Atypical Presentation of Subungal Melanoma

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INTRODUCTION

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

Although it is usually regarded as a form of cutaneous melanoma, the causative factors of subungal melanoma remain unclear. There is no demonstrable association between the development of subungal melanoma and excessive exposure to ultraviolet light, and the nail plate has been shown to act as a protective barrier. Antecedent trauma is reported in many patients, but its role in the...
pathogenesis of the disease process is not conclusively established. Therefore, it is often held that trauma to the fingertip is likely to be coincidental in patients 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...
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 rate\(^7\). 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 race\(^8\). 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 injury\(^5\). Some suggested an association with a history of nail trauma in addition to sun exposure\(^4\). 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 studies\(^6\).

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 nevus\(^5\). 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 challenging\(^2\). 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 management\(^1\). Therefore, Melanoma within the digit necessitates a careful approach and precise diagnosis\(^1\).

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 case\(^3\). 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* lesions\(^10\).

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 nevus\(^2\).

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.

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조갑하 악성 흑색종의 비정형적 발현

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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 압 궤손상을 입은 후 인근 의원에서 몇 차례의 단단성형술을 받았고, 최근 수상부의 간헐적인 통증을 느꼈다. 본원에서 추가적인 단단성형술을 진행하게 되었고, 어두운 색깔의 조직이 원위지에 퍼져있는 소견이 관찰되었다. 이 조직에 대한 생검상 조갑하 악성 흑색종으로 판명되었다. 이와 같은 형태의 악성 흑색종은 수지첨부의 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

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