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Mucosal Patch: The Only Manifestation of Secondary Syphilis a Diagnostic Challenge

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Abstract: ***Background*: Syphilis is a chronic sexually transmitted infection caused by Treponema pallidum and is known for its varied clinical presentations. Secondary syphilis frequently involves mucocutaneous lesions and may present with oral manifestations, posing a diagnostic challenge to oral physicians due to its ability to mimic other oral diseases. *Case Presentation*: We report a case of a 27-year-old male patient who presented with multiple oral mucosal lesions associated with mild discomfort. Clinical examination revealed mucosal patches involving the oral cavity, raising suspicion of an underlying systemic condition. Detailed history, serological investigations including non-treponemal and treponemal tests, and interdisciplinary evaluation confirmed the diagnosis of secondary syphilis. The patient was managed with appropriate antibiotic therapy, following which significant clinical resolution of oral lesions was observed. *Conclusion*: This case highlights the importance of considering secondary syphilis in the differential diagnosis of unexplained oral mucosal lesions, particularly in young adults. Early recognition of oral manifestations by oral medicine specialists can facilitate timely diagnosis, prevent disease progression, and reduce transmission. Increased awareness is essential due to the rising incidence of syphilis worldwide.***

Keywords: Secondary syphilis**,** Mucous patch**,** Treponema pallidum**,** sexually transmitted infection

1. Introduction

Syphilis is a chronic sexually transmitted infection caused by *Treponema pallidum*, characterised by a wide range of clinical manifestations that may involve the skin and mucous membranes, including the oral cavity [1]. The disease progresses through multiple stages, each associated with distinct clinical features, and early identification is essential to prevent systemic complications and transmission [2]. Oral manifestations may occur during different stages of infection and can play a significant role in early detection, particularly when patients initially seek dental care for unexplained mucosal lesions [3].

In recent years, an increase in the prevalence of syphilis has been reported, emphasizing its re-emergence as a significant public health concern and the need for heightened clinical awareness [4]. The oral lesions seen in secondary syphilis often present as mucous patches, shallow ulcers, and serpiginous erosions involving the lips, tongue, and palate, and are frequently referred to as part of the disease's "great imitator" nature due to their resemblance to other oral conditions [5]. However, presentations limited exclusively to the oral cavity without associated cutaneous manifestations are comparatively rare. In the present case, the lesions were confined only to the oral mucosa, with no skin involvement, making the clinical presentation unusual and diagnostically significant.

2. Case Report

A 27-year-old male patient reported to the Department of Oral Medicine and Radiology with a chief complaint of multiple lesions in the oral cavity associated with mild discomfort for the past three weeks. Upon detailed history, the patient revealed a history of recurrent oral ulcerations over the past six months, occurring intermittently, with the present episode being the second occurrence. The lesions initially appeared small and gradually increased in size and were associated with mild, dull, intermittent pain along with a burning sensation. The patient denied any history of trauma, severe pain, bleeding, exposure to allergens, blood transfusion, or recent medication use, and his medical history was non-contributory. There was no history of fever, weight loss, malaise, or loss of appetite.

On general physical examination, the patient was moderately built and nourished, with no obvious signs of systemic illness. Vital signs were recorded and found to be within normal limits. No pallor, icterus, cyanosis, clubbing, or edema was noted on general inspection.

Extraoral examination did not reveal any facial asymmetry, cutaneous rash, nodular lesions, pigmented patches or condylomatous growths. There were no Maculopapular rashover the palms or soles. Regional lymph nodes were non-palpable. No perioral crusting, fissuring, or alopecia was observed.

