Case Synopsis

A 41-year-old man with recently diagnosed (human immunodeficiency virus) HIV was admitted for an expedited evaluation of acute subtotal right vision loss and a diffuse rash with involvement of the palms and soles. Two months before presentation, the patient noticed a genital rash that spread to his torso and hands over weeks. One month before presentation, he saw his primary care physician for evaluation of this rash, in addition to visibly swollen cervical lymph nodes, weight loss, and rectal bleeding. At that time, HIV antigen/antibody testing resulted in a new diagnosis of HIV infection. He did not have immediate follow-up after this initial diagnosis and no treatment or further testing was initiated.

One week before his current presentation, the patient awoke with acute vision loss of his right eye. He was evaluated at another facility where ophthalmologic examination revealed panuveitis, with concern for viral etiologies (i.e., cytomegalovirus, herpes simplex virus (HSV), varicella zoster virus), toxoplasmosis, and syphilis.

Anterior chamber paracentesis of the eye was performed and negative for cytomegalovirus DNA. There was insufficient fluid to evaluate for other etiologies. Empirical valacyclovir and trimethoprim/sulfamethoxazole were started, in addition to atropine and prednisolone acetate to the right eye. Further serologic testing done at that time revealed a positive rapid plasmin reagin (RPR) test with titer 1:1024 and positive fluorescent treponemal antibody absorption (FTA-ABS) test. The patient presented to the HIV clinic at our institution to establish care and was referred to the emergency department for expedited evaluation.

The patient's vital signs were within normal limits. The head and neck examination were notable for large cervical non-tender, mobile lymph nodes. Repeat ophthalmologic examination was notable for "hand motion" visual acuity and panuveitis in the right eye. The skin examination was notable for multiple red-brown plaques, some with a collarette of scale, in a widespread distribution with lesions on the extremities, back, palms, and soles (**Figure 1**). He also had an abdominal skin lesion with a different morphology: a dark brown-to-purple umbilicated papule with a necrotic center (**Figure 2**).

