

CASE REPORT

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Rupiod psoriasis: A complex, multifactorial presentation

Caroline Ward, Sairekha Ravichandran, Wei-Shen Chen, Sharon Albers

ABSTRACT

Introduction: Secondary syphilis, also termed *the great mimicker* due to its vast array of clinical presentations, is associated with skin manifestations including rupioid, macular, psoriasiform, and condylomatous lesions. On clinical examination alone, it can be difficult to differentiate between rupioid syphilis and rupioid psoriasis, especially among cases of human immunodeficiency virus (HIV) and syphilis co-infection; however, histologic examination can aid in their differentiation. Additional testing such as serum rapid plasma reagin (RPR), anti-HIV antibody, rheumatoid factor, and fungal cultures should be performed to exclude other causes of rupioid lesions.

Case Report: A 19-year-old HIV-positive male developed numerous hyperkeratotic skin lesions involving the head, trunk, and extremities over a 4-week period. His RPR was positive (1:64), suggesting a diagnosis of rupioid syphilis. The patient was treated with doxycycline, given a reported history of penicillin allergy. Rapid plasma reagin titers decreased to 1:2 following treatment; however, the skin eruption did not improve. A biopsy of a lesion demonstrated psoriasiform acanthosis with confluent hyperkeratosis, clusters of intracorneal neutrophils, and negative spirochete immunostaining. Based on histopathology and clinical presentation, a diagnosis of

rupioid psoriasis was favored. The patient was started on targeted anti-psoriatic therapy with apremilast and maintains close follow-up with his dermatologist every three months.

Conclusion: Although the patient's presentation was initially presumed to be secondary to syphilis, his lack of response to treatment prompted further workup to assess the etiology of the patient's skin findings more accurately. In doing so, a diagnosis of rupioid psoriasis was favored based on the histologic findings observed.

Keywords: HIV, Psoriasis, Rupoid psoriasis, Rupoid syphilis

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INTRODUCTION

Psoriasis is a chronic disease, often with a lifelong course, that affects approximately 125 million individuals on a global scale [1]. Although the etiology is unclear, it is believed that the disease results from an interplay between several factors including genetic and environmental components, immune dysfunction, and skin barrier disruption [1]. Psoriasis targets individuals of any age or gender and typically manifests as a red, scaly macule, papule, pustule, or plaque [1]. Plaque psoriasis is known to have several subtypes, one of which is rupioid psoriasis [2]. Rupoid plaques are small, hyperkeratotic lesions that often resemble limpet shells [2]. The plaques are typically well-demarcated and cone-shaped and can have thick, dark, adherent crusts [3]. It is important to note that rupioid skin lesions are not limited to psoriasis, as they can also be seen in the setting of secondary syphilis,

crusted scabies, HIV, disseminated histoplasmosis, and reactive arthritis [2].

CASE REPORT

The patient is a 19-year-old male who presented to the emergency department in November 2019 with a fever and myalgias, consistent with a mononucleosis-like syndrome. On further laboratory evaluation, the patient's creatinine kinase (CK) was elevated, and a diagnosis of rhabdomyolysis was favored. Upon further workup for potential etiologies of the patient's presenting symptoms, the patient disclosed that he was sexually active with male partners, which prompted further workup with HIV and sexually transmitted infection (STI) testing. At that time, he tested positive for HIV and negative for gonorrhea/chlamydia. A prescription for combination antiretroviral therapy with bicitgravir/emtricitabine/tenofovir alafenamide (Biktarvy) was placed upon discharge and the patient was instructed to follow up with his primary care physician (PCP) for further management.

Following his HIV diagnosis, the patient followed regularly with his PCP and was adherent to his Biktarvy regimen. In April 2020, the patient's HIV viral load was nearly undetectable. The patient remained clinically stable until January 2022, when the patient required azithromycin treatment for a rectal chlamydial infection. Shortly after, the patient was seen in February 2022 for new onset facial seborrhea and a scalp rash concerning for tinea capitis. At that time, a serum RPR test was negative.

