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Case Report

Multiple cutaneous squamous cell carcinoma of the forehead in a patient with skin of color treated by wide local excision with adjuvant radiotherapy: a case report

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ABSTRACT

Cutaneous squamous cell carcinoma is the second most common non-melanoma skin cancer, characterized by the proliferation of keratinocytes, with an increasing incidence worldwide. In cases of perineural invasion, surgical excision followed by adjuvant radiotherapy is the preferred treatment. An intraoperative frozen section is necessary to determine the cancer-cell-free margin. A 80-year-old male presented to the outpatient department of our hospital with two fungating growths over his right forehead (size 2.7×1.2 cm) and right temple region (size 4×1.2 cm) for 5 years. An incisional biopsy of the growths revealed well-differentiated squamous cell carcinoma. There was no evidence of lymphadenopathy. The patient was treated successfully by wide local excision of the growths with an intraoperative frozen section to determine negative margins. Local defects of the forehead and right temple were reconstructed with a scalp rotation flap and a split skin thickness graft, respectively. The final histopathological examination showed moderately differentiated squamous cell carcinoma with resection-free margins. Forehead growth showed perineural invasion. The patient underwent 30 fractions of image-guided adjuvant radiotherapy in view of perineural invasion and to avoid local recurrence. The patient recovered well without any recurrences or complications. Surgical excision and reconstruction followed by adjuvant radiotherapy is the most effective method for treating cutaneous squamous cell carcinomas with perineural or lymphovascular invasion. Intraoperative frozen section is necessary to reduce recurrence rates and metastasis. Ours is a rare case of multiple cutaneous squamous cell carcinomas involving the forehead region.

Keywords: Cutaneous squamous cell carcinoma, Scalp rotation flap, Skin of color, Perineural invasion, Forehead, Radiotherapy

INTRODUCTION

According to the World Health Organization (WHO), between 2 to 3 million non-melanoma skin cancers (NMSC) and 132,000 melanomas are diagnosed each year, with skin cancer accounting for one in every three cancers.[1]

Cutaneous squamous cell carcinoma (cSCC) represents 20% of all non-melanoma skin cancers and is a deadly threat owing to its ability to metastasize to any organ in the body.[2] It is characterized by abnormal, accelerated growth of the cutaneous epithelium and has an increased incidence worldwide. Genotypic, phenotypic, and environmental factors play a major role in the development of cutaneous squamous cell carcinoma. According to a study in

England, the median age at presentation of cutaneous squamous cell carcinoma was 80 years.[3] The risk factors include old age, fair-skinned individuals with Fitzpatrick skin type I or II, immunosuppressed individuals, chronic sunlight exposure, therapeutic use of artificial ultraviolet (UV) light, ionizing radiation, and chronic irritation.[1,4] Certain genetic syndromes, such as xeroderma pigmentosum, albinism, and epidermolysis bullosa, and precursor lesions such as actinic keratosis and Bowen's disease, predispose to cutaneous squamous cell carcinoma.[1] Avoiding sun exposure is the most effective method to prevent skin cancer. Typically developing on the face, scalp, ears, lips, hands, and forearms, SCCs are found on skin that has been exposed to the sun.

cSCCs appear as scaly red plaques, papules, or nodules with irregular edges. Dermoscopy and histopathological examination help in confirming the diagnosis. Perineural invasion is one of the prognostic factors. Most patients with cutaneous squamous cell carcinoma and perineural invasion present without clinical symptoms or radiologic evidence of perineural invasion. These tumors are classified as incidental or microscopic perineural invasions because perineural invasion is commonly identified on histologic examination of the cSCC at the time of surgery.[5]

The majority of cSccs can be surgically removed; however, a small percentage of them recur and metastasize, resulting in death. An intraoperative frozen section has been used to establish the tumor-free margin.[6] Radiotherapy can be used as a primary treatment in patients not fit for surgery and for selective, non-invasive tumors. Adjuvant radiotherapy is recommended for tumors with perineural invasion or lymphovascular invasion.

Postoperative scalp defects after excision of moderate-sized tumors can be closed with scalp rotation flaps, primary closure, or split skin thickness grafts. Here, we present a case of dual large cutaneous squamous cell carcinoma of the forehead with perineural invasion treated by wide local excision with adjuvant radiotherapy.

CASE REPORT

A 80-year-old male came to our outpatient department with complaints of two fungating growths, one on his forehead and the other on the right side of his scalp, for 5 years. Initially, the growth started as a small mole, was insidious in onset, and has been gradually progressive in nature for the last 2 years. Two fungating growths, one on the right side of the forehead and the other in the right temple region, were seen (Figure 1). There was no history of bleeding or discharge from the growths. There was history of seborrheic dermatitis for 3 years, for which he underwent treatment. There was no history of trauma, radiation exposure, or similar growths in the past.

The patient had history of chronic sun exposure in the past. The patient was farmer by occupation. On physical examination, a large fungating growth of size 2.7×1.2 cm was present on his right forehead to midline area with no signs of neural involvement. Another similar growth of size 4×1.2 cm was present on the right temple region (Figure 1). The growths were tender with irregular margins and not fixed to the underlying bone. Facial symmetry, normal eye closure, and sensation over the face were normal. There were no palpable cervical lymphnodes. Neurological examination showed normal cranial nerve functions.

