

Atypical Presentation of Subungual Melanoma

**Seung Hwan Hwang, Sujin Bahk,
SuRak Eo**

*Department of Plastic and Reconstructive
Surgery, DongGuk University Graduate School of
Medicine, Seoul, Korea*

Received: October 6, 2016

Revised: [1] December 2, 2016
[2] January 17, 2017

Accepted: January 27, 2017

Correspondence to: SuRak Eo

Department of Plastic and Reconstructive
Surgery, Dongguk University Ilsan Hospital,
27 Dongguk-ro, Ilsandong-gu, Goyang 10326,
Korea

TEL: +82-31-961-7342

FAX: +82-31-961-7347

E-mail: sreodoc@gmail.com

Malignant melanomas sometimes present with nail or periungual pigmentation, as a subungual melanoma. This pigmentation also occurs in nonmelanoma skin disorders. Therefore, biopsy is mandatory for the absolute diagnosis. We present an atypical presentation of subungual melanoma in an 81-year-old female patient with no specific periungual pigmentation. She suffered from a crushing injury in her right thumb 2 years ago and had undergone repetitive stump plasty at a local clinic. Recently, she felt intermittent pain at the thumb tip. During the revisional stump plasty, we unexpectedly noted a spread out of dark colored soft tissues the distal phalanx. Pathological examination revealed subungual malignant melanoma. This unusual form of melanoma has a predilection for an acral location, particularly the paronychia region. Even when small pigments are found on the periungual area, careful examination and identification of a component of melanoma is necessary in order to not miss any malignant finger lesion.

Keywords: Fingers, Melanoma, Atypical forms

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Subungual melanoma is an uncommon variant of melanoma that arises in the nail unit often causing difficulties in diagnosis for the clinician¹. It has worse results compared to cutaneous melanoma in other sites due to its delayed diagnosis². There are still controversies about which clinical features may affect prognosis². These tumors usually present with typical local symptoms such as colorful nail streak or plate changes, ulceration, bleeding, and pain³. However, these lesions sometimes have been mistaken for hematomas, warts, paronychia, blisters, or

nevi^{4,5}. Misdiagnosis or delayed diagnosis have resulted in advanced stage lesions at first presentation. Therefore, early recognition of clinical signs and symptoms with punch biopsy of the nail bed is mandatory in the suspected lesions⁴.

Although it is usually regarded as a form of cutaneous melanoma, the causative factors of subungual melanoma remain unclear. There is no demonstrable association between the development of subungual melanoma and excessive exposure to ultraviolet light, and the nail plate has been shown to act as a protective barrier⁴. Antecedent trauma is reported in many patients, but its role in the

pathogenesis of the disease process is not conclusively established⁶. Therefore, it is often held that trauma to the fingertip is likely to be coincidental in patient with subungual melanoma.

We report a rare case of primary subungual melanoma without any specific cutaneous pigmentation at the fingertip. It was missed by unwary clinicians and lead to misdiagnosis preoperatively.

CASE REPORT

An 81-year-old woman visited our outpatient clinic with fingertip pain and very small remnant nail tissue on the right thumb. She has suffered from a crushing injury in her right thumb 2 years ago. She had been underwent stump plasty with excision and nail extraction repetitively at a local clinic. The symptoms began 2 months ago before especially when she overused her hands. By physical examination, there were painful nail remnants on perionychium of the nail root on her right thumb (Fig. 1). During the exploration, to remove the nail remnants, we encountered the dark, black color tinged soft tissues and bone which were spread out like dye-tinged tissues (Fig. 2). All the dirty tissues were removed and sent for the pathological examination, and pathology revealed an atypical melanocytic proliferation, which implied melanotic malignant melanoma without regional lymphatic

invasion. Additional skin lesions could not be observed at other sites. According to tumor, node, and metastasis (TNM) staging, this malignant melanoma was T4 N0 M0, stage IIC. Reoperation was performed immediately at the metacarpophalangeal (MCP) joint level for digital amputation (Fig. 3). Because she refused, we did not



Fig. 2. During the exploration, we happened to dark, black color tinged soft tissues and bone which were spread out like dye-tinged tissues.



