

Immunocryosurgery for Treatment of Locally Advanced BCC: A Case Report

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ABSTRACT

BCC is the most common skin cancer (75%) in humans and the most common malignant tumor in the Caucasian population. The literature recognizes that 95% of BCCs are easy to treat surgically; however, when surgery is contraindicated due to patient or lesion-related conditions pharmacological and destructive therapies are reasonable alternatives. New therapeutic modalities, such as combined therapy, have been proven successful in the treatment of locally advanced and difficult-to-treat BCCs.

KEYWORDS: vismodegib, cryosurgery, immunocryosurgery, imiquimod, bcc, locally advanced

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I. INTRODUCTION

Basal cell carcinoma (BCC) is the most common malignant tumor in the Caucasian population. Various treatment modalities have been proposed depending on the clinical and histopathological characteristics of the tumor, with surgical resection being the first-line treatment for low-risk tumors due to its considerable recurrence rate of up to 8% at 5 years. In contrast, Hedgehog pathway inhibitors (HPIs) and immunotherapy are reserved for advanced lesions (1). In this case report, we will review the feasibility of combined therapy for managing difficult-to-treat BCC.

II. CASE PRESENTATION

An 85-year-old white male with a remarkable medical history presents with a localized lesion on the scalp, affecting predominantly the vertex and left temporal regions. It consisted of three plaque-like neoforations with irregular shapes, the largest being 6 cm in diameter along its major axis, it featured areas of ulceration alternated with hemorrhagic crusts and well-defined nodular borders, of several months of evolution (Figure 1, 2). A biopsy was performed which confirmed the diagnosis of basal cell carcinoma (BCC). Treatment with vismodegib was initiated at a dose of 150 mg per day for 10 months, resulting in a partial response with healing of the temporal lesion and one of the scalp lesions. However, the largest lesion located on the vertex region persisted (Figure 3, 4). A switch to 5% topical imiquimod was made, with a favorable response of

the vertex lesion after 6 weeks of treatment, achieving stable disease after 17 months of follow-up. Later on, the same lesion showed signs of activity (Figure 5), prompting the decision to supplement with cryosurgery, administering two cycles with a 6-month interval between them. Two months after this approach, a 90% healing of the lesion was achieved (Figure 6).



Figure 1 and 2. Lesion on the scalp, affecting predominantly the vertex and left temporal regions.

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Figure 3 and 4. Healing of temporal lesion with persistence of the vertex one after treatment with vismodegib.



Figures 5 and 6. Lesion on vertex with signs of active disease and healing of the same lesion after cryosurgery.

III. DISCUSSION

BCC is the most common skin cancer (75%) in humans and the most common malignant tumor in the Caucasian population, who carry a lifetime risk of 30% of developing this disease. It is most found in men over the age of 50 and major risk factors include chronic exposure to UV radiation, a lower Fitzpatrick skin type, advanced age, and immunosuppression. At the genetic level, these tumors are known for having a high burden of UV-induced mutations, which lead to the activation of the Hedgehog pathway by inactivating the PTCH1 gene and activating the oncogenic protein Smoothed (SMO) (1, 2). The clinical presentation of BCC is diverse due to its locally invasive nature with varying degrees of destruction of adjacent tissues, making it in some cases difficult to identify at first glance. The literature recognizes that 95% of BCCs are easy to treat surgically; however, when a tumor is allowed to progress without intervention, it may transform into a locally advanced lesion, making it difficult to treat and unresectable in most cases. BCCs can be classified as low or high risk for recurrence depending on certain characteristics. High-risk tumors are difficult to treat due to their poor response to the available therapeutic modalities whereas low-risk tumors respond to more conservative approaches. Regarding

pharmacological treatment options, imiquimod is an immunomodulator used in the treatment of superficial BCC, either solitary or multiple, in immunocompetent patients. On the other hand, HPIs are an alternative for the treatment of locally advanced BCC through the selective inhibition of SMO when standard surgery is inadequate. Vismodegib has been studied as neoadjuvant therapy prior to surgical intervention in high-risk BCC, where it has been proven useful in reducing tumor size in lesions on the face and scalp and achieving a decreased rate of recurrence with prolonged treatment. However, it is significant to point out the risk of primary resistance to vismodegib which can be found in up to 50% of patients with locally advanced BCC. Destructive therapies such as photodynamic therapy [PDT], curettage, cryosurgery, or CO₂ laser ablation are reasonable alternatives when surgery is contraindicated due to patient or lesion-related conditions. Current data suggests reserving the individual use of these therapies for low-risk BCCs with extra-facial location, in which a 95% cure rate at 5 years can be attained. Although, an increasing number of case reports suggest that combined therapy may be promising for high-risk lesions (2–4). A 2012 case series by Messegueur et al. evaluated the effectiveness of combining cryosurgery with topical imiquimod in patients who did not achieve complete remission with topical treatment alone, demonstrating complete healing in 83% of cases. These findings led to the conclusion that cryosurgery enhances tumor sensitivity to pharmacological therapy, reducing the need for surgery (5).

CONCLUSIONS

BCC is a malignant tumor with a highly heterogeneous clinical presentation, which can delay diagnosis and limit treatment options, often resulting in suboptimal outcomes. New therapeutic modalities, such as combined therapy, have been proven successful in the treatment of locally advanced and difficult-to-treat BCCs. However, there is limited literature supporting its use despite the high cure rates reported in the available literature. With this case report, we aim to provide further scientific support for the implementation of combined therapies in the treatment of this kind of tumors.

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Immunocryosurgery for Treatment of Locally Advanced BCC: A Case Report

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