

## **Erythematous lesions with Woronoff's ring like perilesional hypopigmented halo in a case of leprosy**

**Lesões eritematosas com borda hipopigmentada perilesional tipo anel de Woronoff em um caso de hanseníase**

**Lesiones eritematosas con borde perilesional hipopigmentado tipo anillo de Woronoff en un caso de lepra**

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## **ABSTRACT**

**Introduction:** leprosy, a chronic infectious mycobacterial disease caused by *M. leprae*, presents with a broad spectrum of skin lesions depending upon the type of leprosy. Woronoff's ring, a hypopigmented halo, is classically observed around resolving psoriatic lesions and is also seen in association with various skin tumors. However, such a phenomenon is rarely reported in leprosy. **Objective:** to describe an atypical case of borderline lepromatous leprosy presenting with Woronoff's ring-like perilesional hypopigmented halo. **Case description:** the report describes a case of borderline lepromatous leprosy with multiple erythematous lesions over the face, each surrounded by a ring of hypopigmentation. Slit skin smear was positive for acid-fast bacilli, and skin biopsy taken from the facial

macular lesion was consistent with the diagnosis. The patient was put on WHO-recommended multibacillary multidrug therapy. **Discussion:** perilesional hypopigmentation, typically associated with psoriatic lesions and certain skin tumors, has rarely been reported in leprosy. The present case was unique due to erythematous lesions with a perilesional hypopigmented halo over the face. Such unusual presentation can lead to a diagnostic dilemma and delay in diagnosis and treatment. Previous literature reports similar findings in isolated cases, suggesting defective melanin transfer or nerve damage as possible causes. **Final consideration:** leprosy can present with atypical manifestations that often pose a diagnostic dilemma. This case emphasizes the importance of comprehensive clinical and cutaneous examination and maintaining a high index of suspicion for leprosy in patients with unusual skin lesions. Timely diagnosis and treatment are crucial to break the chain of transmission in the community.

**Keywords:** *Leprosy. Woronoff's Ring. Hypopigmented Halo. Mycobacterium leprae.*

## RESUMO

**Introdução:** a hanseníase, doença micobacteriana infecciosa crônica causada pelo *M. leprae*, apresenta um amplo espectro de lesões cutâneas, a depender da forma clínica da doença. O anel de Woronoff consiste em halo hipopigmentado, classicamente observado em torno de lesões psoriáticas em resolução e também associado a vários tumores cutâneos. No entanto, tal fenômeno é raramente observado na hanseníase. **Objetivo:** descrever um caso atípico de hanseníase dimorfo-virchowiano limítrofe que apresentou halo hipopigmentado perilesional em forma de anel de Woronoff. **Descrição do caso:** o relato descreve um caso de hanseníase dimorfo-virchowiano com múltiplas lesões eritematosas na face, contornada por um anel hipopigmentado. A baciloscopia foi positiva para bacilos álcool-ácido resistentes e a biópsia de pele da lesão macular da face foi compatível com o diagnóstico. O doente foi tratado com poliquimioterapia multibacilar conforme recomendado pela OMS. **Discussão:** a hipopigmentação perilesional, tipicamente associada a lesões psoriáticas e a certos tumores cutâneos, foi raramente relatada na hanseníase. O referido caso é único devido à presença de lesões eritematosas com halo hipopigmentado perilesional sobre a face. Essa apresentação incomum pode causar dúvidas e assim, atrasar o diagnóstico e o tratamento. Relatos anteriores na literatura mostraram casos isolados, e sugeriram a transferência defeituosa de melanina ou lesão nervosa como possíveis causas. **Consideração final:** a hanseníase

pode apresentar manifestações atípicas que muitas vezes representam um dilema no diagnóstico. O presente caso enfatiza a importância de um exame clínico e cutâneo abrangente e de sempre considerar a suspeita de hanseníase em pacientes com lesões cutâneas incomuns. O diagnóstico e o tratamento precoce são cruciais para quebrar a cadeia de transmissão na comunidade.

