JPDS Journal of the Philippine Dermatological Society

CASE REPORT

Subungual squamous cell carcinoma of the great toe presenting as a pyogenic granuloma-like mass in a 64-year-old Filipino male: a case report

Sher Claranza O. Liquido, MD,[1] Bernice C. Navarro, MD, FPSGS, FPCS,[2,3]
Tanya Angela Perez Chua, MD, FPDS,[1] Mae Ramirez Quizon, MD, FPDS,[1,4,5]

ABSTRACT

INTRODUCTION Subungual squamous cell carcinoma is rare, though it is the most common primary malignant neoplasm in the nail unit. Fingernails are more commonly involved than toenails with nonspecific and mild features. Histopathologic presentation may be difficult to distinguish from other tumors. With this, there is often a delay in diagnosis.

CASE REPORT A 64-year-old male presented with a subungual yellowish granulomatous plaque, eventual dystrophy, and persistent bleeding on the first digit of the right foot of two years' duration. Initially diagnosed as pyogenic granuloma through skin punch biopsy, debridement with ungiectomy was done. Upon recurrence, he underwent wide excision with matricectomy, wherein deeper sections revealed features of basosquamous carcinoma. A positive Epithelial Membrane Antigen and negative BerEP4 staining later confirmed a diagnosis of SCC. Since bone involvement was repeatedly suspected in magnetic resonance imaging after postoperative radiotherapy, amputation was eventually done.

CONCLUSION We report a case of subungual SCC initially diagnosed as a pyogenic granuloma. Full-thickness biopsy should be done in persistent nail conditions using special stains to confirm the diagnosis. Surgical treatment or radiotherapy with or without systemic therapy is the first line of treatment for subungual SCC. In cases of bone involvement, amputation may be warranted.

KEYWORDS nail, pyogenic granuloma, squamous cell carcinoma, tumor

[1]Department of Dermatology, St. Luke's Medical Center, Quezon City and Taguig City
[2]Institute of Surgery, St. Luke's Medical Center Global City, Taguig City
[3]Department of Surgery, Rizal Medical Center, Pasig City
[4]Department of Dermatology, University of the Philippines-Philippine General Hospital, Manila
[5]Department of Dermatology, Rizal Medical Center, Pasig City

Corresponding author
Sher Claranza O. Liquido, MD

Conflict of interest
None

Source of funding
None

Cite as
Liquido SCO, Navarro BC, Chua TAP, Quizon MR. Subungual squamous cell carcinoma of the great toe presenting as a pyogenic granuloma-like mass in a 64-year-old Filipino male: a case report. J Phil Dermatol Soc. 2022;31(1):46-49.

INTRODUCTION

Squamous cell carcinoma (SCC) is rare, though it is the most common primary malignant neoplasm of the nail unit.[1] Fingernails are usually involved and less often toenails with nonspecific and mild clinical features.[2] Histopathologic presentation may also be difficult to distinguish from other tumors. With this, there is often a delay in the diagnosis.[1]

We describe a case of subungual SCC in a 64-year-old Filipino male, initially presenting as a pyogenic granuloma on punch biopsy. Later, a wedge resection biopsy was performed, which revealed an invasive basosquamous carcinoma. Immunohistochemical staining confirmed an invasive subungual squamous cell carcinoma.

CASE REPORT

A 64-year-old male initially presented with yellowish nail discoloration and onycholysis on the first digit of the right foot of two years duration. He noted spontaneous bleeding in the area a few months later, hence consulted a dermatologist and was given an oral antibiotic and a topical antifungal in the form of amorolfine lacquer. Initially, there was an improvement with a decrease in discoloration. However, spontaneous bleeding recurred. The patient tried applying different solutions composed of benzoic acid with salicylic acid, oak bark extract, essential oils, herbs, and tea tree oil on top of amorolfine. Despite stinging pain with every application, he continued for two months until he noted edema and erythema in the periungual skin, nail dystrophy and loss of middle and distal portion of the nail plate exposing a granulomatous nail bed.

The patient was hypertensive, dyslipidemic, and diabetic, with a family history of leukemia on the maternal side. He was a retired military personnel with significant sun exposure, however, he denied persistent trauma in the area affected.