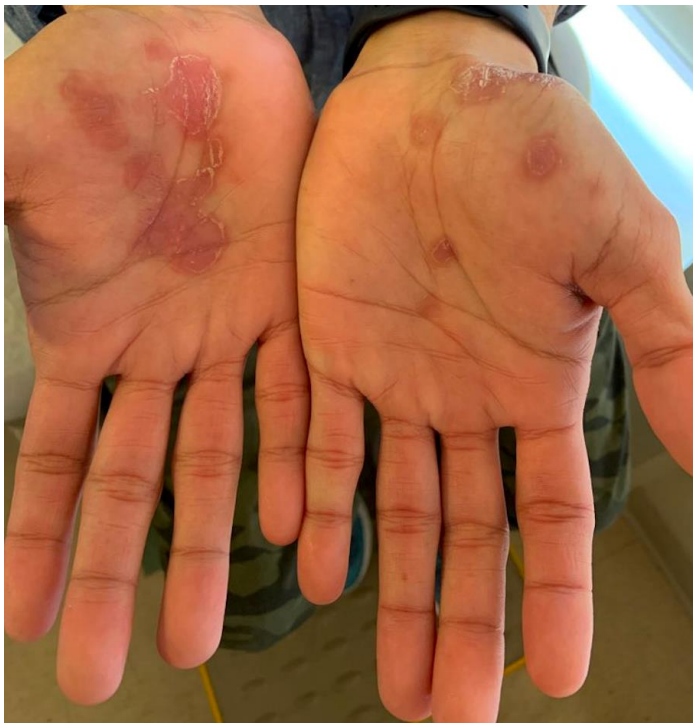

**Figure 1**. *The classic copper penny rash of secondary syphilis was seen on the palms and soles.*

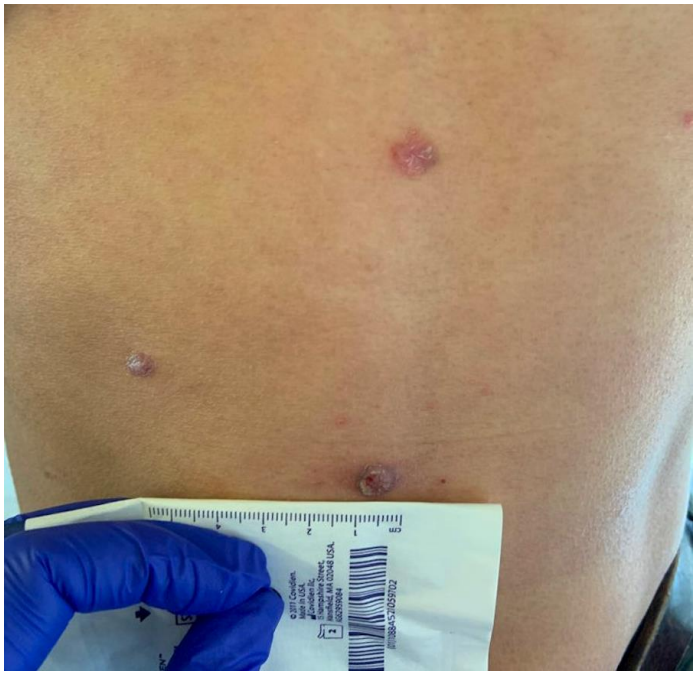

**Figure 2**. *A dark brown-to-purple umbilicated papule with a necrotic center, an unusual morphology, was seen on the abdomen.*

Further testing revealed a CD4 count 42 cells/mm$^3$, with an HIV viral load of 50,165 copies/ml.

Repeat anterior chamber paracentesis was negative for HSV, varicella zoster virus, and *Toxoplasma gondii*. Lumbar puncture was performed, which revealed no pleocytosis, normal glucose and protein, and a nonreactive cerebrospinal fluid (CSF) venereal disease research laboratory (VDRL). However, FTA-ABS testing from the CSF was reactive.

Given the patient's diminished visual acuity, panuveitis, typical rash involving the palms and soles, and serology results, a diagnosis of secondary syphilis with ocular involvement was suspected. Although this accounted for multiple aspects of the presentation, it remained unclear whether the abdominal lesion and cervical lymphadenopathy could be attributed to syphilis as well. Given the appearance of the abdominal lesion, a deep fungal infection (e.g., cryptococcus, coccidioides, penicilliosis), giant molluscum contagiosum, atypical HSV, and Kaposi sarcoma were considered as alternative diagnoses. This finding raised the diagnostic dilemma of whether to 'lump' this lesion in as an atypical manifestation of the favored syphilis diagnosis or to 'split' it as a separate clinical entity.