Fig. 1. (A) Bilateral fingertip nail remnants on the eponychium. (B) X-ray images of the first visit. She had been underwent stump plasty with nail extraction.

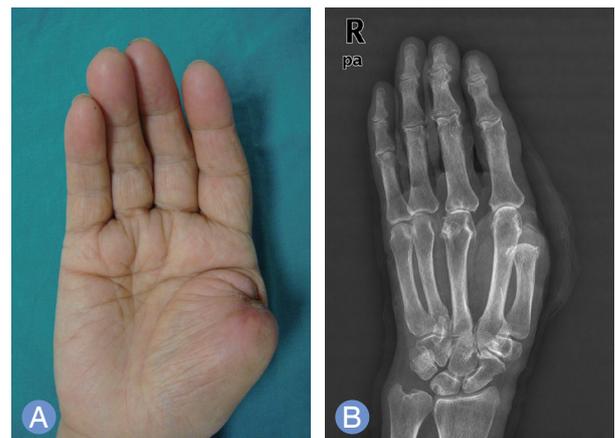


Fig. 3. (A) Surgical amputation was performed at the metacarpophalangeal (MCP) joint level. (B) Postoperative X-ray, posteroanterior view showing the final result.

perform additional procedure. There are a frozen biopsy was implemented and neither local invasion nor metastasis was proved in pathological examination. This subsequent amputation showed no residual melanoma. Recurrence was not observed after the following 5 years.

DISCUSSION

Subungual melanoma has been considered as a deadly form of melanoma due to its high mortality with only 27% of 5-year survival rate⁷. While cutaneous melanoma has been found to be more common in Caucasians, melanoma in unusual sites such as hands and feet is thought to occur disproportionately more often in dark skinned race⁸. Subungual melanoma has the peak incidence in the 5th to 7th decades and known to be occurred most frequently in the thumb (34%) and the 3rd finger (14%)^{6,8}.

Despite the apparent increase in attention to subungual melanoma, little progress has been made in the characterization of the diagnosis and prognosis. Hutchinson firstly published his experience with subungual melanoma in 1886 and reported that the lesion was usually attributed to a traumatic injury⁵. Some suggested an association with a history of nail trauma in addition to sun exposure⁴. Although, there has never been conclusive evidence that trauma is a causative factor, 29%–55% of patients report the relationship between direct trauma and the onset of subungual melanoma in recent studies⁶.

Subungual melanoma might appear initially as melanonychia striata longitudinalis in the nail plate. It is often neglected by patients and frequently misdiagnosed by physicians. Hutchinson's sign, which is periungual pigmentation accompanied by melanonychia, is the most significant sign in the differentiation between subungual melanoma and melanocytic nevus⁵. The estimated mean delay in diagnosis ranges from 3 to 24 months which is nearly double time of the diagnostic delay observed with cutaneous melanoma^{7,9}. Therefore, it results more advanced stages of disease at presentation, and it frequently requires radical excision, such as amputation of the affected fingers. Optimal diagnosis could be made by

punch biopsy of the nail bed, but has its limitations because accurate measurement of depth of invasion is often challenging². Five percent of all cutaneous melanoma has known to occur on the hands and feet, where it is much more difficult to achieve adequate diagnosis and management¹. Therefore, Melanoma within the digit necessitates a careful approach and precise diagnosis¹.

American Academy of Dermatology recommends the safety margin of cutaneous melanoma as 0.5–1.0 cm for *in situ* tumors, 1.0 cm for tumors <1.0 mm, 1.0–2.0 cm for tumors 1.01–2.0 mm, and 2.0 cm for tumors >2.0 mm^{2,4}. When melanoma presents on the digits or in the subungual area, amputation should be usually preformed as in our case³. However, this tendency has been recently broken with proven equivalent oncologic outcomes with more distal amputation for most lesions or even wide local excision for *in situ* lesions¹⁰.

The differential diagnosis includes single pigmented nail streak, soft tissue necrosis exhibiting ulceration or black color changing, other infection or cellulitis. Many of subungual melanomas have been initially mistaken for benign or traumatic lesions of the nail bed such as pyogenic granuloma, paronychia, hematoma, blister, and pigmented nevus².