A diagnosis of pyogenic granuloma was initially made, for which he underwent one session of pulsed dye laser (PDL). However, the procedure was discontinued due to intense pain with

JPDS
Journal of the Philippine Dermatological Society

minimal improvement. A 4-mm skin punch biopsy was then done wherein routine hematoxylin and eosin (H&E) stain revealed ectatic blood vessels surrounded by dense lymphohistiocytic and plasma cell infiltrate, supporting the diagnosis of a pyogenic granuloma. At this point, the lesion presented as a well-defined erythematous fleshy plaque with some areas of granulation tissue and discolored dystrophic nail on the distal portion of the right great toenail (Figure 1). Unguiectomy and debridement of the nail bed were done. Two weeks later, the lesion recurred with a further increase in size, pain, and associated bleeding. A wider excision with matricectomy was then done wherein H&E stain initially revealed an invasive basosquamous carcinoma - enlarged atypical basaloid cells in the dermis with peripheral palisading and retraction artefact. Deeper sections showed eosinophilic tumor nests of moderately differentiated keratinocytes with hyperchromatism and nuclear atypia (Figure 2). Immunohistochemical staining revealed positive Epithelial Membrane Antigen (EMA) (Figure 3) and negative BerEP4, which confirmed invasive squamous cell carcinoma of the subungual unit. Work-up for metastases was unremarkable.

Since the nail unit is a high-risk area, the patient underwent postoperative adjuvant radiotherapy, receiving a total tumor dose of 6,000 cGy for 30 days. Two weeks post-radiotherapy, there was a recurrence of the fleshy plaque on the affected digit. Magnetic resonance imaging (MRI) showed subtle enhancement of the osseous structure in the terminal phalanx of the first digit on the right foot, which was reported to represent a neoplastic process with possible osseous infiltration. However, as the effect of radiotherapy was expected to extend to two months beyond the last radiotherapy session, a repeat MRI was scheduled. Two months post-radiotherapy, there was neither recurrence of the fleshy mass, nor pain and bleeding in the affected digit (Figure 4). Popliteal and inguinal lymphadenopathies were not palpable. On repeat MRI, there was regression of the previously noted enhancement; however, there was a development of bone marrow edema with minimal enhancement on the first digit of the right foot ascribed to a neoplastic process. Due to persistent possible osseous involvement on repeat MRI two months post-radiotherapy, the patient underwent amputation of the distal phalanx of the right great toe. Histopathologic assessment of the amputated specimen showed clearance of residual carcinoma, with chronic inflammation and chronic granulation tissue formation.

DISCUSSION

Subungual SCC presents with mild nonspecific symptoms and an indolent course that is usually misdiagnosed and disregarded. It can present as pain, destruction, or discoloration of the nail plate, hyperkeratosis, erythema, ulceration, periungual or subungual mass, or paronychia. In an article by Dijksterhuis

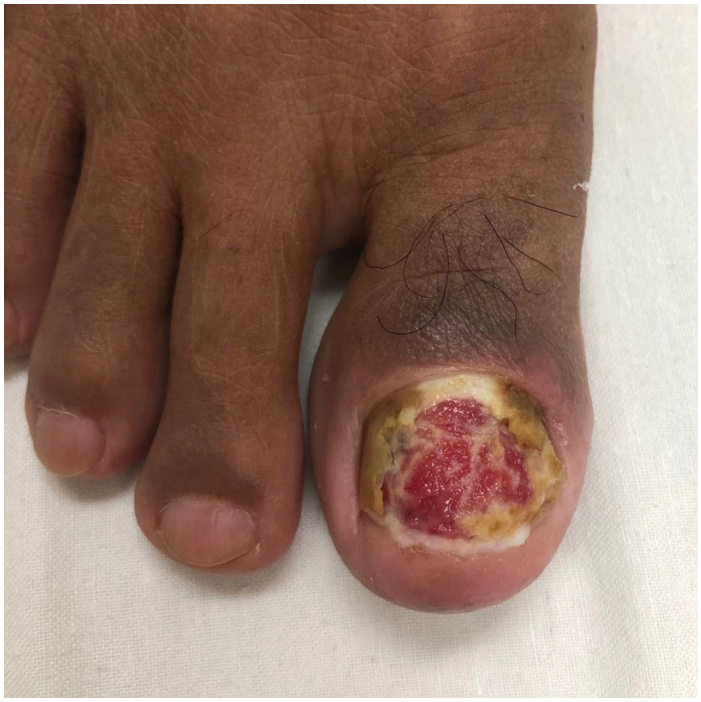

Figure 1. Fleshy plaque with some areas of granulation tissue, and central nail loss and discoloration of the remaining nail on the periphery of the right great toenail.