In March 2022, the patient tested positive for gonorrhea and was treated with gentamicin. During this visit, he endorsed the development of a new, generalized papular rash on his trunk and extremities, which started as small red bumps on the palms of his hands and forearms. A repeat serum RPR test was positive with a value of 1:64. He was placed on 14 days of doxycycline, as the patient had self-reported a history of penicillin allergy that resulted in tongue and throat swelling when he was a child.

At a follow-up visit in April 2022, the patient stated that the rash had worsened since his previous visit as he had taken only seven days of doxycycline treatment. The rash now exhibited scaly patches with slightly hyperpigmented papules, along with new condyloma lata in the sacral area. Based on the patient's history and noncompliance with treatment, his skin findings were attributed to rupioid syphilis, and he was placed on a second round of doxycycline with an emphasis on treatment adherence.

In early May 2022, the patient had completed the full course of doxycycline treatment; however, the rash was still present over most of his body. Rapid plasma reagin testing remained positive with a value of 1:2. A dermatology referral was placed for further workup, in addition to an allergist referral for confirmatory testing of his penicillin allergy. Following the use of skin testing,

the patient's skin was non-reactive upon exposure to penicillin. He was given incremental dosing of 2.4 million units of penicillin G at that time, which he tolerated without difficulty. Given the lack of allergic reaction to penicillin, the patient's penicillin allergy was removed from his documentation, and he was cleared to undergo further treatment with penicillin G for his syphilis infection.

At his initial dermatology visit in late May 2022, the patient's rash was thick and scaly over the trunk and upper extremities. Figures 1 and 2 demonstrate the appearance of the rash at that time. The rash was punch biopsied to evaluate several possible diagnoses, which included rupioid syphilis, rupioid psoriasis, and hyperkeratotic lichen planus. Following evaluation by board-certified dermatopathologists, the biopsy specimen (Figure 3) demonstrated psoriasiform acanthosis, confluent hyperkeratosis, parakeratosis, and hypogranulosis, along with clusters of intracorneal neutrophils, consistent with a diagnosis of psoriasis. In addition, a periodic acid-Schiff (PAS) special staining was negative for fungal organisms, and a spirochete immunostain performed at the NeoGenomics laboratory was negative for spirochetes. The dermatopathologists also appreciated several plasma cells in the dermal inflammatory infiltrate, suggestive of acquired immunodeficiency syndrome (AIDS)-associated psoriasiform dermatitis. Based on the clinical correlation of the patient's history of antiretroviral adherence with the pathology results, however, a diagnosis of rupioid psoriasis was favored.

The patient was treated with penicillin G to eradicate his syphilis infection and was prescribed apremilast treatment for his rupioid psoriasis. Figures 4–6 demonstrate the appearance of the rash during a June 2022 visit after completing penicillin treatment. The patient had several follow-up visits to monitor his clinical course while awaiting insurance clearance for his apremilast treatment. While waiting, he was instructed to use triamcinolone 0.1% ointment on the lesions and was monitored for signs of improvement. In October 2022, his skin lesions had mildly improved with the triamcinolone treatment alone, as seen in Figures 7 and 8.

Several months later, the patient was cleared by insurance and began a 30-day starter pack of apremilast treatment in January 2023. The initial dosing regimen was as follows:

Day 1: 10 mg in the morning

Day 2: 10 mg in the morning and 10 mg in the evening

Day 3: 10 mg in the morning and 20 mg in the evening

Day 4: 20 mg in the morning and 20 mg in the evening

Day 5: 20 mg in the morning and 30 mg in the evening

Day 6 and onwards: 30 mg twice daily.

Following the completion of the starter pack in February 2023, the patient reported mild improvement in his skin lesions via healthcare secure chat messaging. In March 2023, however, the patient was temporarily lost to follow-up as his insurance no longer covered his



Figure 1: Rupoid lesions present on the patient's left lateral arm at his May 2022 dermatology visit.



