

CASE REPORT

Squamous Cell Carcinoma of the Finger Nail Bed: An Onychomycosis Like Lesion

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ABSTRACT

Squamous cell carcinoma is a form of skin malignancy that involves squamous cells lining the epidermis. It is the second most common form of non-melanoma skin malignancy. We describe a case of squamous cell carcinoma involving the nail bed of an elderly gentleman that was initially diagnosed as a case of fungal infection of the nail bed. *Malaysian Journal of Medicine and Health Sciences* (2023) 19(2):347-349. doi:10.47836/mjmhs19.2.50

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INTRODUCTION

Skin malignancies involve various layers of the skin and are differentiated based on the type of cells involved. The commonest described skin malignancy is melanoma, followed by basal cell carcinoma and squamous cell carcinoma (1). It commonly involves sun-exposed skin areas such as the scalp, facial region and dorsum of hands. This condition has been attributed to prolonged exposure to ultraviolet radiation, leading to DNA mutation in squamous cells lining the epidermis. It regularly presents as red firm nodules or flat sores with scaly crusts or wart like lesions, mimicking other common benign skin lesions. We describe a case of a senior gentleman who presented with a fingertip lesion at his left index finger that initially resembled onychomycosis, which was eventually diagnosed as a case of squamous cell carcinoma of the nail bed based on histopathological findings. This article aims to highlight the possibility of this condition presenting in with a benign clinical picture.

CASE REPORT

An eighty eight year old Chinese gentleman presented with a left index fingertip swelling for a period of 3 months. He noted that it started with mild elevation of the tip of his nail plate gradually progressing to near total displacement of his nail plate off due to an underlying swelling. He denied any history of trauma to the finger prior to the swelling and refuted any history of constitutional symptoms. Other than well-controlled

hypertension and a past history of ischemic heart disease, he denied any confounding health issues that may have predisposed him to his clinical problem. He was an avid gardener who spent most of his time curating his garden, which predisposed him to prolonged periods of sunlight. He had initially sought treatment at a primary healthcare facility during the initial stage of his condition and was diagnosed with onychomycosis and managed with a course of anti-fungal medications. As his condition failed to improve, he was reassessed for history of immunosuppression, exposure to toxins and also investigated for possible human papillomavirus infection, all of which were unremarkable. He was subsequently referred to our clinic for further evaluation and management.

Clinically, he appeared well, neck, cardio-respiratory and abdominal examination was unremarkable. Inspection of the tip of his left index finger revealed that the nail plate was no longer present (Figure 1). There was a fungating and ulcerative lesion emanating from the nail bed region with a swollen pulp and radially deviated distal phalanx. Neurovascular status of the digit was still preserved despite the swelling. Palpation of regional lymph nodes was also unremarkable.

Plain radiographs of his left index finger revealed complete obliteration of the distal phalanx of the left index finger with a surrounding soft tissue swelling shadow (Figure 2). Further imaging in the form of chest radiographs, CT of the thorax, abdomen and pelvis were done to detect possible metastases. An ultrasound scan of the thyroid gland was also done to exclude a possible primary malignancy of the thyroid gland. Fortunately, all these radiological investigations were unremarkable. Blood investigations such as full blood count, serum alkaline phosphatase, serum calcium and phosphate



Figure 1: Clinical pictures showing total loss of the nail plate with a fungating and ulcerative lesion at the tip of the left index finger involving the nail bed region and pulp. The distal phalanx appears radially deviated.



Figure 2: Plain radiographs of the left index finger showing complete obliteration of the distal phalanx with surrounding shadows indicative of a soft tissue swelling

levels were within normal limits. Tumour markers and inflammatory markers such as ESR and CRP were not raised.

An incisional biopsy was then done at the exposed nail bed of the left index finger to ascertain the diagnosis. The histo-pathological result revealed presence of squamous cell carcinoma at his nail bed (Figure 3). Patient was then counseled regarding his diagnosis and consented for disarticulation at the level of proximal interphalangeal joint of his index finger. The patient progressed well and did not have any recurrence or complications at his last follow-up which was at two years post operative period (Figure 4). A recent PET scan done just prior to his latest follow up also shown no evidence of local recurrence or

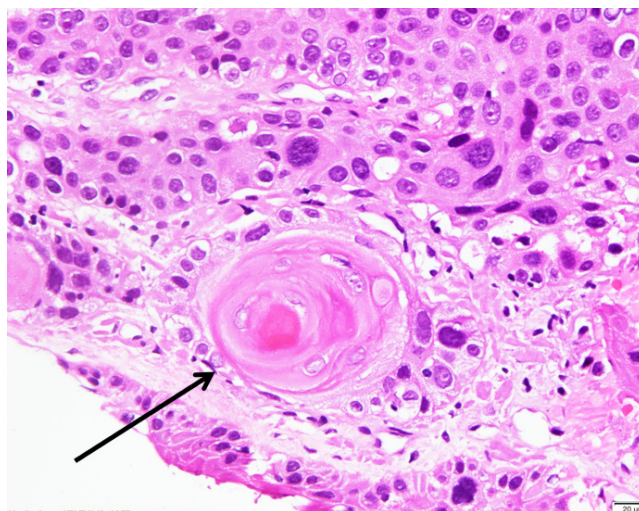


Figure 3: Histo-pathological slide with arrow pointing to a keratin pearl, pathognomonic of mild to moderately differentiated squamous cell carcinoma.