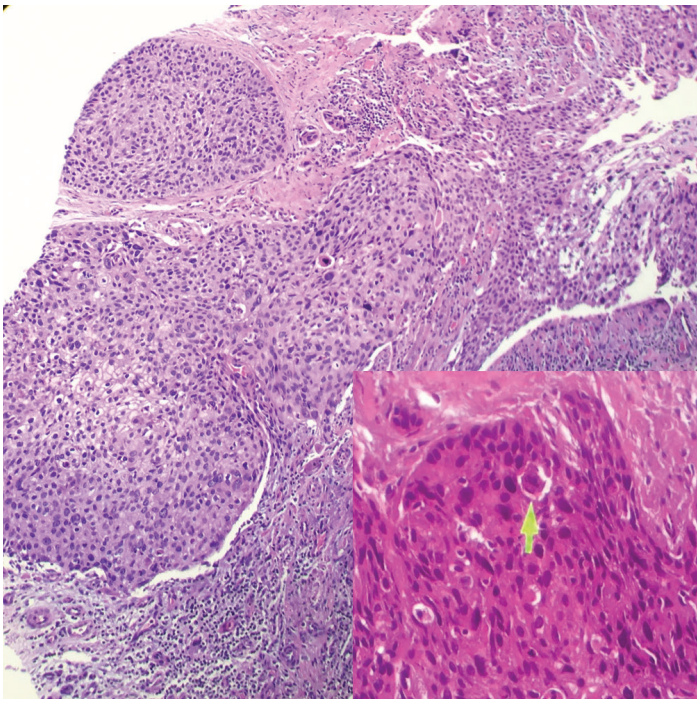

Figure 2. Wide Excision with Matricectomy showing enlarged atypical basaloid cells in the dermis with peripheral palisading and retraction artefact (H&E: 100x). Inset: Eosinophilic tumor nests with hyperchromatism and nuclear atypia (yellow arrow) (H&E: 400x).

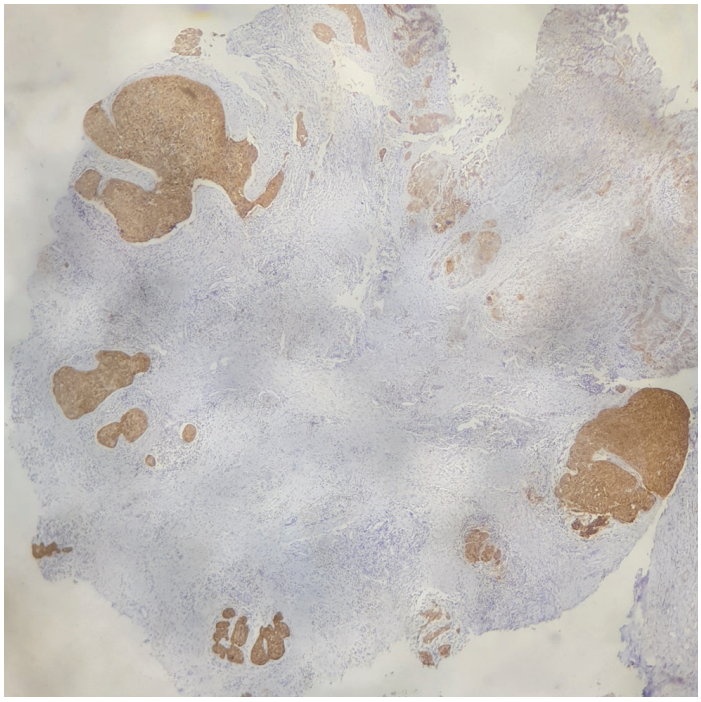

Figure 3. Positive immunohistochemical staining of the tumor nests (EMA: 40x).

