INTRODUCTION

Oral verrucous carcinoma (OVC) is a non-metastasizing variant of well-differentiated squamous cell carcinoma, which often presents as an exophytic, white keratotic, warty tumour (1,2). White keratotic mucosal lesions cannot be ascertained on clinical grounds; therefore, surgical biopsy with microscopic examination by a pathologist remains the standard for the diagnosis (3). Participation of screening devices could be an alternative to facilitate initial diagnosis, intraoperative determination and follow-up.

Direct fluorescence visualization (DFV) is a promising approach that facilitates the visualization and management of carcinoma (4). Recently, Pautke et al. introduced fluorescence-guided bone resection (FGBR) method for necrotic bone identification (5). Fluorescence visualization could prevent from inadequate surgical resection when compromising surgical margins of locally aggressive carcinoma. Herein, we present a case report of OVC that was diagnosed, resected and followed with the assistance of DFV.

CASE

A 46-year-old female patient complaining about thick white cauliflower like lesion at maxillary anterior vestibular mucosa for 3 years was referred to Marmara University, Faculty of Dentistry on March 9, 2010. The medical history revealed no systemic disease. She had a history of tobacco use for 15 years. No regional lymph node involvement was found during neck palpation.

Patient had consulted to several private dental centers for the white lesions and only undergone primary periodontal therapy. After 2 years, she had lost upper lateral and central incisors. She was rehabilitated prosthetically with fixed metal-ceramic bridge between two canines but
still had these white lesions with swelling and pain this time. Thereon, the dentist who made the prosthetic rehabilitation undertook antibiotic treatment and referred the patient to our hospital (Fig. 1). Initially, fluorescence visualization examination (FVE) was performed by the assistance of VELscope (LED Dental Inc., White Rock, Canada) to decide the most favorable biopsy region. Concurrently, diascopy was conducted to set aside eventuality of inflammation. Two excisional biopsies were taken from two different and dark-colored fluorescence visualization loss (FVL) regions where it was considered as a potential carcinoma in situ (CIS) or carcinoma (Fig. 2). Histopathological characteristics of the excised specimens revealed acanthosis, papillomatosis and hyperkeratosis of the epithelium of the lesion, continuing with characteristics of healthy mucosa. Squamous epithelial cell composition of the tumor did not give a definite atypical character, but showed blunt rete processes towards the subepithelial area. Lymphocyte infiltration was noted in the periphery of the tumor islands.

Soft tissue invasion of the tumor was defined by FVE. Patient received doxycycline, 100 mg twice a day for 10 days preoperatively for bone labeling. FVL was detected 2 mm lateral to both canine teeth. Superior and palatal edges of invasion were observed as well. According to predetermined soft tissue edges, initial incisional margins were defined. Doxycycline-derived bone fluorescence visualization was followed under blue excitation. Bony infiltration was inspected under fluorescence illumination.
so outline and debridement of the exact margins of the necrosis was performed (Fig. 3).

Patient did not receive any radiotherapy and chemotherapy postoperatively. At 1-year postoperative follow-up, control FVE was performed and no clinical and radiological findings were detected. The patient was disease-free for 2 years.

**DISCUSSION**

Optical technology with light-based detection systems can be employed in obtaining biopsy and intraoperative determination process (6). Laboratory and clinical studies suggest that changes in natural fluorescence reflect biochemical and morphological alterations to tissues that could serve as noninvasive indicators of malignancies (7-9).

Sampling error, insufficient epithelial tissue and inflammation are the most common reasons for discordant results of preoperative biopsy and frozen sections (10). In this case, we used fluorescence guidance to indicate the most potential region to obtain specimens and gain accurate resection.

OVC has a tendency to erode bony structures with a sharp margin rather than infiltrating the marrow spaces (11). The incidence of bone involvement is generally low, 1.2% in 426 cases (12). It has also been reported that the slow growth of OVC and lower invasive potential could induce inadequate surgical resections (13). Surgery is considered the primary mode of treatment for OVC. Irradiation alone or in combination with surgery is rarely performed. OVC have an excellent prognosis with surgical management but local recurrences can be attributed to inadequate surgical resection (14).

Frozen sections can be used for distinguishing benign from malignant disease, which is generally associated with a high degree of accuracy (15). However, it is difficult and time consuming to control intraoperative margins with these sections (10). DFV has its own advantages as quick and easy appliance. It presents more accuracy than former methods, considering bone color or bleeding (17). Pautke et al. presented first clinical results of FGBR and claimed that it is a valuable technique to distinguish viable and necrotic bone (5). We decided surgical debridement of the margins according to soft tissue involvement and proceeded with regard to bone and mucosal invasion.

In conclusion, FVE is a promising method, which can be used while obtaining the biopsy specimen and detecting surgical excision margins of both mucosa and bone. Furthermore, it is feasible for capturing the dysplasias or the recurrences during the follow-up periods of VOC. However, further studies including more cases and long time follow-up are necessary to evaluate the outcomes of fluorescence-guided resection of VOC.

**REFERENCES**


