

Association Between HIV Infection and Oral Papillary Tumors: A Case Report

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ABSTRACT

Introduction: Papillary oral squamous cell carcinoma (OSCC) is a relatively uncommon subtype of OSCC characterized by its exophytic growth pattern and distinct histological appearance. Human immunodeficiency virus (HIV) infection predisposes individuals to an increased risk of oral malignancies, including OSCC, due to the associated immunosuppression. The identification of papillary squamous cell carcinoma alongside incidentally discovered HIV infection highlights the necessity for comprehensive assessment in individuals presenting with oral malignancies, particularly those who are immunocompromised. The incidental detection of HIV infection underscores the imperative for rigorous diagnostic evaluation and the implementation of interdisciplinary management approaches tailored to the specific needs of the patient. Enhanced attention to both oncological and infectious disease aspects is essential for achieving optimal patient care and outcomes in such complex clinical contexts.

Case Presentation: A 48-year-old male patient presented with a progressively growing lesion in the left lower jaw and buccal region over the past three months. Remarkably, during examination, incidental findings revealed the presence of HIV infection. Based on the histopathological analysis and correlation with clinical data, the final diagnosis of papillary squamous cell carcinoma was confirmed.

Management and Prognosis: Following the incisional biopsy findings, a recommendation for wide surgical excision was made after advanced imaging studies. Additionally, HIV testing, including antigen-antibody titres values, was advised as part of the patient's comprehensive management plan.

Clinical Implications: This case underscores the need to consider oral malignancies, such as papillary oral squamous cell carcinoma (OSCC), in HIV-positive individuals due to immunosuppression. Incidental discovery of OSCC in an HIV-positive patient highlights the importance of comprehensive evaluation and tailored management strategies, emphasizing interdisciplinary collaboration for optimal patient care. Regular screening for oral malignancies should be integrated into routine healthcare management for HIV-positive individuals.

Keywords: papillary, squamous cell carcinoma, HIV, tobacco, incidental findings

INTRODUCTION

Oral papillary tumors are growths or neoplasms characterized by finger-like projections or papillae within the oral cavity. Oral papillary tumors can exhibit diverse clinical behaviors, ranging from benign papillomas to aggressive carcinomas¹. While benign lesions typically have a slower growth rate and limited potential for invasion or metastasis, malignant variants may infiltrate surrounding tissues and metastasize to regional lymph nodes or distant organs. The clinical course and prognosis vary significantly depending on factors such as tumor size, histological grade, depth of invasion, and presence of metastasis².

These tumors can manifest in various forms, including papillomas, verrucous carcinomas, or certain types of squamous cell carcinomas. They often arise from the surface epithelium of the oral mucosa and may be associated with factors such as chronic irritation, viral infections (such as human papillomavirus or HPV), or genetic predisposition.

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Individuals living with HIV/AIDS are at a higher risk of developing oral squamous papillomas compared to the

general population. This increased prevalence is attributed to the immunosuppressive effects of HIV, which predispose individuals to various viral infections, including human papillomavirus (HPV) infections responsible for papilloma formation^{3,4}.

Papillary squamous cell carcinoma can occur in various sites including the oral cavity, oropharynx, larynx, nasal cavity, paranasal sinuses, skin, and genitalia. These tumors often exhibit papillary or verrucous growth patterns and require tailored management strategies based on their location and stage of development. Clinical presentation may vary depending on the specific type of tumor, but common features include the presence of elevated, exophytic lesions with a papillary or verrucous surface texture⁵. Diagnosis typically involves clinical examination, imaging studies, and biopsy for histopathological analysis to determine the exact nature and extent of the tumor. Treatment strategies for oral papillary tumors depend on various factors, including the tumor's size, location, histological subtype, and the patient's overall health. Options may include surgical excision, chemotherapy, radiation therapy, or a combination of these modalities. Additionally, addressing underlying risk factors, such as tobacco or alcohol use, may be essential for optimal management and prevention of recurrence. Regular follow-up examinations are often recommended to monitor for any signs of recurrence or progression.

We present a case study detailing the occurrence of papillary squamous cell carcinoma within the oral cavity of an individual diagnosed with HIV. This report underscores the significance of this malignancy in the context of HIV infection, shedding light on its clinical presentation, management challenges, and implications for patient care.