Figure 4: Rupoid lesions present on the patient's left ear at his June 2022 dermatology visit.



Figure 2: Rupoid lesions present on the patient's posterior trunk at his May 2022 dermatology visit.



Figure 5: Rupoid lesions present on the patient's scalp at his June 2022 dermatology visit.

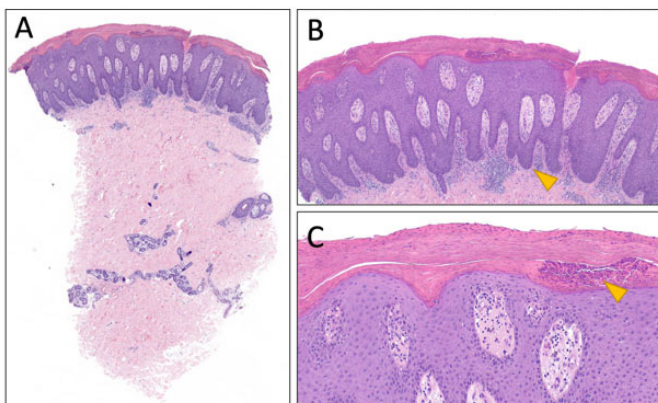


Figure 3: (A) Skin punch from the lesion showing marked acanthosis and overlying hyperkeratosis (40×). (B) The epidermis shows typical psoriasiform acanthosis, characterized by elongated rete ridges (arrowhead) extending to the same depth as the papillary dermis (200×). (C) This lesion has confluent parakeratosis, hypogranulosis, and intracorneal neutrophil aggregates (arrowhead) (400×).



Figure 6: Rupoid lesions present on the patient's posterior trunk at his June 2022 dermatology visit.

dermatology visits. The patient was also unable to receive coverage for a prescription for maintenance dosing of the apremilast treatment. While waiting for insurance clearance a second time, the patient was instructed to continue using the triamcinolone 0.1% ointment on the lesions, as it had previously resulted in mild improvement.

Nearly three months after completing his initial apremilast starter pack, the patient was cleared by insurance to resume his dermatology follow-ups in May 2023. At that time, his skin findings remained relatively unchanged compared to their appearance in October 2022 (Figures 7 and 8). The patient was prescribed an additional 30-day starter pack of apremilast using the previously mentioned dosing regimen, in addition to a 2-month supply of apremilast 30 mg twice daily maintenance treatment. The patient is scheduled to return to the dermatology clinic in late July 2023, after which he will be followed regularly on a 3-month basis.



Figure 7: Rupoid lesions present on the patient's posterior trunk at his October 2022 dermatology visit.



Figure 8: Rupoid lesions present on the patient's anterior trunk and upper extremities at his October 2022 dermatology visit.

DISCUSSION

Rupioid skin lesions are often described as small, cone-shaped, hyperkeratotic lesions that resemble limpet shells [2]. These lesions can be observed as a subtype of plaque psoriasis, but they may also occur in the setting of other systemic diseases including secondary syphilis, HIV, disseminated Histoplasmosis, and reactive arthritis [2, 4]. Secondary syphilis, also termed *the great mimicker* due to its vast array of clinical presentations, is associated with skin manifestations including rupioid, macular, papular, psoriasiform, or condylomatous lesions [4]. On clinical examination alone, it can be difficult to differentiate between rupioid syphilitic lesions and rupioid psoriasis, especially in cases of HIV and syphilis co-infection. Histologic examination can aid in differentiating between the two as rupioid lesions secondary to syphilis infection often show papillary and reticular dermal infiltration with monocytes, lymphocytes, and plasma cells; rupioid psoriasis, however, demonstrates parakeratotic scales with clusters of intracorneal neutrophils [5, 6]. Although a skin biopsy is the primary method to confirm the diagnosis of rupioid psoriasis, additional testing should be conducted to exclude other causes of rupioid lesions, including serum RPR, anti-HIV antibody, rheumatoid factor, and fungal cultures [2].

