



# A Rare Axillary Cutaneous Squamous Cell Carcinoma: A Case Report and Literature Review

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**Background:** Non-melanoma skin cancer is the most frequent tumor in Brazil and the world. One of its forms, squamous cell carcinoma (SCC) predominantly affects the old white population in areas of high exposure to the sun. Most SCCs are indolent, evolving with a cure rate higher than 90% within five years. Rarely, metastasis occurs mainly in regional lymph nodes, but it can also happen in the lungs, liver, brain, skin, and bones. There are currently many treatment options; based on the stratification of the neoplasm as high or low risk, an appropriate approach is defined.

**Case presentation:** This report presents the case of a patient with high-risk squamous cell carcinoma affecting an area not exposed to solar radiation and without any other previous triggering factor, which is quite uncommon for this type of tumor. The rarity of the case stems from the lack of scientific reports on the occurrence of SCC in the axillary region, without a history of local chronic inflammatory lesions. The Portuguese, English, and Spanish languages were used to search the database of the main scientific platforms Pubmed, Cochrane Library, Scielo, and Lilacs, with no results similar to the case reported.

**Conclusion:** Despite the fact that the axillary area is not sun-exposed, squamous cell skin cancer manifested as an extensive lesion that required a complex surgical resection with flap repair. Such findings highlight the importance of a thorough physical exam and work-up to diagnose lesions in their early forms which require simple resection procedures and avoid late diagnoses resulting in complex procedures. Such an approach reduces the risk of various complications like wound infection or dehiscence, flap ischemia, or necrosis, among others.

**Keywords:** *Non-melanoma skin cancer, Cutaneous squamous cell carcinoma, Skin cancer, Complex surgical resection, Axillary skin cancer, Muscle-sparing flap repair*

## Introduction

Non-melanoma skin cancer is the most frequent tumor in Brazil and the world. One of its forms, squamous cell carcinoma (SCC) predominantly affects the old white population in areas of high exposure to the sun. Advanced age is also an important risk factor, not only because of cumulative exposure, but also because of age-related changes [1,2]. Most SCCs are indolent, evolving with a cure rate higher than 90% within five years. Rarely, metastasis occurs mainly in regional lymph nodes, but it can also happen in the lungs, liver, brain, skin, and bones. There are currently many treatment options; however, clinical and histological aspects should be considered before a decision is made. Based on the stratification of the neoplasm, it is possible to classify it as high or low risk, and thus define the approach and the need for adjuvant therapy and regional lymph node dissection [3]. This report presents the case of a patient with high-risk squamous cell carcinoma affecting an area not exposed to solar radiation and without any other previous triggering factor, which is quite uncommon for this type of tumour. The rarity of the case stems from the lack of scientific reports on the occurrence of SCC in the axillary region, without a history of local chronic inflammatory lesion. The Portuguese, English and Spanish languages were used to search the database of the main scientific platforms such as Pubmed, Cochrane Library, Scielo and Lilacs, with no results similar to the case reported.

## Case Presentation

A 68-year-old white (Fitzpatrick skin type 2) male patient, retired, residing in the São Paulo Metropolitan area was referred to the Plastic Surgery Outpatient Clinic due to the

appearance of a painless ulcerated lesion in the right axillary region. The lesion started as a small erythematous plaque evolving into a progressively growing lesion over two years and reaching a medical consult after the lesion started having intermittent discharge of a purulent and bloody secretion. History taking revealed that he had been working outdoors with continuous sun exposure for ten years with a personal history of essential arterial hypertension in treatment, and an ischemic stroke in 2018. Family history of cancer and specifically skin cancer was negative. The patient had not smoked for 40 years and despite being an ex-social alcoholic, he had not drunk any alcoholic drink for one year before the consult. Moreover, personal history was negative for immunocompromised conditions or immunosuppressive treatments.

Physical exam showed an ulcerated, friable, infiltrated plaque with well-defined borders in the right axillary region, measuring 5.5 x 3 cm in its greatest extension.