Figure 4: Clinical picture of the healthy stump at 2 years post operative period.

distant metastasis.

DISCUSSION

Primary care physicians play an essential role in detecting suspected malignant cutaneous lesions. However, they are commonly confronted with a daunting task of differentiating a possible malignancy from a benign problem. This challenge is heightened when it involves nail or fingertip lesions that may have varying appearances. Timely detection and proper management has been found to improve patient results. Hence, a high index of suspicion and sound clinical acumen is emphasized in these cases to obtain favorable outcomes (1).

Skin pathologies represent one of the commonest problems seen in primary care practice. This is attributed to the skin being the largest organ in the body, exposing it to a myriad of external factors, predisposing it to various cutaneous pathologies. The skin plays several important roles. It is a barrier to microbes, external irritants and allergens while juggling the role of maintaining internal homeostasis and hormonal synthesis. Despite the number of tasks it performs, amazingly these functions

are conducted within three layers of cells, namely the epidermis, dermis and subcutaneous tissue. Within the epidermis, squamous cells, basal cells and melanocytes are found.

Squamous cell carcinoma is a malignancy of squamous cells involving areas of cutaneous frequently exposed to ultraviolet radiation (UV radiation) such as the face, ears and hands. Although it is the second most common non-melanoma skin carcinoma after basal cell carcinoma, it is the most common cutaneous malignancy of the hand (2,3). It commonly manifests as a scaly, reddish patch of skin that slowly evolves into a raised macule, which may crust and bleed. Unfortunately, when the nail bed is involved, its clinical history and morphological appearance may mask a straightforward diagnosis, as these tumours are slow growing and may possibly co-exist or mimic nail pathologies such as verruca, chronic paronychia, onycholysis or onychomycosis such as that seen in this case. This could explain the delay in diagnosing the condition from its initial onset as clinicians often only decide to perform a biopsy at a later stage after a trial of treatments for benign skin conditions.

The most significant risk factors associated with this condition include prolonged exposure to sunlight, fair skin, age of 65 and above and an immunosuppressed state. These risk factors in addition to the well-documented association of squamous cell carcinoma and Chinese ethnicity stratify the patient discussed at a higher risk of developing the condition. Other well-documented risk factors include a history of organ transplant, chronic lymphocytic leukemia, prior HPV infection and exposure to ionizing radiation and toxins such as arsenic, polycyclic aromatic hydrocarbons, nitrosamines and alkylating agents (2,4). Assessing for these risk factors may help ease the diagnostic conundrum which present in these cases.

Principles of management of cutaneous malignancies involve a stepwise approach. A thorough history with a comprehensive physical examination is emphasized. Accurate diagnosis with histopathological evidence and detection of possible metastases or systemic involvement via relevant radiological and laboratory investigations further substantiates the diagnosis. This was demonstrated in this case with the order of chest radiographs and CT scans of the thorax, abdomen and pelvis. With an established diagnosis, the digit involved is stratified as either salvageable or unsalvageable. In salvageable digits, a wide local excision or disarticulation of the joint proximal to the lesion may be offered to the patient. However, in unsalvageable digits with extensive deep structural involvement and nodal metastasis, amputation of the digit with or without regional nodal dissection may be considered. Radiotherapy may also be offered to cases where surgery is contraindicated and in cases where a palliative pathway has been chosen (5).

Fortunately for the patient discussed, he was diagnosed a salvageable digit, necessitating only a disarticulation at the level of the distal inter-phalangeal joint of his left index finger. Regular post-operative follow-up appointments are a must for surveillance of local recurrences. This is critical, especially for patients with prior history of skin malignancies. Appropriate imaging modality such as PET CT scan should also be utilized as part of surveillance of recurrence. PET CT scan offers high accuracy in detection of residual or recurrence of squamous cell carcinoma and it is suggested that this scan is performed at least after twelve weeks of treatment.

CONCLUSION

Squamous cell carcinoma of the finger nail bed often goes undiagnosed in the initial stages, due to its history and benign morphological appearance. This could predispose a patient to substantial local disease progression or even metastasis. A high index of suspicion is advised when dealing with such cases, and prompt referrals to an Orthopaedic or Hand and Microsurgery facility is advised where a biopsy may be done by the treating surgeon to establish the diagnosis. When managed promptly with an appropriate choice of management, a high cure rate is attainable, however if managed late, poor outcomes may ensue.

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