CASE PRESENTATION

A 48-year-old male patient presented with a progressive growth in the left lower jaw and buccal region over the past three months. The patient reported a habitual pattern of tobacco chewing, engaging in this practice three times daily for a duration of seven years. During these sessions, the patient habitually placed the tobacco within the cheek area, allowing it to remain for a period before spitting it out.

Intra-oral examination revealed a keratotic, exophytic, papillary growth measuring 4.5x3.5 cm, extending anteriorly from teeth 31 to 37 and posteriorly to the retromolar region. The lesion involved the attached gingiva, mucogingival junction, vestibule, vermilion border of the lip, and angle of the mouth. Palpation confirmed the findings, revealing a firm consistency with no evidence of bleeding or pus discharge. The patient occasionally experiences pain and a burning sensation in the affected area.

During the extraoral examination, cervical lymphadenopathy was noted. Intraoral examination revealed a prominent exophytic mass, measuring approximately 4cm by 5cm, with an erythematous to white appearance. The mass exhibited a distinctive cauliflower-like or papillary surface architecture, primarily affecting the left lower gingivobuccal sulcus region and extending towards the commissure of the

mouth (Figure 1 -A). Hematological examination revealed an elevated erythrocyte count ($6.21 \times 10^6/\mu\text{L}$), RDW-CV (15.5%) and blood glucose level (180mg/dl). There was a decreased total white blood cells ($4.32 \times 10^3/\mu\text{L}$) noted. An incisional biopsy was performed. The patient underwent a rapid HIV test using TRI-DOT, which returned a positive result. Subsequently, a rapid antigen/antibody test was conducted, confirming the presence of HIV infection. Both rapid tests indicated positive results for HIV, affirming the diagnosis.

Under local anesthesia, an incisional biopsy was conducted to obtain tissue samples for histopathological analysis. Histological examination of the tissue sections stained with Hematoxylin and Eosin reveals a proliferative papilliferous hyperkeratotic epithelium exhibiting dysplastic characteristics, including hyperchromatic nuclei, altered nuclear-cytoplasmic ratio, and individual cell keratinization. Surrounding this epithelium is a narrow connective tissue core, marked by dense infiltration of chronic inflammatory cells, primarily composed of lymphocytes (Figure1-B). Under general anesthesia, an excisional biopsy was performed and upon comprehensive evaluation of the histopathological findings and correlation with clinical data, a conclusive diagnosis of papillary squamous cell carcinoma was rendered (Figure 2 A and B).

DISCUSSION

Squamous cell carcinoma (SCC) stands out as the most prevalent and significant malignant neoplasm affecting the mucosal tissues of the head and neck, constituting over 90% of all malignancies in this region. Within the realm of general cancerous conditions, conventional oral SCC is frequently encountered. However, it is noteworthy that SCC manifests in various distinct variants, each exhibiting unique histomorphological features. This diversity presents an opportunity for nuanced diagnostic considerations, thereby facilitating precise management decisions tailored to the specific subtype of SCC^{1,6}.

Papillary oral squamous cell carcinoma (POSCC) presents clinically as raised, exophytic lesions characterized by finger-like projections or papillary growth patterns on the surface of the mucosa. These lesions often exhibit a cauliflower-like appearance and may vary in color, ranging from white to pink or red. The texture of the surface can be verrucous or rough, resembling a wart-like growth. Papillary OSCC lesions tend to occur in areas of chronic irritation or inflammation, such as the gingiva, palate, or tongue and may be associated with risk factors such as tobacco use, alcohol consumption, and human papillomavirus infection.

Typically, papillary squamous cell carcinoma (PSCC) is commonly associated with human papillomavirus (HPV) infections and only rarely linked to human immunodeficiency virus (HIV) infections. However, in our case, the association with HIV infection was an incidental finding, representing a unique and uncommon occurrence.

Papillary squamous cell carcinoma (PSCCA) predominantly affects the head and neck region, with varying frequencies across different anatomical sites. Studies have highlighted its prevalence, with the larynx being the most common site and generally associated with a favorable prognosis. Conversely,

the sinonasal tract tends to exhibit the poorest prognosis. Research by Russell et al. (2011)⁷ identified the larynx as the most frequently affected site, followed closely by the oral cavity, with the sinonasal tract and oropharynx less commonly affected. Subsequent investigations have provided further insights into specific sites within the oral cavity affected by PSCCA. Bao et al.⁸ found the gingiva to be the most common site, followed by the buccal mucosa, lateral tongue, and others. Similarly, Ishiyama et al. (1994)⁹ reported a distribution of PSCCA cases in the oral cavity, with the alveolar ridge being the most common site. A study involving 61 cases of papillary squamous cell carcinoma (PSCCA) of the gingiva highlighted a significant occurrence, accounting for 12% of overall gingival carcinoma cases. Although precise statistics regarding the proportion of PSCCA among all SCCA cases in the oral cavity are limited, the elevated incidence observed in this study

suggests a potential disproportionate prevalence of PSCCA on the gingiva compared to other oral cavity sites.

