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Annular and arcuate syphilis: an uncommon presentation of disseminated secondary syphilis

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Abstract

Physicians should be aware of unusual presentations of syphilis. For dermatologists, the visual recognition of lesional morphology and distribution is a fundamental part of clinical evaluation, which dictates the workup and diagnosis. Secondary syphilis has a variety of presentations, the most common being a diffuse symmetrical papulosquamous eruption. It continues to be a diagnostic challenge as the myriad manifestations of secondary syphilis can mimic many dermatological disorders. Herein we report a case of secondary syphilis with an uncommon presentation characterized by disseminated annular and arcuate lesions.

Keywords: syphilis, cutaneous syphilis, annular syphilis, secondary syphilis, sexually transmitted diseases

Introduction

Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*. It is a chronic systemic infection with a natural history of clinical polymorphism and possible involvement of several organs.

Secondary syphilis usually occurs 4 to 10 weeks after the onset of the primary phase (ulcer). It is characterized by a broad spectrum of clinical features involving the skin, as well as systemic signs such as malaise, fever and lymphadenopathy. There are reports of macular, papular, annular, lichenoid, psoriasiform, and corymbose clinical presentations, sometimes mimicking other dermatological conditions. Hence, it is also known as "the great imitator" [1].

The term corymbose syphilis is derived from the Greek *word kórymbos*, meaning cluster of fruit or flowers. It reflects a morphology consisting of a central plaque or large papule surrounded by discrete papules along the periphery [2-5].

Case Synopsis

A 38-year-old man developed pruritic skin lesions on the cervical region over a 3-month period. Over the following weeks, the eruption gradually progressed to involve the popliteal, axillary, and eyelids regions. There was no history of fever, malaise, headache, or arthralgia. The patient was otherwise healthy. He denied any known medical condition and did not take any medications. Upon physical examination, his private practitioner had noted multiple annular erythematous lesions localized to the cervical, axillary, popliteal, and inguinal regions. Skin biopsy of the inguinal plaque showed acanthosis, mild spongiosis, lymphoplasmacytic infiltrate in the upper and mid-dermis, mainly localized around blood vessels, and a granulomatous infiltrate with multinucleated cells at focal sites (**Figure 1**). Without establishing a definitive diagnosis, systemic glucocorticoid (prednisone 20 mg daily) was prescribed for 2 weeks without any improvement.

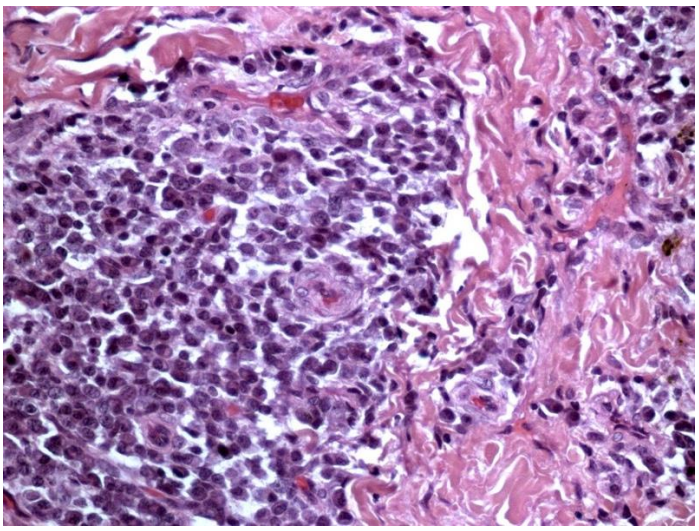

Figure 1. *A dense, lymphocytic, and plasma cell infiltrate in the dermis. H&E, 20×.*

The patient was then referred to us one month after onset.

Cutaneous examination showed extensive infiltrated erythematous plaques over the cervical, axillary, popliteal, and inguinal regions. The lesions were arranged in symmetrical, annular and arcuate configurations of variable diameter (1-4cm) with raised scaly borders (**Figure 2**). These infiltrated plaques were well delineated and appeared to enlarge progressively leaving behind a central residual area of post-inflammatory hyperpigmentation.

A larger erythematous annular plaque surrounded by papules along the periphery was noticed in the inguinal area (**Figure 2**E). In the eyelid region there were infiltrated erythematous papules. Apart from the presence of several moderately enlarged inguinal lymph nodes, the rest of the systemic examination was normal. In this clinical context, granuloma annulare, cutaneous sarcoidosis, deep dermatophytosis, and syphilis were considered in the differential diagnosis.

Rapid tests for hepatitis B, hepatitis C, and HIV were negative. The VDRL test was positive with a titer of 1:1024 and the rapid treponemal test for syphilis was also positive. Therapy with penicillin G 2.4 million IU was initiated, followed by full recovery and resolution of the cutaneous eruption.

