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Case Report

Chewing betel quid induced a critical metastatic squamous cell carcinoma of the lower lip: A case report[☆]

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ABSTRACT

Betel quid chewing is a common practice in many cultures and has been associated with various health risks, including an increased likelihood of developing squamous cell carcinoma (SCC). This case study presents a critical instance of metastatic SCC of the lower lip induced by betel quid chewing. A 45-year-old male with a history of betel quid chewing presented with a persistent and enlarging sore on his lower lip. A biopsy revealed SCC, and subsequent imaging confirmed metastasis to the lungs. This case highlights the potential for betel quid chewing to induce metastatic SCC and emphasizes the need for awareness and cessation of this habit to prevent such severe health outcomes. The aggressive nature of metastatic SCC warrants immediate and effective treatment strategies.

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Introduction

Squamous cell carcinoma (SCC) is a cancer that originates from the squamous cells, which are the flat cells that form the outer layer of the skin and the lining of certain organs like the respiratory and digestive tracts [1]. This type of cancer is prevalent, especially in parts of the body frequently exposed to sunlight, including the face, lips, and hands. SCC can also develop in areas not exposed to the sun, such as the genital and anal regions, and may occasionally form in scars or regions of chronic inflammation [2]. Factors that increase the risk of SCC include exposure to ultraviolet (UV) radiation from the sun or tanning beds, infection with certain strains of human papillomavirus (HPV), and a weakened immune system. Symptoms of SCC may include a sore or lesion that does not heal, a lump or growth that bleeds or fails to heal after an injury, and changes in the shape or color of a mole or birthmark. Timely detection and treatment are crucial for preventing SCC from spreading to other parts of the body [3].

SCC of the lower lip is a cancer that originates from the squamous cells that form the outer layer of the skin on the lower lip. It is a common form of oral cancer, particularly in areas of the body exposed to the sun, such as the face, lips, and hands [4,5]. SCC of the lower lip is often linked to exposure to ultraviolet (UV) radiation from the sun or tanning beds, and it is more prevalent in individuals who have had prolonged sun exposure, have certain types of human papillomavirus (HPV) infection, or have a compromised immune system [6,7]. Among these, the chewing of betel quid is a significant cultural practice in many regions, particularly in South Asia, Southeast Asia, and the Pacific Islands, and it has been

recognized as a major risk factor for oral cancers, including SCC of the lip [8].

Betel quid is a preparation made from the areca nut, which is wrapped in the leaf of the betel pepper plant, often with the addition of slaked lime and catechu. This concoction can also include tobacco. The World Health Organization has classified betel quid chewing as a Group 1 carcinogen, indicating that it is carcinogenic to humans. The carcinogenic effects are attributed to the presence of areca nut alkaloids, such as arecoline, which can induce DNA damage and chromosomal aberrations, leading to the initiation and promotion of cancer [9].

Case presentation

A 45-year-old male patient presented with a persistent lesion on his lower lip, which had been increasing in size over time (Fig. 1). The patient reported a history of betel quid chewing, a practice known to be associated with oral cancers. Upon clinical examination and subsequent biopsy, the lesion was diagnosed as SCC (Fig. 2). The Hematoxylin and Eosin (H&E) stained biopsy section of the lower lip, observed at an original magnification of 100x, reveals a cross-section of the vermilion border. This biopsy showcases the keratinized stratified squamous epithelium along with the underlying lamina propria, which is characterized by an abundance of blood vessels. Further diagnostic imaging, including CT scans, revealed that the SCC had metastasized to the patient's lungs (Fig. 3).

The patient underwent aggressive treatment, consisting of 8 sessions of chemotherapy, in an attempt to manage the rapidly progressing disease. Unfortunately, the treatment



Fig. 1 – Squamous cell carcinoma of lower lip.