Figure 1 (a and b): Fungating growth over the right forehead (size 2.7×1.2 cm) and right temple region (size 4×1.2 cm).

Complete blood count, coagulation profile, serum electrolytes, renal function tests, Electrocardiogram and Echocardiography were normal. The patient was not on any steroids or immunosuppressive drugs. The patient underwent a contrast-enhanced computed tomography scan of the brain, which revealed fungating growth over the pericranial right temporal region measuring 4×1.2 cm with minimal infiltration into the subcutaneous plane. A similar morphology was seen over the right frontal region, measuring 2.7×1.2 cm. There was no cortical erosion of the underlying bones. A PET CT scan was done on the same day, which revealed no cervical lymphadenopathy or distant metastasis. Incisional biopsy of the growths revealed well-differentiated keratinizing squamous cell carcinoma of the skin. The patient was then scheduled for surgical excision of the growth. A pre-anesthesia checkup was done. Wide local excision of the growths was done under general anesthesia.

Intraoperative frozen section suggested positive margins at the base of forehead growth. An additional 1 cm of margin was excised from the base. Repeated frozen section showed cancer-free margins. The local defect of the right forehead area was reconstructed with a scalp rotation flap, while the right temporal region defect was reconstructed with a split skin thickness graft from the left thigh.

The patient was discharged on the second postoperative day in hemodynamically stable condition. The final

histopathological examination showed moderately differentiated squamous cell carcinoma, grade 2. All margins were negative for dysplasia or malignancy. No lymphovascular invasion was noted. But there was perineural invasion in the right forehead growth specimen (Figure 2).

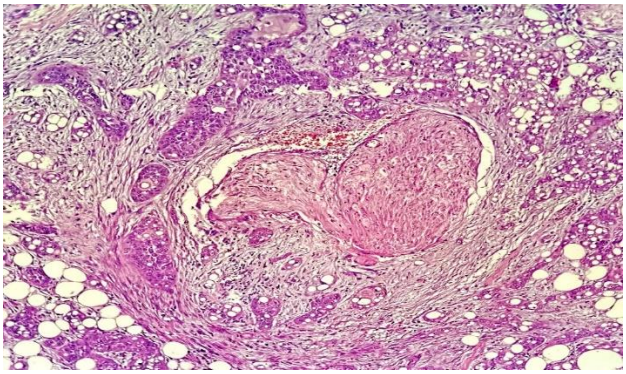

Figure 2: Histopathological slide showing squamous cell carcinoma with perineural invasion.

The patient was referred to a radiation oncologist in view of adjuvant radiotherapy. The patient received 30 fractions of image-guided adjuvant radiotherapy in view of perineural invasion and to avoid local recurrence. The surgical site healed well and patient was on regular follow up (Figure 3). The patient recovered well without any recurrences or complications in the 8-month follow-up period.

Figure 3 (a and b): Post-operative image showing a healed healthy reconstructed site during a 2-month follow-up.

DISCUSSION

This is a rare case of multiple cutaneous squamous cell carcinomas of the head and neck region. The first reported case was in Himachal Pradesh, India, where a case of dual squamous cell carcinoma of the face was successfully treated with surgery. Genes commonly mutated in patients with cutaneous squamous cell carcinoma include TP53, CDKN2A, Ras, and NOTCH1.[4] Risk factors that predispose to the development of cutaneous squamous cell carcinoma include light skin (Fitzpatrick skin types I–III), age, male sex, exposure to sunlight or other ultraviolet radiation, immunosuppression, human papillomavirus, chronic scarring conditions, familial cancer syndromes, and environmental exposures such as arsenic.[1,4] The patient already has risk factors such as old age, chronic sun exposure. The incidence of tumors on the scalp is increasing compared to those occurring elsewhere on the skin.

The first-line treatment of cutaneous SCC is complete surgical excision with histopathological control of the excision margins.[7] Radiotherapy, electrodessication, and chemotherapy are the other treatment modalities, depending on the location and size of the tumors.

There are various methods to reconstruct the postoperative local defect, like skin grafts, free flaps, and local tissue transfer. A simple flap closure technique, such as a rotation flap, can enable accurate excision of the lesion with negative margins and favorable cosmetic results. Adjuvant radiotherapy has been suggested to mitigate the aggressive behavior of cSCC with perineural invasion. Favorable outcomes are seen in patients with cSccs with perineural invasion who underwent surgical excision followed by adjuvant radiotherapy. This article highlights a rare case of dual cutaneous squamous cell carcinoma involving the forehead and temple region, treated by surgical excision followed by adjuvant radiotherapy.

CONCLUSION

Surgical excision and reconstruction followed by adjuvant radiotherapy is the most preferred treatment for cutaneous squamous cell carcinomas with perineural invasion. Intraoperative frozen section is necessary to reduce recurrence rates and metastasis. Ours is a rare case of dual cutaneous squamous cell carcinoma involving the forehead region.

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