

# Squamous Cell Carcinomas (SCC) of the Scalp in a Patient with History of Basal Cell Carcinoma (BCC); A Case Report

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## ABSTRACT

**BACKGROUND AND OBJECTIVE:** Incidence of skin malignancy is increasing recently and includes 11% of all human malignancies. Basal cell carcinoma (BCC) is a primary malignant epithelial with slow expansion and invasive status. Squamous cell carcinomas (SCC) constitutes about 20% of all skin tumors is originated from surface epithelial dysplasia. This study aim to report a case of SCC of the scalp in a patient with history of BCC with frequent relapses.

**CASE REPORT:** The patient is a 75-year old man with a history of diabetes for 15 years, smoking and alcohol use for a long time, who suffered from BCC in the last 20 years and underwent surgery twice due to relapse of the lesion. Since last year, 2-3 cm injuries and endophytic appearance with mired center and prominent and irregular margins near leukoplakia areas were created in the same BCC spot. The results of histopathology confirmed Squamous cell carcinoma.

**CONCLUSION:** Since a high percentage of patients with a history of non-melanoma tumor will suffer from other non-melanoma tumors in the next 5 years, timely diagnosis, appropriate treatment and regular follow-up can reduce the chance of disability, metastasis and death significantly. Therefore, informing these patients for appropriate treatment and follow-up to prevent relapse can help to increase their life span.

**KEY WORDS:** *Squamous cell carcinoma, Basal cell carcinoma, Scalp malignancy.*

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## Introduction

Skin cancers includes 11% of all human malignancies and are among the most common malignant tumors in human and every year, many patients with this disease suffer from its complications and ultimately die because of inappropriate treatments and delayed diagnosis (1, 2).

Skin cancer is divided into two groups of melanoma and non-melanoma (3). The non-melanoma skin cancer (NMSC) is the most common cancer in human societies, which includes basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) (4). Basal cell carcinoma BCC was introduced by Jacob in 1827 for the first time and called it “rodent ulcer” (5).

BCC is a primary malignant epithelial with slow expansion and invasive status, which is originated from basal cells and its appendages (6-8).

This is one the most common cancers among white people, most of them caused by radiotherapy and ultraviolet radiation and about 80% of them are found in scalp and neck (9-11). There is always the chance of basal carcinoma relapse, since in the 3 years after primary treatment, there is 30% possibility of secondary lesion and 6% possibility of squamous cell carcinoma (SCC) (5).

In studies by Khakzad in Babol and Plesko in Slovakia on skin cancers, BCC and SCC were found to be the first and the second most common skin tumors, respectively (12, 13). Moreover, according to the study of Amouzgar et al. regarding the frequency of skin cancers in Mashhad, 57.7% of cases were BCC and 20.3% of cases were SCC (1). Squamous cell carcinoma is the second most common skin cancer, originated from surface epithelial dysplasia, which constitutes 20% of skin tumors (14).

The incidence of tumor increases with increasing age and is more common among men (15). The risk of this disease in Iranian men is 1.5 times more than women, and is often observed in the second half of life. Ultraviolet radiation plays a major role in the appearance of lesions (16). In addition, several evidences indicate the role of human papilloma virus (HPV) in the development of some forms of SCC (17). Some genetic disorders such as xeroderma

pigmentosum, dystrophic epidermolysis bullous,

albinism and finally history of BCC may induce SCC (18, 19). In patients with immunosuppression such as transplant recipients, this is usually uncommon and metastasis is very rare. However, periodic examination is crucial, since there is always the risk of SCC (20). While the cumulative dose of ultraviolet radiation plays a role in SCC creation, history of sunburn in childhood and exposure to sunlight induce BCC and melanoma (21).

Since several studies indicated that incidence of NMSC has increased in recent years (3-8% per year) and about 40-50% of patients with a history of NMSC will suffer from other non-melanoma tumors in the next 5 years (22), the present study was conducted to report a case of SCC of the scalp in a patient with history of BCC with frequent relapses.

## Case Report

The patient is a 75-year old man with a history of diabetes for 15 years, smoking and alcohol use for a long time, who suffered from BCC in the last 20 years and underwent surgery twice due to BCC relapse and creation of injuries in scalp. Up to 3 years after the last BCC surgery, the patient was free of skin lesions. However, since last year, several injuries were observed in the same BCC spot but with difference clinical appearance.

