

# UC Davis

## Dermatology Online Journal

### Title

Early diagnosis of subungual squamous cell carcinoma of the hallux

### Permalink

<https://escholarship.org/uc/item/428217hj>

### Journal

Dermatology Online Journal, 21(7)

### Authors

Kaksi, Sumeyye Altintas  
Ozdemir, Mustafa  
Balevi, Ali  
[et al.](#)

### Publication Date

2015

### License

<https://creativecommons.org/licenses/by-nc-nd/4.0/> 4.0

Letter

Early diagnosis of subungual squamous cell carcinoma of the hallux

Sümeyye Altıntaş Kakşı<sup>1</sup>, Mustafa Özdemir<sup>1</sup>, Ali Balevi<sup>1</sup>, Aslı Çakır<sup>2</sup>, Yeliz Tavlı<sup>1</sup>

Dermatology Online Journal 21 (7): 18

<sup>1</sup>Medipol University Hospital Department of Dermatology

<sup>2</sup>Medipol University Hospital Department of Pathology

Correspondence:

Sümeyye Altıntaş Kakşı  
TEL: 0 505 2481940  
0212 4607777  
E-MAIL: saltintas99@gmail.com  
Sumeyye.kaksi@medipol.com.tr

---

**Abstract**

Primary subungual squamous cell carcinoma (SCC) of the toe is rare in the literature and frequently late or misdiagnosed. Lack of awareness among physicians of the specific clinical findings, the indolent course of the disease, and the high prevalence of benign conditions of the nail unit may account for delays in diagnosis. In addition to difficulties in identifying the true incidence of this tumor, a standardized therapeutic approach does not currently exist. We present a case of subungual SCC of the first toe without bone invasion. The tumor was diagnosed early, treated with conservative surgical excision, and showed no recurrence or metastasis after 2 years of follow-up.

**Keywords:** squamous cell carcinoma , subungual SCC, nail SCC, nail tumors

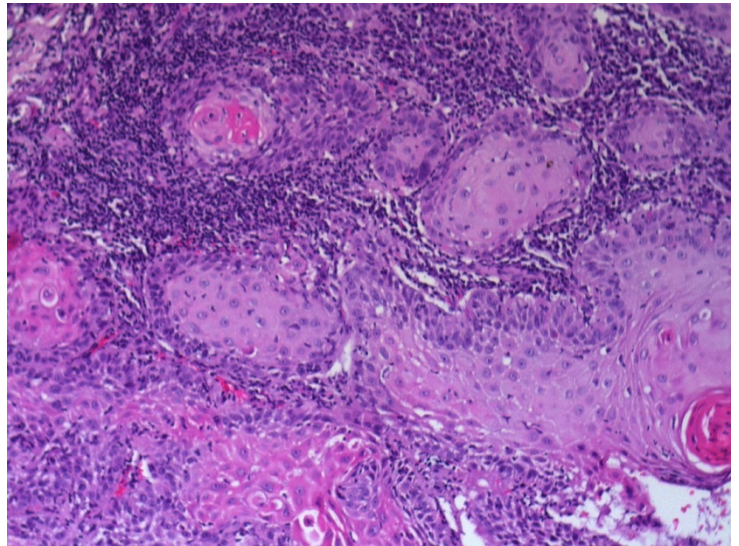
**Case synopsis**

A 50-year-old man was seen in our clinic with the chief complaint of a nail abnormality in his left first toe during the past year. History revealed unsuccessful topical and systemic antibiotic therapy. Over time, median onycholysis, discoloration, and dystrophy of the nail had developed. Further, no response was seen to systemic and topical antifungal therapies prescribed by another physician and administered for 6 months. Orthopedic consultation and treatment yielded no results either. There was no history of trauma, verruca, immune suppression, or radiation or chemical exposure. Upon examination, the nail plate of the left first toe was elevated and angled along the median plane with a visible subungual mass and onycholysis (Figure 1). There were no palpable lymph nodes. Laboratory findings were within normal limits. Microbiology cultures from the lesion remained negative. Radiologic exam showed no bone erosion or resorption in the distal phalanx. Punch biopsy from the subungual lesion was indicated and performed (Figure 2). Histopathologic examination revealed well-differentiated SCC (Figure 3). Owing to absence of bone invasion, wide local tumor excision was performed by a plastic surgeon. There was no tumor infiltration along surgical boundaries. At the end of a 2-year follow-up after surgical resection, no local recurrence nor regional or systemic



**Figure 1.** Clinical picture of left hallux nail

metastases were seen.



**Figure 2.** Macroscopic view of subungual squamous cell carcinoma after nail avulsion **Figure 3.** Microscopic view of subungual squamous cell carcinoma after nail avulsion