Due to the regional extension of the lesion and for treatment planning purposes, it was opted to undergo an incisional instead of an excisional biopsy of the lesion in the right axillary region. The pathology report revealed a metatypical carcinoma infiltrating the deep dermis. A second-look pathology evaluation was requested by our team, however, the result remained as metatypical carcinoma. Ultrasonography showed thickened skin and subcutaneous tissue with heterogeneity, as well as the presence of a hypoechoic, heterogeneous nodular image with liquid content measuring 3.6 cm. These findings raised the suspicion of an abscess or subcutaneous fluid collection. Moreover, doppler ultrasound ruled out vascular invasion.

The therapeutic option that the plastic surgery team opted for was surgical resection. Due to the extensive axillary lesion with lymph node involvement on physical exam, the chosen procedure was resection of the right axillary lesion with a 2 cm margin, axillary dissection, and reconstruction with a muscle-sparing latissimus dorsi flap and drainage with a portovac drain.



**Figure 1: Demarcation of Resection Plan with 2 cm Margin**



**Figure 2: Post Resection of Right Axillary Lesion with 2 cm Margin**

Histological analysis of the axillary surgical specimen surprisingly resulted in a diagnosis of moderately differentiated squamous cell carcinoma, ulcerated, with invasion to the hypodermis, perineural and lymphatic invasion, and the presence of lymph node



**Figure 3: Creation and Successful Rotation of Latissimus Dorsi Muscle-Sparing Flap**



**Figure 4: Illustration of the Incision Closure Plan with the Muscle-Sparing Flap**

metastasis, affecting 4 of the 11 resected lymph nodes. During the hospitalization period, the patient had a good clinical course, being discharged after the 7th postoperative day. Two months later, during an outpatient follow-up, the patient only had edema in the right upper limb with plans to undergo adjuvant radiotherapy.





Figure 5: Immediate Post-Closure and Drainage



Figure 6: 4 Weeks Post-op Right Axillary Healing Scar

## Discussion

Non-melanoma skin cancer is the malignant neoplasm with the highest incidence in the

world; this includes basal cell and squamous cell carcinomas. The National Cancer Institute (INCA) estimates that in each year of the triennium 2020-2022 there will be 625,000 new cases of cancer in Brazil, with non-melanoma skin cancer being the most frequent (177,000), representing 27.1 % of cancer cases in men and 29.5% in women [2].

Cutaneous squamous cell carcinoma (SCC) is the second most common skin cancer, accounting for almost 20% of cutaneous neoplasms. This tumor originates from the proliferation of atypical cells of the spinous layer of the epidermis, and the mutation of the p53 gene is its main molecular basis. Actinic keratosis is the most frequent premalignant lesion, accounting for 60% of cases, but it can also evolve from other premalignant lesions, such as Bowen's disease, leucoplakia, and Queyrat erythroplasia [1]. Most SCCs are indolent, with low metastatic risk and a cure rate of 90% in five years when treated early and adequately [4]. In a retrospective cohort study with more than 900 patients followed for ten years, a 4.6% recurrence rate was reported, as well as a 3.7% risk of metastasis and a 2.1% risk of mortality [5].

Basosquamous carcinoma, also known as metatypical carcinoma (MTC), is a non-melanoma skin cancer that shares the features of both squamous and basal cell carcinomas. Although metatypical carcinoma simulates the BCC clinically and morphologically, however, it is more aggressive and prone to metastasize. Therefore, the separation of MTC from BCC is of primary importance, as it is capable of metastasizing, whereas MTC diagnosis is difficult because it is similar to BCC both clinically and histologically [6].



The main risk factors for the development of SCC include cumulative exposure to ultraviolet radiation, advanced age, fair skin, immunosuppression, and chronic inflammation. Although it can appear anywhere on the skin, due to its pathogenesis, the most affected areas are those most exposed to the sun, such as the back of the hands and forearms, the upper part of the face, lips, and the ear pinna [1,3,4,5]. In the present study, the patient is of advanced age and, although he has been continuously exposed to the sun while working, the axillary region is not a typically exposed area. There is also no report of previous local injury with the presence of chronic inflammation or exposure to other risk factors. Moreover, to the best of our knowledge, this is the first case report of axillary squamous cell carcinoma since the literature review showed some cases of basal cell carcinoma in the axillary region [7].

The clinical presentation is varied and depends on the level of tumor differentiation. Early, well-differentiated lesions manifest as reddish plaques or papules covered by desquamation or keratotic crust, whereas poorly differentiated lesions are often friable and may be accompanied by ulceration, bleeding, and necrotic areas [4].