Case Discussion

Syphilis is a universal disease, which reaches all social classes and presents a myriad of clinical manifestations, and is therefore known as the great imitator [1].

Over the last few years, there has been a resurgence of the disease in Brazil and it is credited to several factors: earlier sexual activity, reduced use of barrier methods, and false confidence because of the efficacy of antibiotics against sexually transmitted diseases [6].

During the secondary stage of syphilis, the most commonly observed clinical presentation (80%) is a generalized, papulosquamous eruption. The lesions are frequently distributed symmetrically on the face, trunk, flexures of the arms and lower legs, genital area, palms and soles [5, 7]. Lesions of secondary syphilis, called syphilids, are usually considered to be non-pruritic [4, 5, 7]. However, as in the present case, Chapel reported that 42% of patients with secondary syphilis experienced pruritus [8].

The 'great imitator' presents a particular dilemma when the expected and characteristic papulosquamous eruption is not evident and, therefore, does not trigger an appropriate serologic workup. Previous studies have reported that up to 29.6% of the cutaneous manifestations of syphilis may demonstrate atypical morphology [9]. Given the breadth of the clinical spectrum and the varied manifestations of secondary syphilis, which include nodular, annular, follicular, lues maligna, pustular, corymbose, and others, syphilis should be kept in the differential diagnosis in appropriate clinical settings even if a significant deviation from the expected cutaneous presentation occurs [7, 9, 10].

Annular syphilis is characterized by oval or round ring-like papules and plaques with a predilection for the face, ano-genital area, body folds, palms, and soles. The eruption is often misdiagnosed as sarcoidosis, granuloma annulare, erythema annulare

centrifugum, subacute lupus erythematosus or dermatophytosis [7, 11, 12]. In annular lesions the rings may be complete or part of the rings may be missing. They may occasionally form polycyclic or gyrate patterns, but concentric lesions are rare [3, 12]. Both the distribution and morphology of lesions vary across reports. Extensive symmetric, erythematous, verrucous, annular, and arcuate plaques affecting the scalp, lower trunk, perioral, perianal, and genital regions have been described, some lasted for 6 months [13]. Annular lesions may range from delicate, slightly raised lesions with scaly borders to thicker verrucous plaques, which may be violaceous in color [13-15]. With scalp involvement, alopecia may also develop [14]. In addition, multiple concentric, delicate, mildly scaly annular plaques on the cheeks, mimicking tinea imbricata, have been reported in the literature [12].

The term corymbose syphilis reflects a morphology consisting of a central plaque or large papule surrounded by discrete papules along the periphery [2-5], similar to the lesions present on the left thigh of our patient. A rare case of such an arrangement has been reported in a patient with a solitary lesion [2].

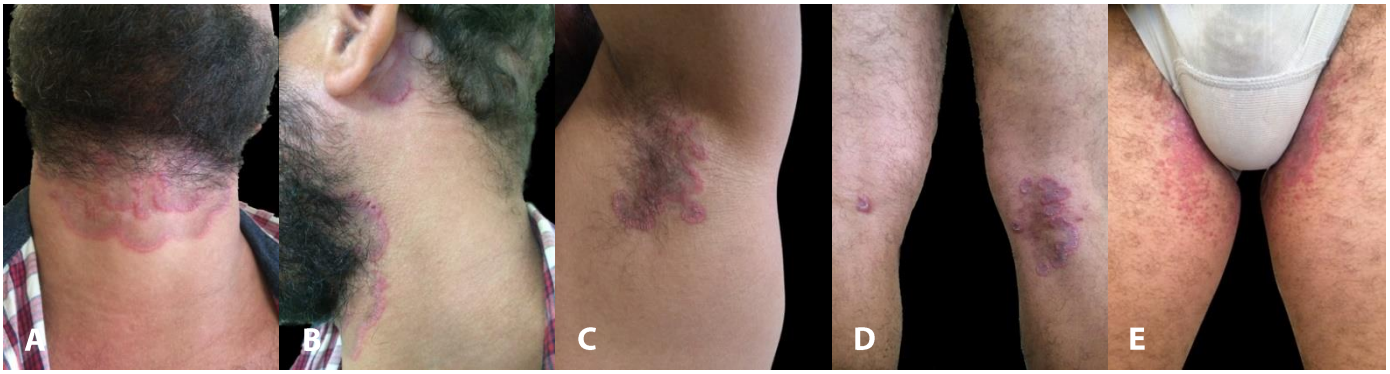

Figure 2. ***A)*** *Erythematous arcuate lesions over the anterior cervical region, as a result of incomplete formation of an annular lesion.* ***B)*** *Erythematous arcuate lesions over the lateral cervical region.* ***C)*** *Erythematous annular and arcuate lesions with raised scaly borders over the axillary region.* ***D)*** *Erythematous annular and arcuate lesions with raised scaly borders overthe popliteal region.* ***E)*** *Inguinal region - erythematous plaque, annular lesion and erythematous satellite papules ("corymbose lesion").*

Benzathine penicillin G has been used effectively to achieve clinical resolution and to prevent late sequelae. In Brazil, the regimen recommended for adults in the secondary phase is 2.4 million units given intramuscularly in a single dose, as in the case reported. In addition, all patients diagnosed with primary and secondary syphilis should be tested for HIV infection and public health department reporting of the condition is mandatory [6].