In the treatment of rupioid psoriasis, disease severity should be considered when choosing a treatment modality. For mild rupioid psoriasis, potent topical steroids are commonly used to promote rash clearance. In the setting of moderate to severe rupioid psoriasis, however, topical therapies often have limited success. In these instances, the use of oral or injectable systemic agents such as apremilast, cyclosporine, methotrexate, or ustekinumab is often required [2]. In our patient's case, his rupioid skin lesions were widespread and demonstrated limited response to treatment with topical triamcinolone ointment while awaiting insurance clearance for apremilast treatment. Following completion of a starter pack of apremilast, the patient self-reported improvement after one month of treatment; however, the degree of improvement was unable to be appreciated clinically as the patient experienced difficulties with follow-up. After receiving additional insurance clearance, the patient was restarted on a second starter pack of apremilast with scheduled follow-up visits to monitor for clinical improvement and modify his treatment regimen as needed.

CONCLUSION

This report examines a case of HIV and syphilis co-infection with rupioid skin lesions that were initially suspected to be caused by secondary syphilis; however, the lack of improvement with doxycycline prompted further evaluation via biopsy and confirmation of his penicillin allergy. The patient's biopsy findings were consistent

with a diagnosis of rupioid psoriasis, and the patient was found to be no longer allergic to penicillin. The patient was treated with penicillin G to eradicate his syphilis infection and was started on targeted anti-psoriatic therapy with apremilast. He is currently following up with his dermatologist every three months to monitor for improvement in the lesions. This case highlights the importance of distinguishing the underlying etiology of rupioid lesions, especially among patients who may present with multiple potential causes.

REFERENCES

1. Armstrong AW, Read C. Pathophysiology, clinical presentation, and treatment of psoriasis: A review. *JAMA* 2020;323(19):1945–60.
2. Ip KHK, Cheng HS, Oliver FG. Rupoid psoriasis. *JAMA Dermatol* 2021;157(7):859.
3. Steele CE, Anderson M, Miedema J, Culton D. Rupoid psoriasis and psoriatic arthritis in a patient with skin of color. *Cutis* 2020;106(1):E2–4.
4. Yu T, Che J, Song J, Duan X, Yang J. Annular rupoid secondary syphilis confined to the face. *Int J Infect Dis* 2022;122:644–6.
5. Krase IZ, Cavanaugh K, Curiel-Lewandrowski C. A case of rupoid syphilis. *JAAD Case Rep* 2016;2(2):141–3.
6. Mihiu C, Neag MA, Boçsan IC, et al. Novel concepts in psoriasis: Histopathology and markers related to modern treatment approaches. *Rom J Morphol Embryol* 2021;62(4):897–906.

Author Contributions

Caroline Ward – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sairekha Ravichandran – Conception of the work, Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be

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Wei-Shen Chen – Conception of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sharon Albers – Conception of the work, Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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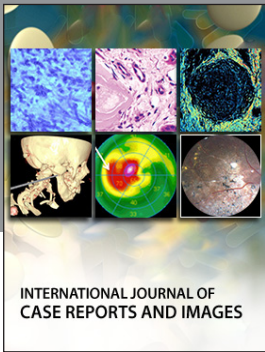
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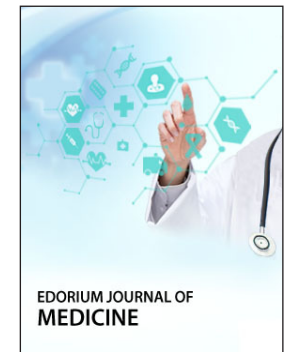
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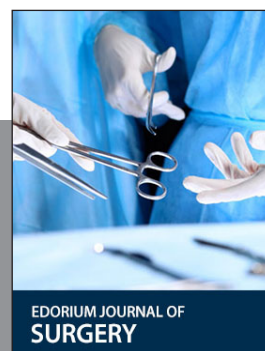
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