On Intraoral examination, multiple lesions were noted involving the upper labial mucosa, lateral border of the tongue, and soft palate. The upper labial mucosa on the right side showed multiple shallow ulcerative lesions covered with a greyish-white pseudomembrane and surrounded by an erythematous border, which were non-indurated and mildly tender on palpation. The lateral border of the tongue on the right side, particularly in the posterior region, exhibited multiple irregular erosive areas arranged in a serpiginous pattern with a characteristic snail-track appearance suggestive of mucous patches, along with

surrounding erythema. A large, extensive ill-defined mucosal lesion was present on the soft palate, extending posteriorly up to the uvula, with involvement of the entire soft palate crossing the midline with erythematous margin. All lesions were non-scrapable and showed no evidence of vesicle formation. Based on the multiplicity, distribution, and characteristic morphology of the lesions, including mucous patches, serpiginous erosions, and snail-track ulcers, a provisional diagnosis of secondary syphilis was considered.

Figure 1: (a) lesion on the right upper labial mucosa (b) on the right lateral border of tongue (c) lesion on the soft palate

Serological tests, including Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL), were recommended to evaluate for possible syphilitic infection. In addition, routine haematological investigations such as complete blood count (CBC) and erythrocyte sedimentation rate (ESR) were advised to assess the general health status and presence of any underlying inflammatory condition.

Routine blood investigations revealed a haemoglobin level of 15.6 g/dL, total leukocyte count of 8.59 $\times 10^3/\mu L$, with differential counts within normal limits, and a platelet count of 266 $\times 10^3/\mu L$. The erythrocyte sedimentation rate (ESR) was 4 mm/hr, which was within the normal range. Serological evaluation showed a reactive Rapid Plasma Reagin (RPR) test with a titre of 1:32, suggestive of active syphilitic infection, for which confirmatory treponemal testing was advised. Screening for Human Immunodeficiency Virus (HIV I and II) was performed as part of routine protocol for patients presenting with multiple oral mucosal lesions. provisional. These investigation findings, in conjunction with the characteristic clinical presentation, supported the consideration of a provisional diagnosis of secondary syphilis.

Following the investigations and clinical correlation, the patient was referred to the Department of General Medicine for further management. The patient was treated with intramuscular Benzathine Penicillin G, 2.4 million units, once weekly for 3 consecutive weeks. The patient was recalled after each weekly dose for clinical re-evaluation to assess response to therapy and progression of healing. Progressive reduction in the size and severity of the lesions was noted during each follow-up visit. After completion of the treatment regimen, the patient was recalled and re-evaluated in the Department of Oral Medicine and Radiology, where significant clinical improvement was observed.

On subsequent follow-up examinations, which have been ongoing for five months, a complete resolution of the oral lesions was noted. The lesion on the lateral border of the tongue showed complete healing with disappearance of the chancre-like and serpiginous areas, the extensive lesion over the soft palate, including the region extending to the uvula, demonstrated healthy mucosal regeneration, and the lesions on the upper labial mucosa had fully subsided without residual scarring. No recurrence of lesions has been observed during the follow-up period. The sustained healing and absence of new lesions over a five-month observation period indicate a strong and favorable therapeutic response to the antibiotic therapy, further supporting the clinical diagnosis and effectiveness of the treatment.

Figure 2: Complete resolution of the lesion (a) on the right upper labial mucosa, (b) on the right lateral border of the tongue, (c) on the soft palate

3. Discussion

Syphilis is a chronic sexually transmitted infection caused by *Treponema pallidum* with a wide spectrum of clinical manifestations, often referred to as the “great imitator” due to its ability to resemble various oral mucosal conditions. The disease progresses through primary, secondary, latent, and tertiary stages, each with distinct clinical features. In the primary stage, a solitary painless chancre may develop at the site of inoculation. It can occasionally be seen in the oral cavity, most commonly involving the lips, tongue, or palate. Secondary syphilis represents the disseminated stage and is

known to show the highest frequency of oral manifestations, presenting as mucous patches, serpiginous erosions, and characteristic snail- track ulcers, particularly affecting the tongue, lips, and palate. The latent stage is typically asymptomatic with no mucocutaneous involvement, whereas tertiary syphilis may present years later with destructive granulomatous lesions known as gummas, which can cause significant tissue destruction when present in the oral cavity [3,5].