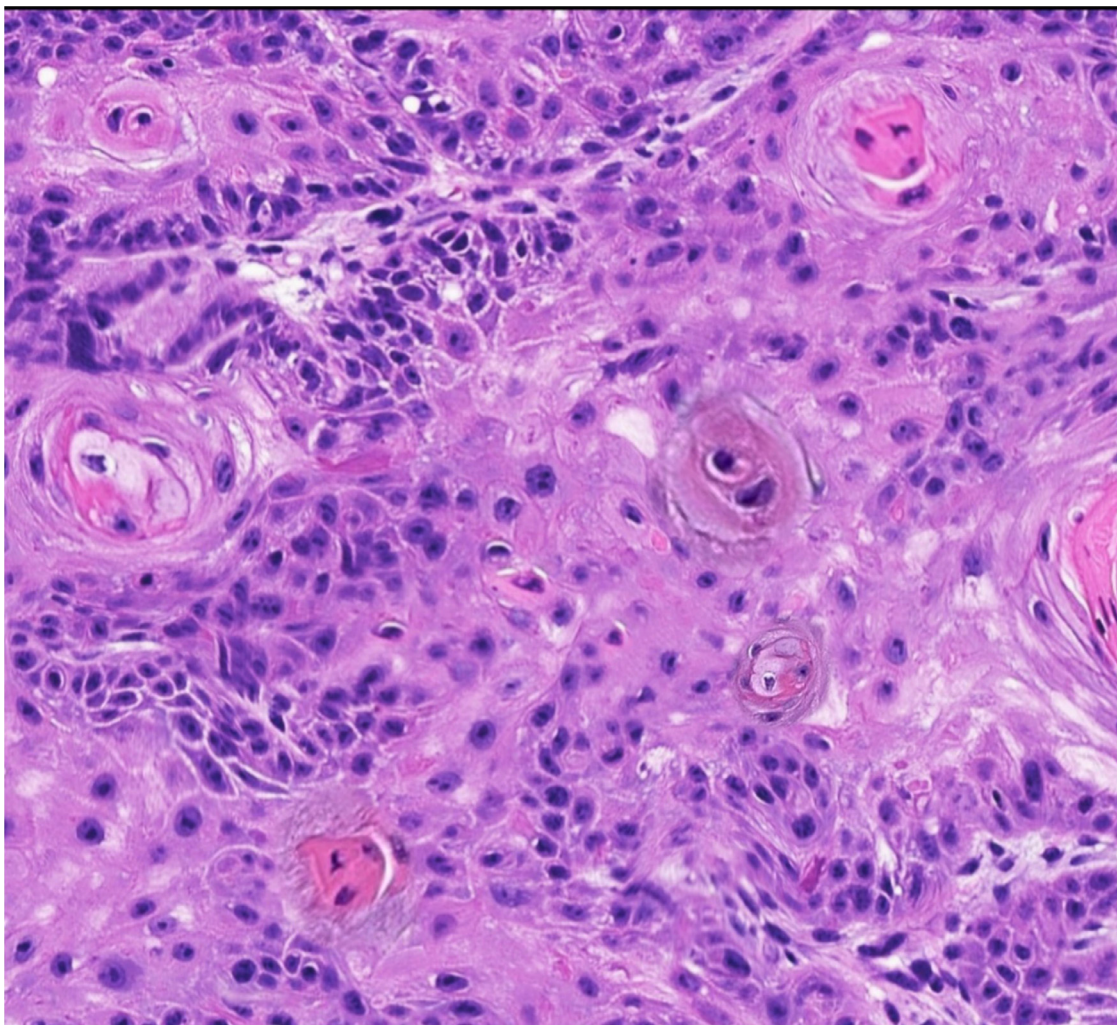


Fig. 2 – Hematoxylin and eosin (H&E) stained biopsy section of the lower lip, original magnification 100x.

did not yield the desired outcome, and the patient's health continued to decline. He developed respiratory failure as a result of the metastatic spread to the lungs, necessitating immediate intubation and admission to the Intensive Care Unit (ICU).

Despite the intensive care and support provided by the medical team, the patient's condition continued to deteriorate. The severity of the respiratory distress and the advanced stage of the metastatic SCC led to the patient's untimely demise. This case highlights the aggressive nature of metastatic SCC induced by betel quid chewing and the challenges associated with its management and treatment.