The gold standard for the diagnosis of SCC is histological, therefore the biopsy should be performed on every suspicious lesion and should include, in cases that appear to go beyond the superficial layer of the skin, the reticular layer of the dermis for adequate evaluation of the histological type, pattern growth and invasion of the tumor. This information, associated with the patient's physical examination and clinical history, allows the physician to determine the high-risk factors and guides the treatment. According to current National

Comprehensive Cancer Network (NCCN) guidelines, the following characteristics are considered high-risk factors: size greater than 20 mm in the L area; size greater than 10 mm in the M area; involvement of the H area. badly-defined edges; the presence of immunosuppression and recurrence; history of chronic inflammation or radiation therapy; neurological symptoms; little cell differentiation; acantholytic, adenosquamous, desmoplastic and metaplastic subtypes; thickness greater than 2 mm or Clark level IV and V; perineural, lymphatic, or vascular involvement [3]. This clinical case, although being a basosquamous skin cancer in the first biopsy result, corroborates the findings in the literature as a high-risk lesion.

The suggested standard surgical margin for primary non-melanoma skin cancers is 4 mm which would have achieved an optimal excision in 96% of basal cell and 97% of squamous cell carcinoma [8]. There is no consensus in the literature regarding the surgical margin for metatypical skin cancer, however, exist expert opinions and publications of specialized groups who suggest a surgical margin of 3 to 5 mm for the head and neck lesions and of 5 to 10 mm in the other areas, using the wider margin in cases of rapid growth clinical history [9]. Due to rapid growth history and tumor characteristic purulent and bloody secretions, a wider margin was used in our patient. Furthermore, the presence of lymphadenopathy made the team opt for an even wider 20 mm margin to prevent both positive margins and metachronous tumors.

Complete surgical excision is considered the first-line treatment of primary cutaneous squamous cell carcinoma, regardless of age group and affected site. Patients with high-risk criteria should undergo resection with a

margin of 6 to 10 mm [3,6] Lymph node dissection is indicated in areas where there is lymph node involvement, which justifies the treatment performed in the patient in question. This comparison of the surgical margin between metatypical and squamous skin cancer clearly shows the high similarity in the therapeutic approach regarding these two distinct types of non-melanoma skin cancer. This can be explained by the aggressive behavior of the metatypical skin cancer and metastatic potential which require the same approach as squamous skin cancer regarding the surgical margin. Therefore, although our first pathology result indicated metatypical skin cancer, our approach to treating it aggressively as squamous skin cancer was successful and avoided the dilemma about the need for a wider margin after the post-op pathology result of squamous skin cancer on one hand, and the recurrence of this tumor on the other hand.

It is often necessary to perform reconstruction of the skin defect with a local flap or graft, but the latter offers worse results due to local depression and hyperpigmentation related to neighboring tissues, resulting in worse aesthetic results [10]. Radiotherapy can be indicated as adjuvant treatment after surgical excision in high-risk patients, with lymph node or perineural involvement [11].

Follow-up of patients with high-grade SCC should be performed with serial physical examination and imaging tests for at least five years since 30 to 50% of patients will present a new SCC in five years and all of them are at increased risk for the appearance of new non-melanoma and melanoma skin cancer [3].

## Conclusion

This case report raises awareness about the importance of always considering cutaneous squamous cell carcinoma as a principal differential diagnosis even though the patient's profile or the body's region of neoplasia do not have the classical risk factors (chronic inflammatory process, sun exposure, etc...). Despite the fact that the axillary area is generally not sun-exposed, squamous cell skin cancer manifested as an extensive lesion that required a complex surgical resection with flap repair. Such consequences highlight the need for a thorough physical exam and work-up to diagnose lesions in their early forms which require simple resection procedures and avoid late diagnoses resulting in complex procedures that involve a risk of various complications like wound infection or dehiscence, flap ischemia or necrosis, among others. Furthermore, it is important to consider a more aggressive behavior with a biopsy showing metatypical skin cancer (basosquamous skin cancer), opting for a wider surgical margin compatible with squamous skin cancer. Such an approach proved right in our patient to avoid possible recurrence or the need for a wider margin in the case of a different final pathology result.

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