**Palavras-chave:** *Hanseníase. Anel de Woronoff. Halo Hipopigmentado. Mycobacterium leprae.*

## RESUMEN

**Introducción:** la lepra, enfermedad micobacteriana infecciosa crónica causada por *M. leprae*, presenta un amplio espectro de lesiones cutáneas, dependiendo de la forma clínica de la enfermedad. El anillo de Woronoff consiste en un halo hipopigmentado, clásicamente observado alrededor de lesiones psoriásicas en resolución y también asociado a diversos tumores cutáneos. Sin embargo, este fenómeno se observa raramente en la lepra. **Objetivo:** describir un caso atípico de lepra dimorfa-virchowiana limítrofe que se presentó con un halo hipopigmentado perilesional en forma de anillo de Woronoff. **Descripción del caso:** se describe un caso de lepra dimorfa-virchowiana con múltiples lesiones eritematosas en la cara, contorneadas por un anillo hipopigmentado. El examen de bacilos ácido-alcohol resistentes fue positivo y la biopsia cutánea de la lesión macular de la cara fue compatible con el diagnóstico. El paciente fue tratado con terapia multimedicamentosa multibacilar según las recomendaciones de la OMS. **Discusión:** la hipopigmentación perilesional, típicamente asociada a lesiones psoriásicas y a ciertos tumores cutáneos, ha sido raramente descrita en la lepra. Este caso es único debido a la presencia de lesiones eritematosas con un halo hipopigmentado perilesional en la cara. Esta presentación inusual puede suscitar dudas y retrasar así el diagnóstico y el tratamiento. Los informes anteriores en la literatura han mostrado casos aislados, y han sugerido como posibles causas la transferencia defectuosa de melanina o el daño nervioso. **Consideración final:** la lepra puede presentar manifestaciones atípicas que a menudo plantean un dilema en el diagnóstico. Este caso subraya la importancia de un examen clínico y cutáneo completo y de considerar siempre la sospecha de lepra en pacientes con lesiones cutáneas inusuales. El diagnóstico y el tratamiento precoces son cruciales para romper la cadena de transmisión en la comunidad.

**Palabras clave:** *Lepra. Anillo de Woronoff. Halo Hipopigmentado. Mycobacterium leprae.*

## INTRODUCTION

Leprosy or Hansen's disease presents with a wide range of skin lesions depending on the spectrum of the disease that the patient falls under<sup>1</sup>. At the tuberculoid pole (tuberculoid and borderline-tuberculoid), skin lesions are usually hypopigmented, hypoaesthetic, bigger in size and lesser in number, whereas at the lepromatous pole (borderline-lepromatous and lepromatous), skin lesions tend to be erythematous, infiltrated, smaller in size and more in number. In mid-borderline leprosy, large-sized geographic plaques with inverted saucer morphology is usually seen<sup>2</sup>. However, leprosy can be a great imitator, with unusual presentations that lead to diagnostic dilemmas. Sensory testing and nerve examination in such cases can aid in diagnosis<sup>3</sup>. Perilesional hypopigmentation classically described in association with psoriatic lesions<sup>4</sup> and some skin tumors<sup>5-7</sup> has rarely been reported in leprosy<sup>8</sup>.