In the case of SCC involving the lip and lungs, treatment typically involves a multidisciplinary approach. Treatment options may include surgery to remove the primary tumor, radiation therapy to target the cancer cells, and chemotherapy to attack cancer cells throughout the body. In some cases, targeted therapy or immunotherapy may also be considered. However, the effectiveness of treatment can vary based on the extent of the disease and the overall health of the patient. Close monitoring and supportive care are essential components of the treatment plan to manage symptoms and side

effects, improve quality of life, and provide comfort to the patient.

Discussion

The case presented in this report provides a somber illustration of the devastating impact of betel quid chewing on the development and progression of SCC. The patient's history of betel quid chewing, a known risk factor for oral cancers, underscores the importance of recognizing and addressing this modifiable risk factor in populations where this practice is prevalent.

The rapid metastasis of the SCC from the lower lip to the lungs highlights the aggressive nature of this form of cancer [10]. Metastasis to the lungs is a particularly poor prognostic indicator and is often associated with a significant decline in the patient's quality of life and a reduced life expectancy. The patient's experience with 8 sessions of chemotherapy, which unfortunately did not halt the progression of the disease, reflects the challenges in managing advanced-stage SCC.

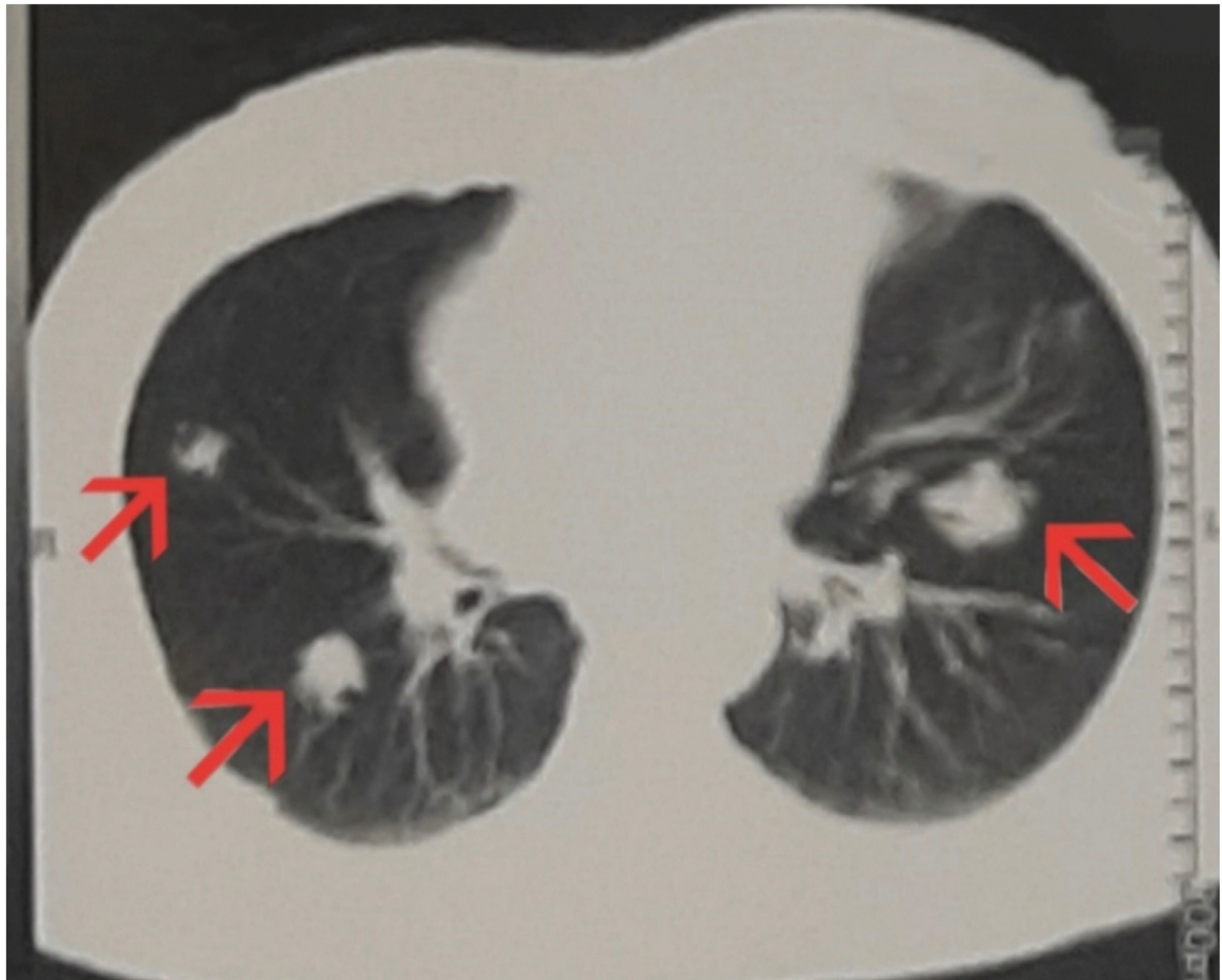


Fig. 3 – CT scans.

This case also draws attention to the critical need for early detection and intervention strategies for SCC. The persistent sore on the patient's lower lip, which was an early sign of SCC, could have potentially been identified and treated at an earlier stage, possibly leading to a more favorable outcome. Public health campaigns that raise awareness about the signs and symptoms of oral cancers and the risks associated with betel quid chewing are essential in reducing the incidence and mortality rates of SCC.

Furthermore, this case highlights the importance of a multidisciplinary approach in the management of metastatic SCC. The involvement of oncologists, surgeons, radiologists, and critical care specialists, along with palliative care teams, is crucial in providing comprehensive care to patients with advanced-stage cancers.

Metastatic spread and clinical manifestations

The migration of SCC from the lower lip to the lung in a relatively young patient raises questions regarding the aggressiveness of the disease and the mechanisms underlying dis-

