Oral Squamous Cell Carcinoma in a Patient with Vitiligo: A Case Report

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Received: 02 Nov 2020
Accepted: 18 Nov 2020
Published: 24 Nov 2020

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Citation:

Keywords:
Oral squamous carcinoma; Vitiligo; Malignancy; Autoimmunity

1. Abstract
Oral Squamous Cell Carcinoma (OSCC) ranks among the deadliest types of cancer worldwide. There are more than half a million diagnosed cases of squamous-cell carcinoma of the head and neck worldwide each year. The effect of alcohol consumption alone and synergistically with tobacco are etiological factors well documented in the literature. Although the relationship between vitiligo and malignancies was not well-established, various cases of malignant tumours were reported in association with vitiligo. When a patient presents with intra-oral lesions, it is critical to obtain a detailed history and physical examination. Early detection of cancer is a key factor for improved prognosis and increased patient survival rate. Dentists should evaluate lesions that do not heal within two weeks of removal of etiological grounds or irritation factors in terms of malignancy.

2. Introduction
Oral Squamous Cell Carcinoma (OSCC) accounts for more than 95% of all head and neck cancers and ranks among the eight mortal types of cancer worldwide [1]. There are more than half a million diagnosed cases of squamous-cell carcinoma of the head and neck worldwide each year, primarily affecting the oropharynx, oral cavity, hypopharynx, and larynx [2, 3]. Its prevalence changes for various parts of the world. The Asian continent has the highest incidence and mortality rates of oral cavity and oropharynx cancers among all other countries [4, 5]. The development of oral carcinogenesis shows multifactorial etiology - endogenous (genetic) and exogenous (environmental and behavioral) factors [6]. Gene mutations and activation of proto-oncogenes (ras, myc, EGFR) or inhibition of tumor suppressor genes (TB53, pRb, p16) may also cause cancer development in the pharynx and oral cavity; however, no specific gene has been identified in OSCCs [7]. Recent studies have indicated that circular RNAs are involved in the tumorigenesis, progression, invasion and chemo-sensitivity of head and neck cancers and that some circular RNAs may serve as diagnostic and prognostic biomarkers [8]. Tobacco, alcohol use, poor oral hygiene, viral agents and chronic irritation are among the most important etiological factors [9]. Alcohol consumption is associated with oral cancer, with independent action and synergistically with tobacco [6, 10]. Tongue is considered as the most frequently affected site, followed by gingiva, buccal mucosa, floor of mouth, palate and lip, and occasionally found in retro-molar area or other oral sites [11, 12]. The lateral and ventral surfaces of the tongue and the floor of the mouth are the most common sites of oral SCC. This is based on the fact that the carcinogens within tobacco dissolve in the saliva and tend to accumulate in the gravity-dependent regions of the oral cavity, also called the oral mucous reservoir [13, 14]. Potentially Malignant Disorders (PMDs) transforming into OSCCs are leucoplakia, Proliferative Verruous Leucoplaikia (PVL), erythroleucoplakia, erythroplakia, Oral Sub-
mucous Fibrosis (OSMF) and Oral Lichen Planus (OLP) respectively [8]. Early detection of cancer is a key factor for improved prognosis and increased patient survival rate [15]. Diagnosis of oral squamous carcinomas can be challenging for dentists due to varying clinical manifestations and can be misdiagnosed as reactive or benign lesions [16, 17]. There are several published case reports of OSCCs that mimics and misdiagnosed as denture related traumatic ulcer [17], Epstein-Barr-virus-related mucocutaneous ulceration [18] and peri-implantitis [19]. The clinical presentation of oral squamous cell carcinoma can range from a white plaque to an ulcerated lesion [20].