Various studies have examined the association between human papillomavirus (HPV) and papillary squamous cell carcinoma (PSCCA) in the head and neck region. Jo et al.¹⁰ discovered that approximately two-thirds of PSCCA cases in the upper aerodigestive tract exhibited reactivity to p16, an immunohistochemical marker indicative of HPV infection. Notably, HPV-associated PSCCA primarily arises in the oropharynx, particularly in the base of tongue and tonsillar areas, with less frequent occurrences in the sinonasal and laryngeal regions. Cobo et al., in their literature review, reported that 50% of evaluated PSCCA cases showed an association with HPV. However, our case is distinct, as it is associated with HIV infection and habits¹¹.

The histopathological characteristics of papillary squamous

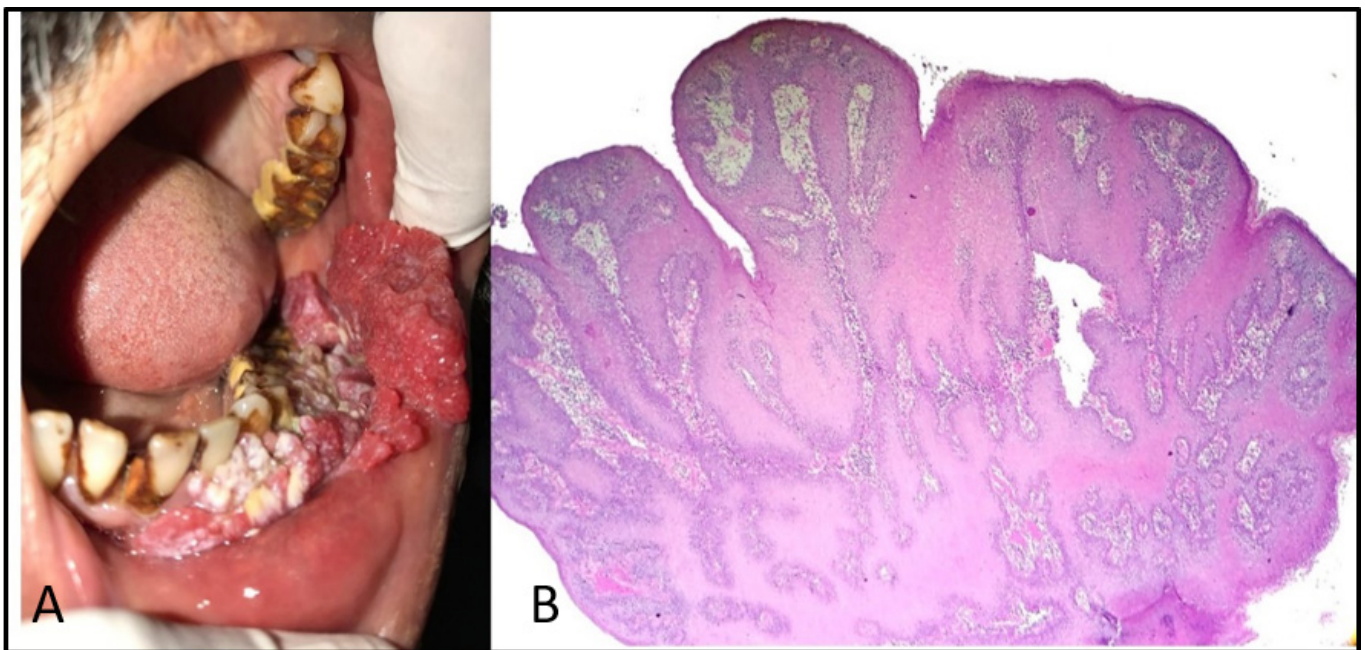


Fig.1: A. Clinical appearance B. Histopathology of Papillary oral squamous cell carcinoma