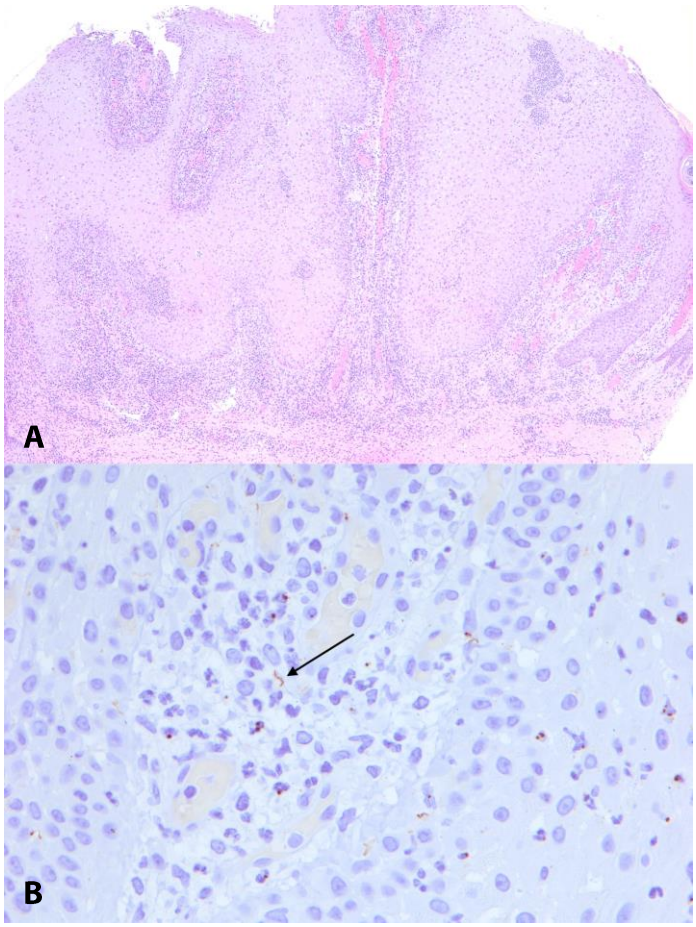


**Figure 3**. ***A)*** *Routinely stained hematoxylin-eosin stained section demonstrated pseudocarcinomatous epithelial hyperplasia with a lichenoid infiltrate composed of histocytes and neutrophils, 40×. There were some perijunctional necrotic keratinocytes as well.* ***B)*** *Treponema pallidum immunoperoxidase-staining demonstrated numerous spirochetes within the dermal-epidermal junction (spirochete highlighted with arrow), 400×. No mycobacteria or fungi were visualized.*

A biopsy of the abdominal skin lesion demonstrated features compatible with secondary syphilis (**Figure 3A)** and a *Treponema pallidum* immunoperoxidase stain highlighted spirochetes in the skin biopsy (**Figure 3B)**, confirming the diagnosis of secondary syphilis.

Computed tomography of the neck with intravenous contrast revealed bilateral cervical chain adenopathy with dominant, centrally necrotic nodal conglomerates (**Figure 4**). The patient underwent excisional biopsy of a right cervical lymph node, which led to a concurrent diagnosis of Kaposi sarcoma.

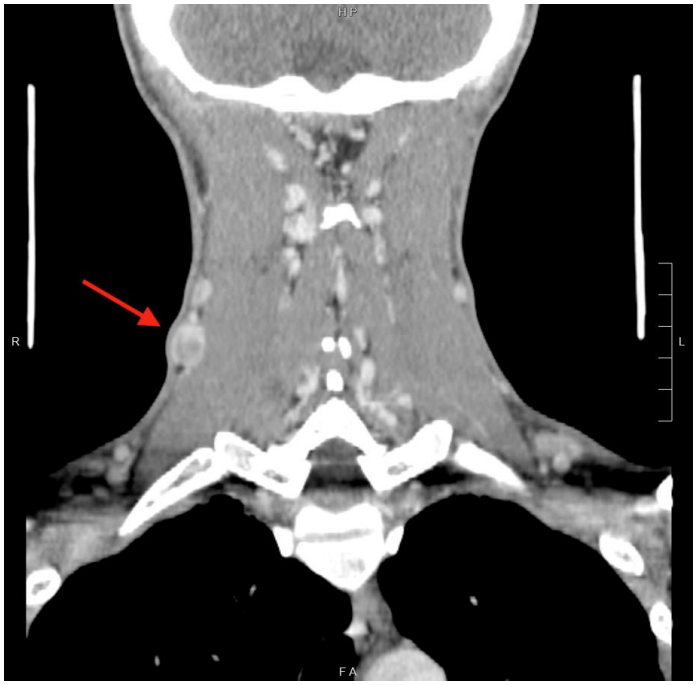


**Figure 4**. *Computed tomography of the neck with intravenous contrast revealed bilateral cervical chain adenopathy with dominant, centrally necrotic nodal conglomerates (cervical lymph node highlighted with arrow).*

Given his diagnosis of ocular syphilis, the patient was treated with a two-week course of intravenous penicillin G, which he completed as an outpatient, and he was newly started on antiretroviral therapy. At follow-up approximately two months after he first presented with vision loss, his right visual acuity had markedly improved to 20/25 and at six months, his eye examination and vision were reported to be normal. The skin lesions on his abdomen, hands, and feet subsided, with the persistence of post-inflammatory hyperpigmentation. His response to treatment will be monitored with repeat RPR titers.

With regards to the Kaposi sarcoma, there has been no evidence of pulmonary or gastrointestinal involvement. His lymphadenopathy has improved with antiretroviral therapy.

## Case Discussion

The patient received diagnoses of secondary syphilis and Kaposi sarcoma in the setting of AIDS.