Injuries with 2-3 cm diameter and endophytic appearance with mired center and prominent and irregular margins near leukoplakia areas could be observed (Fig 1).

The surgeon prepared several incisional biopsies from the lesions and sent them to pathology laboratory for further investigations. In the macroscopic view, the lesion included two cream-brown pieces of skin with an overall size of 1.5×1×0.5 cm.

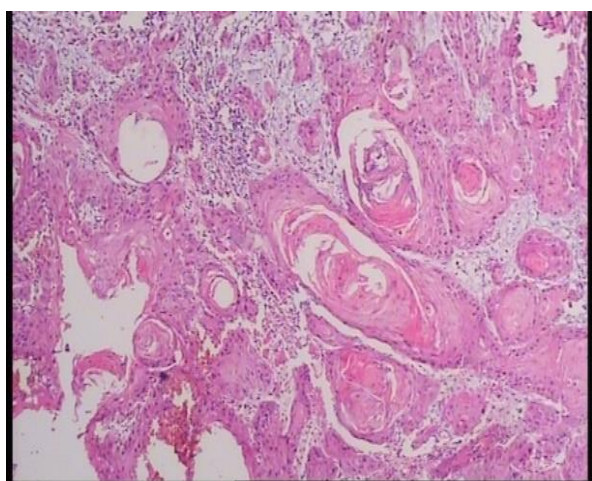
In microscopic view of the sample, the proliferation of malignant neoplasms in squamous epithelium cells with invasion to the connective tissue in the form of scattered islands could be observed along with individual keratinization.

The cells had hyperchrome and pleomorphism core. Lymphoplasmacytic inflammatory cells along with blood vessels and collagen fibers were observed between the islands. The surface of lesion was covered with orthokeratinized stratified squamous epithelium dysplasia.

The results of histopathology confirmed well-differentiated SCC (Fig 2) and the patient underwent surgery to remove the rest of lesions, reconstructive surgery using foot skin, radiotherapy and chemotherapy. During a 6-month follow-up, the patient experienced lesion relapse.



**Figure 1. Clinical view of SCC with several injuries and prominent, irregular circular margins**



**Figure 2. Histopathologic view of malignant tumor of squamous epithelial cells with invasion to the underlying connective tissue and formation of keratin pearl**

## Discussion

The patient was a 75-year old man in this report. Several studies have reported the higher prevalence of BCC and SCC among men (2).

According to the study of Amozgaret al., male/female ratio was reported to be 1.6:1 for BCC and 2.8:1 for SCC (1).

BCC is a primary malignant epithelial with slow expansion and invasive status, which is originated from basal cells and its appendages and rarely metastasizes, but SCC, which is originated from surface epithelial dysplasia, tends to metastasize (1, 24). The incidence of SCC and BCC increases with increasing age and the highest prevalence of these malignancies is observed in 40-79 years old people (9).

In a study by Collins et al., mean age of patients was 64 (25) and it was 71 in a study by Revenga et al. (26). The patient was a 75-year old man in our study. About 85% of lesions are created in scalp and neck, usually observable on the scalp, face, forehead and lower lip (1), which is line with the present study where the lesion was observed in the scalp. Regarding symptoms in patients with scalp cancer, these studies reported mild pain, erythema and brief irritation, which is in line with the present study (19).

Regarding etiologic factor, the effectiveness of smoking has been confirmed and this may be one of the reasons for higher prevalence of BCC and SCC among men, since smoking is more common among men (2). The patient in this report also had a long history of smoking and alcohol consumption.

Since a high percentage of patients with a history of NMSC will suffer from other non-melanoma tumors in the next 5 years and considering the fact that quick and timely diagnosis, appropriate treatment and regular follow-up can significantly reduce the chance of disability, metastasis and death, informing these patients for appropriate treatment and regular follow-up can be very helpful.

Moreover, since the role of sunlight in creation of these lesions is proved, public education to prevent

these malignancies and using protective factors against ultraviolet radiation and the training for detection and tracking of suspicious lesions by the patient will also be very helpful.

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