Our case is unusual and clinically significant because the lesions were confined exclusively to the oral cavity without any associated cutaneous or systemic manifestations, which is relatively rare compared to most reported cases where oral lesions are accompanied by skin eruptions or generalized symptoms. The absence of cutaneous involvement makes this presentation distinct from many previously documented cases and highlights the importance of careful oral examination in detecting early signs of this sexually transmitted infection.

Notably, the present case demonstrated almost all classical clinical features of secondary syphilis within the oral cavity, including multiple mucous patches, serpiginous lesions, and characteristic snail-track ulcerations involving the lip, tongue, and palate. The predominance and multiplicity of oral manifestations further support the diagnosis of the secondary stage, which is recognized to show the highest oral involvement among all stages of the disease.

Such presentations emphasize the critical role of oral physicians in early recognition, diagnosis, and timely referral for appropriate management [3–5].

Similar findings have been reported in previous studies, where secondary syphilis frequently manifests as multiple superficial erosions covered with a greyish-white pseudomembrane and surrounded by erythema, often mimicking aphthous ulcers, candidiasis, or lichen planus, leading to misdiagnosis [3,7]. The lateral border of the tongue, lips, and palate are among the most commonly involved sites due to their susceptibility to minor trauma and direct inoculation. The recurrent nature of the lesions and their gradual progression in the present case further supported the suspicion of a systemic infectious etiology rather than a localised oral pathology.

The diagnosis of syphilis is established through a combination of clinical findings, detailed patient history including sexual exposure, and supportive serological investigations.

Recognition of characteristic signs and symptoms, particularly mucocutaneous lesions in the secondary stage, plays a crucial role in raising clinical suspicion, which is then substantiated by specific serologic tests such as non-treponemal and treponemal assays. Although histopathological examination may show features such as epithelial hyperplasia and plasma cell–rich inflammatory infiltrate, these findings are variable and not pathognomonic; therefore, histopathology alone is not sufficient to confirm the diagnosis. Definitive diagnosis relies primarily on clinico-serological correlation rather than histological appearance alone [3,5].

Serological investigations play a crucial role in the diagnosis and staging of syphilis. Non- treponemal tests such as the Rapid Plasma Reagin (RPR) and VDRL are commonly used as screening tools and are useful in assessing disease activity and treatment response. In this case, the RPR test showed a reactive titre of 1:32, indicating an active infection. Previous literature has emphasized that serological correlation is essential in patients presenting with oral lesions suggestive of syphilis, especially when clinical features are atypical or mimic other oral conditions [2,6]. Treponemal tests are often recommended for confirmation, as they provide greater specificity. Routine investigations such as CBC and ESR help in assessing general systemic health and ruling out associated inflammatory conditions, while screening for HIV is important due to the known association between syphilis and increased risk of co-infection [3,10].

Additionally, a transient immunological reaction following antibiotic therapy, known as the Jarisch–Herxheimer reaction, may occur in some patients after initiation of penicillin therapy, characterized by fever, malaise, and worsening of lesions, although it was not observed in the present case.

Penicillin remains the gold standard treatment for all stages of syphilis, particularly Benzathine Penicillin G administered intramuscularly. The patient in the present case received 2.4 million units once weekly for three consecutive weeks, following which complete resolution of the lesions was observed. The lateral border of the tongue showed healing of the chancre-like lesion, and the mucosal patches on the palate and upper labial mucosa resolved significantly, indicating a favorable therapeutic response. Similar outcomes have been documented in previous case reports and series, where early diagnosis and timely antibiotic therapy resulted in rapid regression of oral lesions and prevention of disease progression [4,6,12]. This case reinforces the importance of recognizing characteristic clinical features, correlating them with serological findings, and adopting an interdisciplinary approach for prompt diagnosis and effective management of oral manifestations of syphilis.

4. Conclusion

This case highlights a rare presentation of secondary syphilis manifesting exclusively as oral lesions without associated cutaneous or genital involvement, emphasizing the importance of thorough clinical examination in the early identification of this sexually transmitted infection. Correlation with serological investigations supported the diagnosis, and prompt treatment with Benzathine Penicillin G resulted in complete resolution of lesions with no recurrence during follow-up.

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