The rash of secondary syphilis is classically a diffuse macular, maculopapular, or papular rash on the

trunk and extremities, including the palms and soles. Individual lesions are often scaly and copper or reddish brown in color. Our patient's rash on the palms and soles was consistent with this classic appearance. The umbilicated papule with a necrotic center on his abdomen, however, did not have this classic morphology, although it shared some resemblance to syphilitic papules in two reported cases of HIV-positive patients [1,2]. Although we initially considered alternative diagnoses based on its appearance, this lesion was ultimately explained with diagnostic parsimony as part of this presentation of secondary syphilis.

Secondary syphilis has been called "the great imitator" given its numerous atypical skin manifestations, which include: macular, nodular, annular, pustular, framboesiform, nodulo-ulcerative, and photodistributed eruptions [3,4]. Thus, it is critical that clinicians maintain a high index of suspicion for syphilis in the appropriate clinical setting, even with unconventional skin findings. The differential diagnosis for a nodule lesion, as in our patient, includes a deep fungal infection, cutaneous tuberculosis, sarcoidosis, leprosy, Kaposi sarcoma, and lymphoma. Histopathology is also variable and microscopic findings of nodular secondary syphilis may share some features of non-infectious granulomatous diseases and lymphomas [4].

HIV co-infection may modify syphilis disease presentation, although in most cases the clinical manifestations are similar in patients with and without HIV. Patients with HIV infection may be more likely to manifest atypical skin findings, such as nodulo-ulcerative secondary syphilis (lues maligna), characterized by marked prodromal constitutional symptoms and severe nodular and ulcerative skin lesions [4–6]. HIV-positive patients may also be more likely to have an asymptomatic primary stage as well as the accelerated onset of neurologic symptoms and tertiary disease [7].

The diagnosis of syphilis requires both nontreponemal (e.g., RPR, VDRL and treponemal (e.g., fluorescent antibody absorbed [FTA-ABS], enzyme immunoassay [EIA], chemiluminescence immunoassay [CLIA]) serologic tests, as false-positive results can occur with either type of serologic test [8,9]. These tests should be interpreted in the same way for patients with and without HIV infection [8,10]. Although nontreponemal tests are done before treponemal tests in the traditional screening algorithm, many laboratories now perform a reverse-sequence screening algorithm for financial reasons given the newer treponemal tests (EIA and CLIA) are less costly [9]. With positive nontreponemal and treponemal tests, our patient met these criteria for diagnosis.

His visual symptoms and panuveitis raised concern for ocular syphilis, a manifestation of neurosyphilis. Ocular syphilis typically occurs during early syphilis and presents most commonly as uveitis [11]. Prompt ophthalmologic evaluation and CSF examination is recommended for patients with syphilis and ocular complaints [11]. Cerebrospinal fluid VDRL is the gold standard for diagnosis of neurosyphilis, with 99.8% specificity but only 50% (range, 30-70%) sensitivity [12]. Thus, a negative CSF VDRL does not exclude neurosyphilis. After a negative CSF VDRL, a CSF treponemal test may be considered. This test was positive in our patient, supporting a diagnosis of neurosyphilis. Regardless of CSF results, patients with ocular syphilis should be managed according to the treatment recommendations for neurosyphilis [11]; treatment is identical for neurosyphilis, ocular syphilis, and otic syphilis [9].

From the patient's perspective, a critical concern was keeping his diagnosis and care from becoming disclosed to the relatives with whom he was living. Persons living with HIV may prefer not disclosing their HIV status to others to avoid negative social judgement and discrimination [13]. Persons who perceive HIV-related stigma are more likely to experience depression, lower social support, and reduced adherence to medical care [14]. Our team responded to this challenge by prominently featuring the patient's wish for non-disclosure in all communications with healthcare workers and by rehearsing with the patient how he might approach discussions surrounding his care with his relatives.

## Conclusion

Secondary syphilis commonly manifests in the skin as a "copper penny" rash but may also manifest as

various atypical morphologies for which the differential diagnosis is broad. In this case, lumping and splitting the multiple aspects of the patient's presentation were necessary to reach the correct diagnoses. When caring for patients living with HIV, healthcare providers should consider how HIV-related stigma might affect quality of life and engagement in care.

## Potential conflicts of interest

The authors declare no conflicts of interest.

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