## CASE PRESENTATION

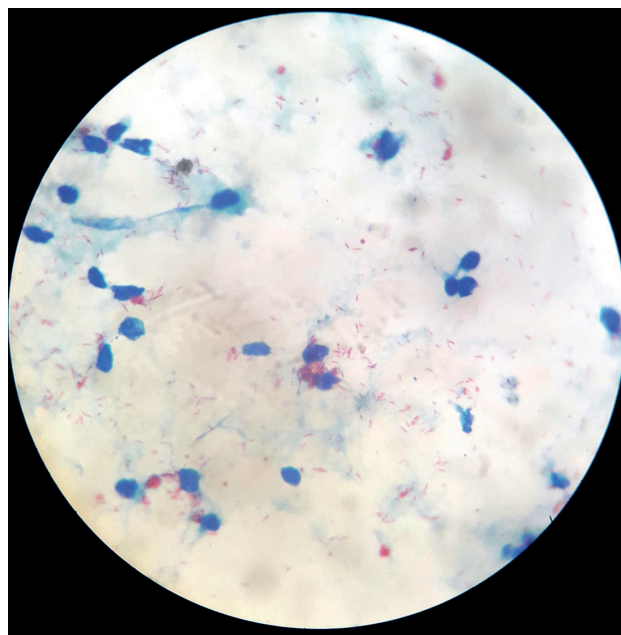
A 60-year-old female presented to the leprosy clinic with chief complains of skin lesions over face and decreased sensations over hands and feet since 6 months. General physical examination was within normal limits. Cutaneous examination revealed skin-colored to hypopigmented plaques of variable sizes associated with xerosis and partial loss of temperature and pain sensations over the upper limbs and trunk. The patient was unaware of these lesions. Multiple erythematous lesions were noted over the face. A hypopigmented halo was seen around most of the facial macular lesions, but sensations were intact (Figure 1). The patient denied applying any topical preparation. Bilateral ulnar, right radial and lateral popliteal nerves were found to be enlarged and non-tender. There was a partial loss of temperature and pain sensations over the bilateral hands and right foot. Motor examination was within normal limits. A provisional diagnosis of borderline-lepromatous (BL) leprosy was made. A slit skin smear was positive for acid-fast bacilli, and a skin biopsy taken from the facial macular lesion was consistent with a diagnosis of BL leprosy (Figure 2). Patient was started on WHO multibacillary multidrug therapy (MB-MDT) comprising of monthly supervised doses of rifampicin 600 mg and clofazimine 300 mg and daily administered dapsone 100 mg and clofazimine 50 mg but was lost to follow up.

**Figure 1** – Multiple erythematous macules with a perilesional hypopigmented halo over the face.



Source: Created by the author.

**Figure 2** – Slit skin smear showing lepra bacilli.



Source: Created by the author.

## DISCUSSION

The typical color of skin lesions in Hansen's disease is often described as hypopigmented, coppery, or erythematous<sup>2</sup>. Perilesional hypopigmentation in Hansen's disease has rarely been reported. The classic example of perilesional hypopigmentation is called the Woronoff's ring described in psoriasis<sup>4</sup>. When seen in association with skin tumors, it is called halo phenomenon<sup>5</sup>. The occurrence of a similar perilesional hypopigmentation in leprosy is a rare phenomenon with only anecdotal reports<sup>8</sup>. The proposed hypotheses for the occurrence of hypopigmentation seen in classical lesions of leprosy include defective transfer of melanin from melanocytes to keratinocytes<sup>9</sup>, melanocyte destruction and inhibition due to bacillary multiplication, infiltration and nerve damage<sup>10</sup>, and the release of neurochemical mediators due to nerve damage<sup>11,12</sup>. The only case of perilesional hypopigmentation in leprosy has been reported by Abideen et al<sup>8</sup>. Their case presented two different lesion morphologies. Hypopigmented macules were seen over the upper limb and trunk, and hyperpigmented macules with a halo of perilesional hypopigmented over the lower limbs. Based on histopathological and immunohistochemistry (IHC) findings, the cause of perilesional hypopigmentation was proposed to be defective melanin transfer to keratinocytes in their case<sup>8</sup>. We could not perform special stains or IHC in our case to evaluate the exact cause of perilesional hypopigmentation. Our case was unique due to the presence

of erythematous lesions with a perilesional hypopigmented halo over the face, which can lead to misdiagnosis in the absence of a high index of suspicion for leprosy. In our case, a meticulous cutaneous examination revealed classical hypopigmented, hypoaesthetic lesions, which the patient was unaware of and pointed to the diagnosis of leprosy.

## CONCLUSION

Leprosy can be easily diagnosed clinically based on classical skin lesions and characteristic nerve involvement. However, atypical presentations of leprosy continue to be reported. Lack of knowledge of such atypical presentations often leads to misdiagnosis and treatment. The result is a delay in the detection of leprosy cases and, hence, continued transmission of the disease in the community. A thorough physical and cutaneous examination and a high index of suspicion are therefore required in such cases for timely diagnosis and treatment.

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