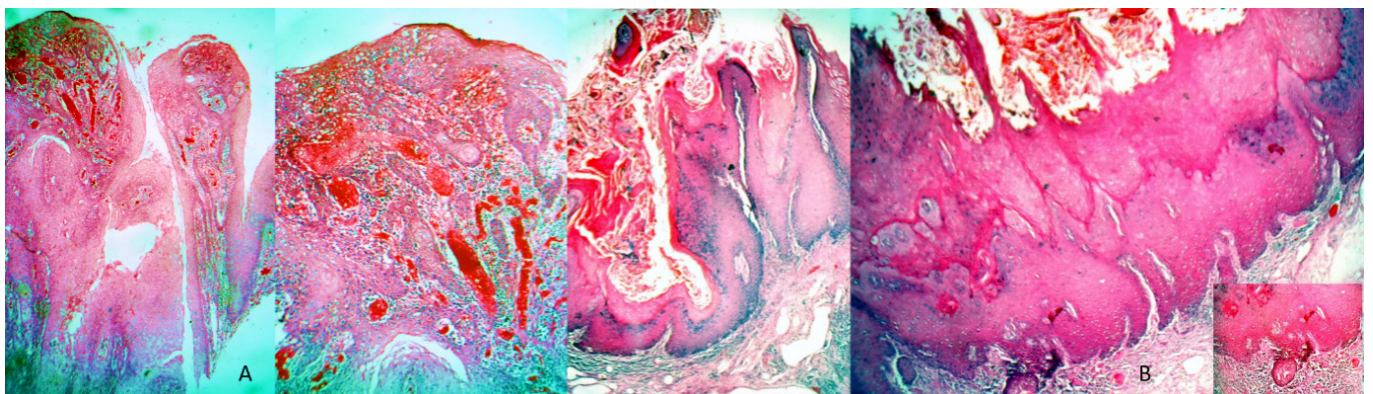


Fig.2: A and B: Histopathology of excisional biopsy showing papillary projections with dysplastic features

cell carcinoma (PSCC), as outlined by the WHO, typically entail a predominant papillary growth pattern centered around fibrovascular cores. While keratinization may be minimal in many instances, the presence of necrosis is not uncommon, and stromal invasion is a hallmark feature. In the presented case, the histological examination reveals a proliferating papilliferous hyperkeratotic epithelium displaying dysplastic features such as hyperchromatic nuclei, altered nuclear-cytoplasmic ratio, and individual cell keratinization. Surrounding this epithelium is a thin connective tissue core, characterized by a dense chronic inflammatory cell infiltrate, predominantly composed of lymphocytes. These observations align with the diagnostic criteria for PSCC, highlighting the complex interplay of cellular and stromal components in its pathological manifestation⁷.

The management of papillary squamous cell carcinoma (PSCC) is contingent upon the tumor's stage, necessitating a comprehensive approach. Given the wide extension of this lesion, imaging modalities such as computed tomography (CT) play a pivotal role in delineating its extent and aiding in staging. Following thorough staging analysis, treatment strategies can be tailored accordingly. Depending on the depth of invasion and involvement of adjacent structures, treatment may entail wide surgical excision to ensure adequate margins and local control. Additionally, neck dissection may be indicated to address regional lymph node involvement and reduce the risk of metastasis. Adjuvant therapy including radiation therapy, chemotherapy, or a combination thereof, may be recommended based on the identified risk factors to enhance treatment efficacy and overall outcomes. Moreover, reconstruction procedures may be warranted post-surgery to restore form and function, particularly in cases where significant tissue loss occurs¹⁰.

In the current case, upon determination of the depth of invasion and staging assessment, treatment modalities such as wide excision can be initiated to address the papillary squamous cell carcinoma. Additionally, given the incidental discovery of HIV infection, appropriate measures can be undertaken to manage and mitigate its impact on the patient's overall health. This comprehensive approach ensures a scientifically sound and tailored management plan aimed at addressing both the oncological and infectious disease aspects of the patient's condition.

CONCLUSION

In conclusion, this case of papillary squamous cell carcinoma associated with incidental HIV infection underscores the importance of comprehensive evaluation in patients presenting with oral malignancies, particularly in immunocompromised

individuals. The incidental discovery of HIV infection emphasizes the necessity for thorough diagnostic workup and interdisciplinary management strategies tailored to the unique needs of the patient. Heightened vigilance for both oncological and infectious disease aspects is imperative to ensure optimal patient care and outcomes in such complex clinical scenarios.

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