## Discussion

Even though subungual SCC is a rare entity, SCC is the most common malignancy associated with the nail unit [1]. Besides the low incidence of subungual SCC, involvement of the toes is even less frequent. In a series of 35 subungual SCC patients reported by Dalle et al, 28 had finger involvement whereas only 8 patients had toe involvement [2]. In a literature review conducted by Valero et al, only 36 cases of subungual SCC cases were found over the 18 year period screened [3]. Subungual SCC usually affects men, commonly between the ages of 50 and 59. The majority of the reported cases involve a single digit, most often the thumb or the first toe [3]. Subungual SCC may originate from the nail bed, nail matrix, nail groove, or the lateral nail folds [4]. Etiologic factors associated with the disease are: chronic infections, chemical or physical microtrauma, genetic disorders such as congenital ectodermal dysplasia, radiation, tar, arsenic or mineral exposure, sunlight, immunosuppression, and prior history of human papilloma virus (HPV) infection [6,7,8]. Several studies suggest that mucosal HPV (HPV 16, 31, 54, 58, 61, 62 and 73) may play a role in the development of malignancies in the nail unit [6]. In 60-90% of subungual SCC cases HPV DNA. More than 60% of the HPV positive specimens were associated with HPV 16 [9]. In our case, potential causative factors were eliminated via clinical history and physical exam. Further, neither history nor physical exam revealed genital warts in our patient. In the literature review by Valero et al, no specific cause has been identified in 50% of subungual SCC cases [3].

Clinical findings of subungual SCC may vary and include chronic pain, swelling, onycholysis, and dyschromia of the nail plate. The most common form of presentation is a verrucous appearance of the nail bed and periungual area and nail dystrophy. In our case, 6-month treatment for onychomycosis in another center had not provided any improvement. When the nail plate was lifted for biopsy, the mass showed a verrucous appearance.

Other findings suggestive of subungual SCC are nodularity, bleeding, and ulceration [6,10]. Diagnosis may be difficult owing to a resemblance to several benign conditions such as verruca, onychomycosis, paronychia, glomus tumor, ingrown nail, pyogenic granuloma, subungual exocystosis, chronic osteomyelitis, and traumatic dyschromia [5,11,12]. In addition, diagnosis may be delayed by 4-40 years because of other factors such as the masking of the tumor by the nail plate, low awareness among physicians, and secondary infections [6,13]. Bone invasion is seen in 16-66% of the cases of late diagnosis of subungual SCC [2,13]. Even though cutaneous SCC generally has a low metastasis risk, subungual SCC is associated with a higher risk of local invasion and metastasis owing to the rich arteriovenous network located in the subungual bed. In chronic nail disorders unresponsive to conventional treatments, the nail plate should be lifted and a biopsy done to enable early diagnosis of subungual SCC.

Owing to its rarity, a standardized therapeutic approach has not been fully defined for subungual SCC. Therapy is planned based on tumor infiltration, ranging from wide local excision to distal phalanx amputation with lymph node dissection when metastasis is suspected. In the absence of bone invasion, wide local excision is preferred over simple excision owing to low risk of recurrence. If bone invasion is present, distal phalanx amputation is recommended. Our case was diagnosed relatively early within 1 year. Because of the absence of bone invasion it was treated by wide local excision. No local recurrence or metastasis was seen after 2 years of follow-up.

SCC must be considered in cases of subungual deformity and discoloration that has been unresponsive to treatments for other possible diagnoses. An early biopsy should enhance therapeutic success and prevent metastases as was the case in our patient.

## References

1. Carrol RE. Squamous cell carcinoma of nail bed. *J Hand Surg Am* 1976; 1:92-7.
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;156:871-874.
3. Valero JI, Gallart J, Gonzalez D, Deus J, Lahoz M. Subungual squamous cell carcinoma and exostosis in third toe--case report and literature review. *J Eur Acad Dermatol Venereol*. 2014 Oct;28(10):1292-7.
4. Yip KM, Lam SL, Shee BW, Shun CT, Yang RS. Subungual squamous carcinoma: report of 2 cases. *J Formos Med Assoc* 2000;99:646-9.
5. Lai CS, Lin SD, Tsai CW, Chou CK. Squamous cell carcinoma of the nail bed. *Cutis* 1996; 57: 341-345.
6. Meesiri S. Subungual squamous cell carcinoma masquerading as chronic common infection. *J Med Assoc Thai* 2010;93: 248-51.
7. Patel PP, Hoppe IC, Bell WR, Lamber WC, Fleegler EJ. Perils of diagnosis and detection of subungual squamous cell carcinoma. *Ann Dermatol* 2011;23 Suppl 3: S285-7.
8. Nasca MR, Innocenzi D, Micali G. Subungual squamous cell carcinoma of the toe: report on three cases. *Dermatol Surg* 2004; 30(2 Pt 2):345-8.
9. Moy RL, Eliezri YD, Nuovo GJ, Zitelli JA, Bennett RG, Silverstein S. Human papillomatous type 16 DNA in periungual squamous cell carcinomas. *JAMA* 1989; 261: 2669-73.
10. Ruiz Santiago H, Morales- Burgos A. Cryosurgery as adjuvant to Mohs micrographic surgery in the management of subungual squamous cell carcinoma . *Dermatol Surg* 2011; 37: 256-8.
11. Patel DU, Rolfes R. Squamous cell carcinoma of the nail bed. *J Am Podiatr Med Assoc* 1995;85:547-549.
12. Gomez Vazquez M, Navarra Amayuelas R, Martin –Urda MT, Abellana Fernandez C, Tapia G. Subungual squamous cell carcinoma. Presentation of two cases. *Actas Dermosifiliogr*. 2010;101(7):654-6.
13. Kelly KJ, Kalani AD, Storrs S, Montenegro G, Fan C, Lee MH, et al. Subungual squamous cell carcinoma of the toe: Working toward a standardized therapeutic approach. *J Surg Educ* 2008;65:297-301.