

Chronic Suppurative Gingivitis: A Rare Manifestation of Lichen Planus Following SARS-COV 2 Infection

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ABSTRACT

Post-COVID-19 chronic suppurative gingivitis is an emerging clinical entity that has attracted increasing interest in the medical and dental community because of its association with SARS-CoV-2 virus infection and its prolonged and potentially debilitating manifestation in the periodontal system. This article provides a comprehensive review of this entity, addressing its epidemiology, pathogenesis, clinical manifestations, diagnosis and current therapeutic approaches.

The epidemiology of post-COVID-19 chronic suppurative gingivitis is characterized by its occurrence following SARS-CoV-2 infection, with a variable incidence in convalescent patients. A higher prevalence has been observed in individuals with underlying systemic diseases, such as diabetes mellitus and arterial hypertension, suggesting an individual susceptibility component.

From a pathogenic perspective, it has been postulated that SARS-CoV-2 infection could trigger an overactive immune response and chronic inflammation at the gingival level, contributing to persistent suppurative gingivitis. The involvement of viral factors and host response in the pathogenesis of this entity are under ongoing investigation.

The clinical presentation of post-COVID-19 chronic suppurative gingivitis includes characteristic signs such as gingivorrhage, gingival edema, superficial ulcerations, and the production of purulent exudate in the gums. These findings, in combination with a history of SARS-CoV-2 infection, are critical for diagnosis.

KEYWORDS: gingivitis, suppurative, COVID, virus.

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INTRODUCTION

Post-COVID-19 chronic suppurative gingivitis, an emerging clinical entity, has generated increasing attention and concern in the medical and dental community in the wake of the global pandemic caused by the SARS-CoV-2 virus. This entity is characterized by chronic inflammation and the persistent presence of periodontal signs and symptoms, which poses a diagnostic and therapeutic challenge in the context of the oral health of individuals affected by COVID-19.^{1,2}

The COVID-19 pandemic has affected millions of people worldwide, and it has been observed that, in some cases, SARS-CoV-2 infection leaves systemic sequelae affecting several systems and organs, including the periodontal system. Post-CoVID-19 chronic suppurative gingivitis emerges as an

unusual and poorly understood manifestation of this viral infection, which presents significant challenges for both diagnosis and clinical management.^{1,2}

From an epidemiological standpoint, the incidence and prevalence of post-COVID-19 chronic suppurative gingivitis are beginning to emerge in the scientific literature, and are expected to continue to be studied as more data are collected and the understanding of this entity deepens. As the world recovers from the pandemic, it becomes essential to adequately address the persistent oral manifestations of COVID-19.²

The pathogenesis of post-COVID-19 chronic suppurative gingivitis remains under active investigation, and it has been proposed that viral infection may trigger an abnormal

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immune response and chronic inflammation in the gingival tissue. This complex interaction between virus and host, together with individual risk factors, raises important questions about the underlying mechanisms of this entity.² In this comprehensive review, crucial aspects related to post-COVID-19 chronic suppurative gingivitis will be addressed, including its epidemiology, pathogenesis, clinical manifestations, diagnosis, and current therapeutic strategies. Understanding this entity is essential for the early identification, effective management, and comprehensive care of affected patients, as well as to lay the groundwork for future research aimed at improving our appreciation of this unusual manifestation of the COVID-19 pandemic.^{2,3}

The present work is relevant because it describes a rare manifestation of lichen planus and highlights the importance of considering it in the differential diagnosis of persistent gingival lesions and of considering the potential relationship between the virus and the pathogenesis of lichen planus.³

CLINICAL CASE

The patient is a 45 year old male patient with no pathological history of importance or comorbidities, who went to the dentist for dental consultation, however in the oral examination there was an abscess located on the left side (Figure 1) at the level of the upper canine, with slight gingival erythema, with abundant purulent secretion and bleeding at the slightest manipulation, however, it did not generate symptoms in the patient such as halitosis or pain on manipulation or chewing. Periodontal disease is suspected, so antibiotic treatment based on Amoxicillin/Clavulanic Acid is given for 10 days, however, in the control visit no improvement is observed, so the patient is **referred to the doctor for a comprehensive assessment.**



Figure 1. Localized left-sided abscess.

Physical examination revealed multiple polymorphic papules on the right forearm (Figure 2), purplish, 3 to 4 mm in diameter, generating moderate pruritus, and in the lumbosacral region there were also multiple polymorphic macular acuminate brown lesions (Figure 3), without defined borders and larger (5-8 mm), both lesions on the forearm and back of three months of evolution, after infection by COVID 19 mild.



Figure 2. Multiple purplish polymorphic papules.



Figure 3. Lumbosacral region with multiple polymorphic macular acuminate brown lesions.