Conclusion

This case illustrates an exuberant and unusual clinical form of secondary syphilis and reinforces the importance of including this disease in the differential diagnosis of lesions that present as annular and arcuate plaques. We believe that general practitioners, infectious diseases specialists, and dermatologists should be familiar with the varied presentations of syphilis, especially in view of its prevalence and recent recrudescence. A thorough clinical examination and careful serological and histological evaluation aids in reaching the diagnosis.

References

1. Rolfs RT, Cates W, Jr. The perpetual lessons of syphilis. *Arch Dermatol.* 1989,125(1):107-9. [PMID: 2910199].

2. Kennedy CT, Sanderson KV. Corymbose secondary syphilis: occurrence as a solitary group of lesions. *Arch Dermatol.* 1980,116(1):111-2. [PMID: 7352757].

3. Sanchez MR. Sexually transmitted diseases. In: K Wolff LG, S Katz, B Gilchrest, AS Paller, D Leffell, editors. Fitzpatrick's Dermatology in General Medicine. New York: McGraw-Hill, 2008. p. 1955-77.
4. George R. Kinghorn RO. Syphilis and Congenital Syphilis. In: Christopher Griffiths JB, Tanya Bleiker, Robert Chalmers, Daniel Creamer, editors. Rook's Textbook of Dermatology. London: Wiley-Blackwell, 2016. p. 29.10 - 29.13.
5. Georg Stary AS. Sexually Transmitted Infections. In: Jean L Bolognia JVS, Lorenzo Cerroni, editors. Dermatology. Philadelphia: Elsevier, 2018. p. 1451-4.
6. Penna GO, Domingues CM, Siqueira Jr JB, Elkhoury AN, Cechinel MP, Grossi MA, Gomes Mde L, Sena JM, Pereira GF, Lima Junior FE, Segatto TC, Melo FC, Rosa FM, Silva MM, Nicolau RA. Dermatological diseases of compulsory notification in Brazil. *Anais brasileiros de dermatologia.* 2011,86(5):865-77. [PMID: 22147024].
7. Balagula Y, Mattei PL, Wisco OJ, Erdag G, Chien AL. The great imitator revisited: the spectrum of atypical cutaneous manifestations of secondary syphilis. *Int J Dermatol.* 2014,53(12):1434-41. [PMID: 25312512].
8. Chapel TA. The signs and symptoms of secondary syphilis. *Sexually transmitted diseases.* 1980,7(4):161-4. [PMID: 7455863].
9. Hira SK, Patel JS, Bhat SG, Chilikima K, Mooney N. Clinical manifestations of secondary syphilis. *Int J Dermatol.* 1987,26(2):103-7. [PMID: 3570579].
10. Dave S, Gopinath DV, Thappa DM. Nodular secondary syphilis. *Dermatol Online J.* 2003,9(1):9. [PMID: 12639467].
11. Sarojini PA, Dharmaratnam AD, Pavithran K, Gangadharan C. Concentric rings simulating tinea imbricata in secondary syphilis. A case report. *Br J Vener Dis.* 1980,56(5):302-3. [PMID: 7427701].
12. Cotterman C, Eckert L, Ackerman L. Syphilis mimicking tinea imbricata and erythema annulare centrifugum in an immunocompromised patient. *J Am Acad Dermatol.* 2009,61(1):165-7. [PMID: 19539866].
13. Pournaras CC, Masouye I, Piletta P, Piguet V, Saurat JH, French LE. Extensive annular verrucous late secondary syphilis. *Br J Dermatol.* 2005,152(6):1343-5. [PMID: 15949006].
14. Carlson-Sweet KL, Wyatt EL, Sutter SH. Multiple annular plaques on the face of a middle-aged woman. Diagnosis: secondary syphilis. *Arch Dermatol.* 2000,136(7):925-30. [PMID: 10890999].
15. Masson F, Masouye I, Prins C, Borradori L. Annular verrucous late secondary syphilis. *Eur J Dermatol.* 2008,18(5):597-8. [PMID: 18779112].