### ABSTRACT

A clinical case of subungual squamous cell carcinoma, in which a tumor had been located in the medial fold of the left thumb for 4 years, is described in a 89-year-old male patient. The objectives of this study are to draw attention to the rarity of the subungual location of the tumor – highlighting the differences in diagnosis compared with benign lesions – and the importance of pain as a symptom, which may help diagnose the condition early and facilitate a better prognosis and lower morbidity. Additionally, we discuss the more frequently used therapeutic approaches, based on a review of the literature on radiation therapy, Mohs Micrographic Surgery and amputation.

**Keywords:** carcinoma, squamous cell; nails; melanoma.

### INTRODUCTION

This case report’s objective is to describe a rare location of squamous cell carcinoma (SCC) – underneath the nail plate – in order to provide a better understanding of the pathology and allow an earlier diagnosis, which is crucial for the patient’s prognosis. We also discuss the best treatment options, based on a literature review.

Subungual SCC is a malignant tumor of atypical location that is frequently confused with other morbidities. Its occurrence is uncommon in the extremities; a single finger is affected in most cases, frequently the thumb or the hallux.  

Although its etiology remains uncertain, several factors – such as traumas, chronic infections, immunosuppression, exposure to arsenic (senior psoriatic patients), tar, radiation (exposure to x-rays) and genetic disorders (dyskeratosis and congenital epidermolysis bullosa) are thought to contribute to its development.  

Exposure to x-rays can be followed by radiodermatitis that, together with infection by the human papilloma virus
Carcinoma subungueal

(HPV, types 16, 26, 34, 35, 56) – which suggests the probable autoinoculation from the anogenital region – is the most common factor for the development of subungual SCC.1

This invasive condition is often painless, and is more prevalent in men over 60 years old. Because it presents only minimal clinical alterations, its diagnosis is frequently delayed and it is often confused with other pathologies.2

Most of the time it occurs as an erythematous-papular lesion of variable size, circumscribed, with a flat surface, desquamative or even elevated, that can extend from the nail bed to the lateral and distal folds of the nail. Considerably diverse symptoms are associated with the condition, such as paronychia, dyschromia, onycholysis, ulceration, bleeding and pain.2

The tumor can resemble other clinical conditions such as chronic paronychia, granuloma pyogenic, vulgar wart, onychomycosis, psoriasis, subungual exostosis and melanoma.2 The neoplasias most frequently found in the subungual tissue are SCC (including Bowen’s disease), melanoma, basal cell carcinoma and keratoacanthoma.2 It is important to note the occurrence of cases of metastatic subungual SCC, which originate mainly in the lungs and esophagus. Although distant metastases are uncommon or delayed, the compromise of the underlying bone structure is more common. Around 55% of cases can penetrate to the bone.3

**CASE REPORT**

An 89-year-old male patient presented with an erythematous-nodular lesion of around 5 to 7 mm (diameter of longest axis), located in the medial fold of the first left chirodactyl (Figure 1). He had a previous diagnosis of subungual SCC, through biopsy and subsequent histopathologic examination, in another care service, but had missed the follow up. As a possible etiological factor, the patient reported a history of trauma in the area (many years before), denying other associations. The lesion evolved slowly and gradually, however an increase in the size of the lesion and the localized pain were observed around one year before the patient sought treatment at this care service. There was an absence of palpable lymphadenopathy in the ipsilateral limb or in other lymphatic chains. The x-ray of the chirodactyl was normal.

The lesion was excised with a wide surgical margin (0.5 cm), and left to heal by secondary intention; the material collected was sent for histopathologic examination. No hybridization for HPV analysis was carried out. The histological samples demonstrated a proliferative lesion of squamous epithelial origin, which infiltrated the subungual tissue (Figure 2). The lesion presented a clearly infiltrative character, deeply penetrating the nail bed, yet not compromising the deep margin.

The proliferative cells presented a large, strongly eosinophilic cytoplasm, with hyperchromatic and bulky nuclei, in addition to accentuated atypias and evident intercellular bridges, which characterized the invasive, moderately differentiated squamous cell carcinoma, presenting free margins (Figure 3).

**DISCUSSION**

The present case illustrates the need to be highly suspicious of lesions with slow and progressive growth, which are often treated as benign lesions without presenting satisfactory therapeutic results. A lesion biopsy – critical for a definitive (histopathologic) diagnosis – is often performed late due to an absence of medical suspicion. The diagnosis is frequently late, with an average time of four years, in some cases taking up to 40 years.4

Dermatoscopy of the nail apparatus has been shown to be of paramount importance in differentiating between pigmentation of non-melanocytic origin – such as subungual hematoma, bacterial or fungal infections – and those of melanocytic origin, resulting from benign melanocytic nevi, racial pigmentation and even melanoma.5 The treatment plan for SCC – and resulting prognosis – depends on the histological type, the cellular differentiation, and the penetration in the underlying tissues.6 The treatment of choice for initial lesions,
without compromising the bones, is Mohs Micrographic Surgery (MMS). According to the experience of several authors, it is theoretically the best treatment, since it allows the appropriate excision with the maximum preservation of the normal tissue and function. There are a number of inconveniences such as the high cost and other limitations that, in practice, make its frequent use unfeasible.

Classic excisional surgery, the approach used in the present case report, has achieved excellent results in the treatment of lesions in which there is no compromise of the bones. Such results are similar to those obtained with MMS, however with a lesser degree of complexity. In the case described, we opted for the removal of the nail plate, the exeresis of the lesion with wide surgical margins of 0.5 cm, and healing by secondary intention, without the need to perform grafts. The patient is currently being followed up on a quarterly basis, and has presented excellent healing, with no signs of recurrence, which demonstrates the success of this technique.

Other techniques described in the literature for treating cases without bone compromise are electrotherapy and cryotherapy. Neither technique allow adequate histological control of tumoral margins, and both produce results inferior to those of classical excisional surgery – and are thus not indicated, in principle.7 If there is involvement of bones or extensive involvement of soft tissue, amputation of the interphalangeal distal joint or a more proximal amputation should be considered.4 In case of palpable lymph nodes, dissection is indicated if they do not disappear within 3 to 4 weeks following amputation or excision, given that the increase of lymph nodes is often caused by chronic inflammation. Radiotherapy can be used in cases when performing surgeries is not feasible, the lesion is large, and with compromise of the bones, or when the size of the tumor needs to be decreased in preparation for a later exeresis.5

A retrospective study by Grootenboers and others describes 12 patients with subungual SCC in chirodactyls who were treated with radiotherapy in two important care services in Holland. Although this neoplasia presents a low incidence of metastases, it is usually primarily treated by amputation. Using radiotherapy, localized and permanent control was obtained in 92% of the patients; a single serious adverse effect was experienced, which resulted in the amputation of the finger initially involved. No regional or distant recurrence was observed during the follow-up.7

Due to the excellent results that have been presented, based on other successful studies in the literature, we have concluded that radiotherapy should be considered an alternative modality – rather than the amputation of the distal phalange as the initial modality – in the approach of subungual SCC in cases where surgery is not feasible or there is compromise of the bone.

Amputation should be reserved for those rare untreatable cases.9, 10 We have concluded that, in spite of the rarity of this pathology, it is important to be alert for the early diagnosis and best treatment. In cases with no compromise of the bones, the best treatment is (in principle) classical excisional surgery; radiotherapy is indicated in cases with a compromise of the bones or in which surgeries are not feasible.

REFERENCES