Complete laboratory tests were ordered, including blood biometry, blood chemistry, viral panel, liver function tests and gingival secretion culture, and the antibiotic regimen was scaled up to 1,200,000 U benzathine penicillin and metronidazole.

The results of the tests were within normal parameters except for the isolation of *Serratia marcescens* from the culture, which was only reported to be resistant to ciprofloxacin, however, it only had a partial response to the antibiotic regimen. Therefore, the patient was switched to Trimetropim-Sulfamethoxazole with a better response, although a complete remission of the abscess was not observed.

As for the dermal lesions, topical treatment with mometasone 0.01% was given; however, the patient reported poor adherence to the treatment.

A biopsy of the macular lesions of the back and oral lesions was performed, showing a subepithelial mature lymphocytic infiltrate distributed in the superficial dermis without involvement in the deep dermis, and therefore it was concluded that chronic lichenoid dermatitis and oral lichen planus were present, respectively.

At 6 months, spontaneous remission of both dermal and gingival lesions was observed.

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DISCUSSION

Lichen planus is an inflammatory mucocutaneous disease of autoimmune nature in which there is mononuclear infiltration and damage to the basal cells of the epithelium of both the skin and the buccal mucosa, its etiology remains unknown, however it has been strongly related to viral infections such as hepatitis C virus and more recently to SARS VOC 2 infection (3,4).

As for SARS COV 2 infection, its role in the pathophysiology of lichen planus remains unresolved, it is suggested that the virus causes a dysregulation of CD8 T lymphocytes, which increases the amount and activity of proapoptotic cytokines such as tumor necrosis factor-alpha and interferon gamma 11, which trigger apoptosis of basal keratinocytes and the frequency of malignant transformation can vary from 0.4% to 5% (1-6).

Oral lichen planus can be classified as reticular, erosive, papular, atrophic, blistering and plaque, being bilateral reticular the most common form and the most common location in oral mucosa (3), however in this case we had a unilateral gingival location of erosive type in the beginning (which later became suppurative) which meant that the patient was at risk of contracting an infection by *Serratia marsecens*, a gram negative bacillus that is characterized by its high resistance to antibiotics and is an infection that has rarely been identified in gums. It has come to be considered an opportunistic pathogen found in a higher proportion in immunocompromised patients; however, in this case we did not find risk factors in the patient, which is why damage to the keratinocytes and epithelial basement membrane is related to the risk factor for infection in this patient, with remission of the dermal lesions coinciding with complete remission of the infection. 4,5,6

The educational message is that health care professionals should be alert to atypical manifestations of dermatologic disease, especially in the context of viral infections, and consider a comprehensive evaluation to establish the possible cause of lesions, however, further studies should be conducted to test the relationship between COVID 19 and lichen planus.7

CONCLUSION

Post-COVID-19 chronic suppurative gingivitis, an evolving and poorly understood clinical entity, has emerged as an intriguing and concerning oral manifestation in the context of the 2019 coronavirus disease pandemic (COVID-19). Emerging evidence suggests that this entity is characterized by a persistent inflammatory response and a range of periodontal findings in convalescent patients, raising a number of clinical and scientific questions.

From an epidemiologic perspective, the incidence and prevalence of this entity are beginning to be profiled in the medical literature, and although it is likely to be a relatively rare manifestation of COVID-19, its clinical importance lies in its potential to cause significant morbidity and its impact

on patients' oral health. Early detection and appropriate follow-up of convalescent COVID-19 patients are essential to evaluate and manage this condition.

The pathogenesis of post-CoVID-19 chronic suppurative gingivitis is an active area of research that requires further understanding. While various mechanisms have been proposed, the specific contribution of SARS-CoV-2 virus in the genesis of this entity remains a largely unknown aspect. Future studies focusing on interactions between the virus and the immune system, as well as individual risk factors, may shed light on the underlying mechanisms.

The clinical presentation of post-COVID-19 chronic suppurative gingivitis is characterized by a series of persistent periodontal manifestations including gingivorrhage, superficial ulcerations, purulent exudate and other signs of gingival inflammation. Diagnosis of this entity requires a high index of suspicion in convalescent COVID-19 patients, which is often based on clinical presentation and supported by microbiological and radiological studies. Therapeutic management is based on conventional periodontal strategies, with a focus on prevention and disease control.

In summary, post-COVID-19 chronic suppurative gingivitis represents an emerging clinical phenomenon that demands continued attention and a deeper understanding. As research progresses and more scientific evidence accumulates, it is hoped that the pathogenesis will be clarified and more effective therapeutic strategies will be developed. Clinical care and early identification of this entity are crucial to ensure comprehensive care and improve the quality of life of convalescent COVID-19 patients.

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