3. Case Report

A sixty-nine-year-old, male, completely edentulous patient was referred to our clinic for renewal of his total removable prosthesis. The patient reported no known medical problem and no medication use. He had history of tobacco use. He had multiple focal vitiligo patches in his peri-oral region. He was diagnosed as having vitiligo but no specific treatment had been administered. He did not remember the exact duration of his facial vitiligo lesion. Intraoral examination revealed locally ulcerated, nodular lesion that is 1 cm x 0.8 cm x 0.5 cm in size, 0.2 cm raised from the mucosal surface in the retromolar region. The patient reported that the lesion has been presented for four years with no pain (Figure 1). The hard tissue structures of the facial area were examined with panoramic radiography and no change was detected (Figure 2). There was no significant regional lymphadenopathy. Incisional biopsy was performed and histopathological examination of the specimen revealed dysplastic oral mucosal epithelium and a malignant epithelial tumour that invaded the underlying connective tissue. This tumour lesion with verrucous proliferations towards the oral cavity was originating from the surface mucosal epithelium. Within the epithelium in tumour-related areas elevated and atypical mitosis, dyskeratotic cells and a few giant tumour cells were also observed. Although the tumour showed infiltration into the superficial muscle tissue in the form of small cell groups and tumour islands, no tumours were observed in deeper tissues. The lamina propria comprised of inflammatory cell infiltration rich in dense lymphocytes aggregations. Based on clinical, radiographic, and histopathological examinations, the case was diagnosed as Squamous Cell Carcinoma (SCC). In the lateral surgical margins, the tumour continuity was observed. The patient was referred to Department of Otolaryngology for further treatments.

![Figure 1](image1.png)

**Figure 1:** The patient had multiple focal vitiligo patches in his perioral region. Intraoral examination revealed locally ulcerated, nodular lesion that is 1 cm x 0.8 cm x 0.5 cm in size, 0.2 cm raised from the mucosal surface in the retro molar region. The patient reported that the lesion has been presented for four years with no pain.

![Figure 2](image2.png)

**Figure 2:** Panoramic radiography of the patient with oral squamous cell carcinoma.
4. Discussion
The present report describes a case of oral squamous carcinoma with perioral multiple focal vitiligo patches. Vitiligo is an acquired chronic disorder that cause skin depigmentation with around 1% global prevalence, affecting people of all ages, skin types and genders [21]. The exact aetiology of vitiligo remains obscure, but autoimmunity has been strongly implicated in the development of disease as approximately 30% of vitiligo patients are affected with at least one additional autoimmune disorder [22]. As the immune system affects oncogenesis greatly [23, 24], it raises interest to gauge how the abnormalities in immune system in vitiligo patients influences cancer development [25]. Although the relationship between vitiligo and malignancies was not well-established, various cases of malignant tumours were reported along with vitiligo, including melanoma, squamous cell carcinoma, basal cell carcinoma, breast cancer, bladder cancer, colorectal cancer, leukaemia and Hodgkin’s disease [26-35]. A nationwide population-based study reported evidence on the increased risks of certain cancer in vitiligo patients [25].

A literature review did not disclose cases of oral squamous cell carcinoma associated with vitiligo yet there existed several reports where squamous cell carcinoma patient with vitiligo were reported [28, 37, 38]. Melanin is known to protect the skin against harmful effects of ultraviolet radiation. Hence, vitiligo patients pose higher risk of developing such malignancies. However; reported cases of skin cancer in chronically light exposed vitiligo patches were found to be rare [28, 38]. A systematic review and metaanalysis [39], suggested that people with vitiligo are not at increased risk of skin cancer. They stated that it was important to acknowledge studies that assessed the association between melanoma and vitiligo might be discussable since vitiligo occurring during melanoma or treatment of melanoma is very difficult to differentiate from vitiligo itself. Wu et al [40], observed an inverse relationship between risk of vitiligo and skin cancers in the RALY-EIF252-ASIP-AHCY-ITCH, IRF4, TYR, and MC1R genes. Today, it is not known whether the coexistence of vitiligo and various malignant tumours is a coincidence or whether there are common etiologic factors. Therefore, future research is essential by conducting a population-based longitudinal study [38].

5. Conclusion
When a patient presents with intra-oral lesions, it is critical to obtain a detailed history and perform a thorough physical examination. Obtaining a history of nicotine/tobacco and alcohol use, dental history, trauma or injury is crucial [3]. Early detection of Oral Squamous Cell Carcinoma (OSCC) is challenging for dentists as the clinical features vary. Therefore, dentists should evaluate lesions that do not heal within two weeks of removal of etiological grounds or irritation factors in terms of malignancy [40]. OSCC prevention is based on the identification in early stages, and a definitive diagnosis can only be made after a biopsy and histopathological examination is conducted [41]. The morbidity and mortality rates associated with this malignant pathology significantly improve with early diagnosis [42, 43].

References