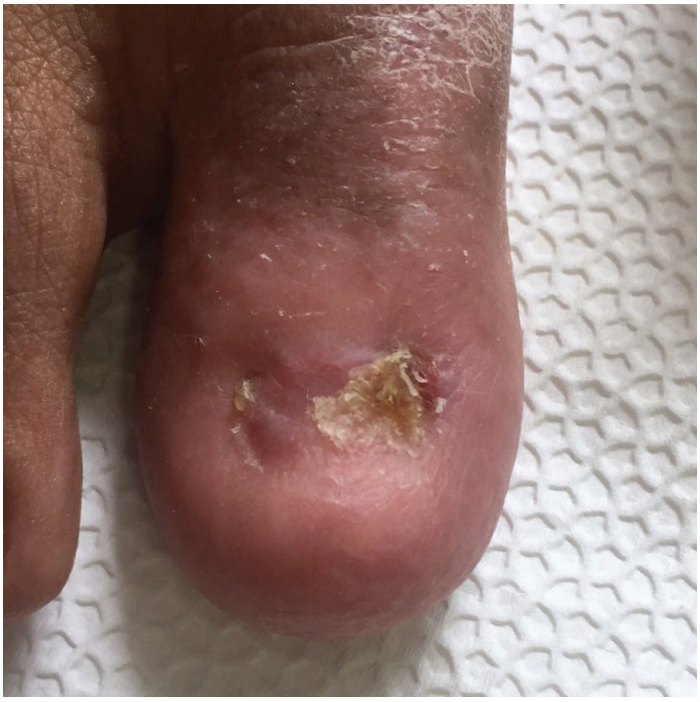

Figure 4. No pain, bleeding, or recurrence of the fleshy mass two months post-radiotherapy.

et al. (2018), all 304 cases of SCC in the nail unit reviewed were initially misdiagnosed before a proper diagnosis was made. It was misdiagnosed as a chronic infection at 42% and as verruca vulgaris in 28% of cases.[3] In light of its varied clinical manifestations, a high index of suspicion and a low threshold for histopathologic examination are vital for making an early diagnosis.[4] Biopsy techniques for SCC of the nail unit include punch, shave, and excisional biopsy. Size and depth of the specimen should be adequate to provide information that will guide diagnosis and appropriate therapy, such as in aggressive growth patterns.[5]

In our case, wide excision and matricectomy provided sufficient specimens for diagnosing malignancy in the deeper sections.

In histopathology, SCC usually consists of nests of cells with abundant eosinophilic cytoplasm with central keratinization and horn pearl formation, depending on the differentiation of the tumor.[1] SCC may be confused with BCC, such as in the case of collision tumors, and in differentiating basosquamous carcinoma (BSC) from SCC with basaloid features.[6] In our patient, aside from showing a moderately differentiated type of squamous cell tumor, basaloid features were also observed with peripheral palisading and retraction artefact from the stroma indicative of BSC. Special stains were then important in establishing an accurate diagnosis. A study by Beer et al. (2000) showed that BerEP4 and EMA can be used to distinguish among BCC, SCC, and BSC. BerEP4 labels most of BCC and none of SCC, allowing the separation of the two tumor types.[7] BerEP4 also marks the basaloid component of BSC, allowing the visualization of a transition zone. On the other hand, EMA labels 85-100% of SCC cases and only 2-8% of BCC cases.[8] In our case, as the specimen from the wide excision and matricectomy was negative for BerEP4 but positive for EMA (Figure 3), it confirmed a squamous cell carcinoma. Accurate determination of the type of tumor is essential for management, prognostication, and monitoring as tumors have different modes of behavior and metastatic potential.[7]

According to the National Comprehensive Cancer Network (NCCN) guidelines of 2018 which was the most recent available guideline in place during diagnosis and treatment of the case, localized SCC treatment depends on whether the case is low-risk or high-risk.[9] Any high-risk factor immediately places the patient in the high-risk category.[9] Nail involvement is classified as high-risk with treatment options including surgery or radiotherapy with or without systemic therapy.[9] Wide excision with matricectomy was done with postoperative radiotherapy administered over thirty days. Excision has a 5-year disease-free rate of 91% with clear margins.[9] However, since margins could not be ascertained in our case due to the fragmented specimen, radiotherapy with a 5-year cure rate of 90-93% served as an adjuvant, as recommended.[9] In cases where there is bone involvement, amputation is indicated.[10] As osseous infiltration

JPDS Journal of the Philippine Dermatological Society

was repeatedly suspected in the MRI at two months post-radiotherapy, amputation was eventually done.