tant metastasis. Understanding the pathways through which cancer cells disseminate and establish secondary lesions is crucial in tailoring effective treatment regimens. Furthermore, the clinical manifestations of metastatic SCC to the lung, including respiratory symptoms and radiological findings, highlight the diagnostic challenges and complexities in managing advanced stages of the disease [11].

Treatment strategies and therapeutic considerations

In cases of metastatic SCC, treatment decisions become multifaceted, necessitating a comprehensive approach to address both the primary tumor and distant metastases. Chemotherapy, targeted therapies, immunotherapy, and surgical interventions may all play roles in managing metastatic disease, aiming to control tumor growth, alleviate symptoms, and improve quality of life. However, the presence of lung involvement in this case introduces additional complexities, requiring careful consideration of treatment tolerability, potential side effects, and overall treatment goals in the context of advanced metastatic disease [12,13].

Prognostic factors and patient outcomes

The prognosis of patients with metastatic SCC is often guarded, influenced by various factors such as the extent of metastatic spread, response to treatment, overall health status, and presence of comorbidities. In this case study, the progression of the disease despite chemotherapy and the subsequent development of respiratory failure leading to the patient's demise underscore the challenges associated with managing advanced metastatic SCC. Understanding prognostic indicators and implementing supportive care measures are essential in providing holistic care and addressing the evolving needs of patients with aggressive metastatic malignancies [14].

SCC and various other cancers can contribute to the formation of wounds, which may complicate the patient's overall health [15]. Effective management of these wounds alongside comprehensive cancer care is essential to promote healing and improve quality of life. A multidisciplinary approach that addresses both cancer treatment and wound care is crucial for optimal patient outcomes [16,17].

Conclusion

In conclusion, the tragic outcome of this case serves as a poignant reminder of the destructive potential of betel quid chewing-induced SCC. It reinforces the need for continued research into more effective treatment modalities, public health education, and the implementation of policies aimed at reducing the prevalence of betel quid chewing. Through such efforts, it is hoped that the burden of SCC can be alleviated, and the lives of those affected by this preventable disease can be saved.

Patient consent

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

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