Our report focuses on one case of an extremely rare presentation of malignant melanoma with residual nail fragment. Although there was no pigmentation externally, only the following two notes; the periungual nail remnants, and dark colored tinged at the exploration revealed melanotic subungual melanoma in our case. It would appear that this unusual form of melanoma has a predilection for acral location, particularly the periungual region. Therefore, any colored pigments, chronic pain or recurred inflammation should be given special attention in the differential diagnosis malignant melanoma of the toes and fingers.

REFERENCES

1. Imakado S, Sato H, Hamada K. Two cases of subungual melanoma in situ. *J Dermatol.* 2008;35:754-8.
2. Linares MD, Hardisson D, Perna C. Subungual malig-

- nant melanoma of the hand: unusual clinical presentation: case report. *Scand J Plast Reconstr Surg Hand Surg.* 1998;32:347-50.
3. Yang Z, Xie L, Huang Y, et al. Clinical features of malignant melanoma of the finger and therapeutic efficacies of different treatments. *Oncol Lett.* 2011;2:811-5.
 4. Kottschade LA, Grotz TE, Dronca RS, et al. Rare presentations of primary melanoma and special populations: a systematic review. *Am J Clin Oncol.* 2014;37:635-41.
 5. Baran R, Kechijian P. Hutchinson's sign: a reappraisal. *J Am Acad Dermatol.* 1996;34:87-90.
 6. Tang CY, Fung BK, Lung CP. A hidden threat: subungual melanoma in hand. *Surg Sci.* 2012;3:78-83.
 7. Cohen T, Busam KJ, Patel A, Brady MS. Subungual melanoma: management considerations. *Am J Surg.* 2008;195:244-8.
 8. O'Leary JA, Berend KR, Johnson JL, Levin LS, Seigler HF. Subungual melanoma: a review of 93 cases with identification of prognostic variables. *Clin Orthop Relat Res.* 2000;(378):206-12.
 9. Warso M, Gray T, Gonzalez M. Melanoma of the hand. *J Hand Surg Am.* 1997;22:354-60.
 10. Sinno S, Wilson S, Billig J, Shapiro R, Choi M. Primary melanoma of the hand: an algorithmic approach to surgical management. *J Plast Surg Hand Surg.* 2015;49:339-45.

조갑하 악성 흑색종의 비정형적 발현

황승환 · 박수진 · 어수락

동국대학교의학전문대학원 성형외과학교실

흑색종은 손톱을 포함한 주변조직에 색소침윤과 함께 발생할 수 있으며, 이를 조갑하 흑색종이라 한다. 이러한 손톱 주변의 색소 침윤은 흑색종뿐 아니라 비흑색종성 피부병변에서도 나타날 수 있기 때문에 이를 감별하기 위하여 조직검사가 필요하다. 우리는 81세 여자 환자에게서 손톱 주변의 색소침윤 없이 비특이적으로 발생한 조갑하 악성 흑색종에 대하여 증례보고를 하고자 한다. 이 환자는 2년전 우측 엄지손가락의 압궤손상을 입은 후 인근 의원에서 몇 차례의 단단성형술을 받았고, 최근 수상부의 간헐적인 통증을 느껴왔다. 본원에서 추가적인 단단성형술을 진행하게 되었고, 어두운 색깔의 조직이 원위지에 퍼져있는 소견이 관찰되었다. 이 조직에 대한 생검상 조갑하 악성 흑색종으로 판명되었다. 이러한 흔치 않은 형태의 악성 흑색종은 수지침부의 손톱 주위에 잘 발생할 수 있다. 손톱 주변부의 작은 색소침착이 관찰된 경우, 악성병변을 놓치지 않기 위해서는 내부 조직에 대한 정밀한 검사와 흑색종 여부에 대한 판별이 필요하다.

색인단어: 수지, 흑색종, 비정형적 발현

접수일 2016년 10월 6일 **수정일** 1차: 2016년 12월 2일, 2차: 2017년 1월 17일

게재확정일 2017년 1월 27일

교신저자 어수락

경기도 고양시 일산동구 동국로 27

동국대학교일산병원 성형외과학교실

TEL 031-961-7342 FAX 031-961-7347

E-mail sreodoc@gmail.com