Prognosis of nail unit SCC is good if it is recognized early. Hence, in cases wherein chronic nail conditions fail to respond to conventional treatment, a biopsy should be done since an underlying malignancy can present as benign nail pathology. Though metastases are rare, subungual SCC tends to quickly become more invasive to the bone in up to 20% of cases.[10] The recurrence rate is also high due to the anatomical difficulty of the nail for margins, and pathology is harder to interpret. Long-term surveillance is needed, especially within the first two years wherein most recurrences develop.[9]

CONCLUSION

We report a case of subungual SCC initially diagnosed as a pyogenic granuloma. Full-thickness biopsy should be done in persistent nail conditions using special stains to confirm the diagnosis, as underlying malignancy may present as benign nail pathology. Surgical treatment or radiotherapy with or without systemic therapy is the first line of treatment for subungual SCC. In cases of bone involvement, amputation may be warranted.

REFERENCES

1. Lonsdorf AS, Hadaschik EN. Squamous Cell Carcinoma and Keratoacanthoma. In: Kang S, Amagai M, Bruckner AL, Enk AH, Margolis DJ, McMichael AJ, Orringer JS, editors. Fitzpatrick's Dermatology in General Medicine. McGraw Hill; 2019. Vol 1; p. 1901-16.
2. Dalle S, Depape L, Phan A, Balme B, Ronger-Savle S, Thomas L. Squamous cell carcinoma of the nail apparatus: clinicopathological study of 35 cases. Br J Dermatol. 2007 May;156(5):871-4. DOI: 10.1111/j.1365-2133.2006.07744.x
3. Dijksterhuis A, Friedeman E, Heijden BVD. Squamous Cell Carcinoma of the Nail Unit: Review of the Literature. J Hand Surg Am. 2018;43(4). DOI:10.1016/j.jhsa.2018.01.010.
4. Khullar G, Singh S, Saikia UN, Kumar A, Singh MP, Kanwar AJ. Squamous cell carcinoma of the nail fold masquerading as pyogenic granuloma. Indian J Dermatol Venereol Leprol 2016;82:555-557. DOI: 10.4103/0378-6323.182975.
5. Murad A, Armstrong A, Baum C, Bordeaux JS, Brown M, Busam KJ, et al. Guidelines of care for the management of cutaneous squamous cell carcinoma. J Am Acad Dermatol. 2018;78:560-78. DOI: 10.1016/j.jaad.2017.10.007.
6. Patterson JW. Tumors of the Epidermis. In: Patterson JW, editor. Weedon's Skin Pathology. Charlottesville, VA: Churchill Livingston; 2016:815-21.
7. Beer TW, Shepherd P, Theaker JM. Ber EP4 and epithelial membrane antigen aid distinction of basal cell, squamous cell and basosquamous carcinomas of the skin. Histopathology. 2000;37(3):218-23. DOI:10.1046/j.1365-2559.2000.00999.x.
8. Heyderman E, Graham RM, Chapman DV, Richardson TC, Mckee PH. Epithelial markers in primary skin cancer: an immunoperoxidase study of the distribution of epithelial membrane antigen (EMA) and carcinoembryonic antigen (CEA) in 65 primary skin carcinomas. Histopathology. 1984;8(3):423-434. DOI:10.1111/j.1365-2559.1984.tb02354.x.
9. National Comprehensive Cancer Network [Internet]. Squamous Cell Skin Cancer (Version 2.2018) [cited 2020 Jan 6]. Available from: http://www.nccn.org.
10. Starace M, Alessandrini A, Dika E, Piraccini BM. Squamous cell carcinoma of the nail unit. Dermatol Pract Concept. 2018;8(3):238-44. DOI:10.5826/dpc.0803a017.