

BRIEF ARTICLES

Cutaneous Scalp Metastases from a Left Hallux Subungual Melanoma: An Instructive Case of Scalp Nodules

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ABSTRACT

Melanoma is the most aggressive form of skin cancer affecting patients worldwide and has the potential to metastasize to virtually any organ in the body. Early detection is of paramount importance to minimize patient morbidity and mortality. However, there has been increasing evidence highlighting the existence of ethnic and geographical variations in the clinical presentation of melanomas. Unlike the Western population, the major subtype of melanoma affecting the Asian population is acral lentiginous melanoma (ALM) and not superficial spreading melanoma (SSM). We hereby present a case of left hallux subungual melanoma with scalp and probable liver metastases. This case underscores the importance of examining the acral skin and nail apparatus for melanoma in Asians and the need for increased public awareness regarding ALMs.

INTRODUCTION

Melanoma is the most aggressive form of skin cancer affecting patients worldwide and has the potential to metastasize to virtually any organ in the body. Early detection is of paramount importance to minimize patient morbidity and mortality. However, there has been increasing evidence highlighting the existence of ethnic and geographical variations in the clinical presentation of melanomas. Unlike the Western population, the major subtype of melanoma affecting the Asian population is in fact, acral lentiginous melanoma (ALM) and not superficial spreading melanoma (SSM).

We hereby present a case of left hallux subungual melanoma with scalp and probable hepatic metastases.

CASE PRESENTATION

A bedbound 87-year-old Chinese woman with advanced Parkinson's disease was seen by the inpatient Dermatology consult service for 2 asymptomatic scalp nodules, which have been present for a few years. According to her caregiver, the nodules were initially flat and resembled moles, but gradually enlarged over time. Clinical examination revealed a 13mm hypermelanotic, infiltrated nodule on the right temporoparietal scalp and a 17mm ulcerated and sloughy, hyperpigmented nodule on the right paravertex (Figure 1).

A punch biopsy of the non-ulcerated scalp nodule was performed for histopathological assessment. This demonstrated an expanded dermis filled with nests and sheets of atypical epithelioid cells bearing moderate cellular and nuclear atypia with

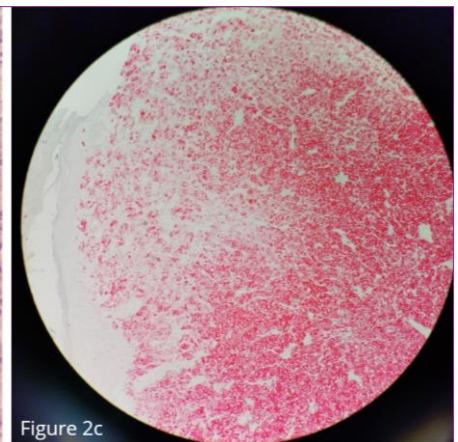
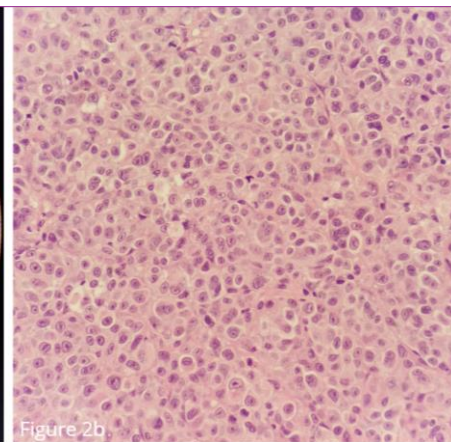
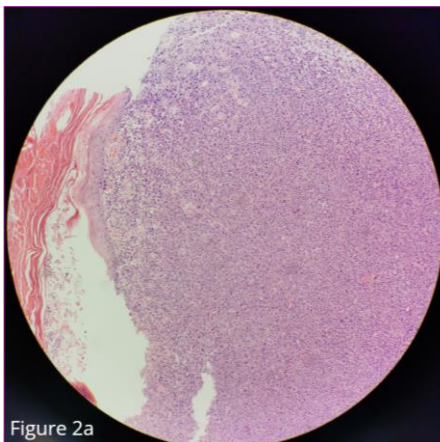
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Figure 1. Photo of the two hyperpigmented nodules on the patient's scalp.



prominent nucleoli, in conjunction with prominent mitotic figures. The atypical cells were strongly positive for Melan-A and Sox-10 and negative for AE1/3 and CK5/6. This malignant proliferation extended beyond the inferior resection margin and did not involve the overlying epidermis indicating that the process was not cutaneous in origin and likely due to haematogenous dissemination (Figure 2a, b, c). These findings were consistent with the diagnosis of metastatic melanoma.

Figure 2. (a) The dermis is infiltrated with cohesive sheets and irregular nests of atypical cells abutting against, but without connection to the ulcerated epidermis (H&E, 10x). (b) The anaplastic cells, which are epithelioid in nature, exhibit nuclear and cellular atypia, with prominent atypical mitotic figures (H&E, 40x). (c) The anaplastic cells are positive for Melan A. The bottom heavy positivity lends to the fact it is a dermal cutaneous metastasis. (Melan A, 10x)



On further clinical examination, the patient was also found to have heterogeneous subungual hyperpigmentation over the left hallux (Figure 3). Dermoscopy showed variegated bluish-black linear pigmentation at the eponychium (cuticular region) extending to distal nail bed and a central intervening area of white regression. There was periungual hemorrhage but no Hutchinson's sign (Figure 4). This constellation of features was diagnostic for subungual melanoma.

Her chest X-ray was unremarkable. An ultrasound scan of the hepatobiliary system was ordered to investigate an elevated serum alkaline phosphatase level and it demonstrated small hypo- and hyper-echoic foci in the liver as well as a large heterogeneous lesion in the right lobe. Serum alpha fetoprotein levels were however normal.

The diagnosis of left hallux subungual melanoma with scalp metastases and probable hepatic metastases was made

Figure 3. Photo of the subungual hyperpigmentation over the left hallux.



Given the patient's age and poor premorbid status, her family opted for conservative management and declined further investigations.

Figure 4. Close up photo of the subungual showing variegated bluish black linear pigmentation at the eponychium (cuticular region) extending to distal nail bed and a central intervening area of white regression



DISCUSSION

In the setting of firm scalp nodules with minimal surface changes, an underlying malignancy needs to be ruled out. Skin biopsy would be crucial to delineate if the nodules are primary cutaneous malignancies or cutaneous metastases from a distant primary malignancy, the latter would be more likely given the presentation of two discrete nodules. If this were a solitary lesion, a primary cutaneous malignancy (PCM) such as pigmented basal cell carcinoma would be more probable. Other PCM like squamous cell carcinoma, angiosarcoma and merkel cell carcinoma are usually non-pigmented.

Numerous visceral cancers have been implicated in cutaneous metastasis, but a useful *aide memoire* are cancers arising from midline organs or those that are bilateral; namely thyroid, breast, lung, pancreatic, renal and ovarian carcinomas. Lung carcinomas are also the most common primary malignancy in men while breast carcinomas are the most common in women. Skin melanoma has also been reported to spread to the scalp¹.

Melanoma results from an aberrant proliferation of melanocytes, which typically occurs on the skin but may rarely occur in the mouth, intestines or eyes. There are 4 major subtypes of cutaneous melanoma and they include superficial spreading melanoma (SSM), nodular melanoma (NM), lentigo maligna melanoma (LMM) and acral lentiginous melanoma (ALM).

From a histopathological perspective, the diagnosis of metastatic melanoma could be readily made. The presence of cohesive sheets and irregular nests of anaplastic cells without connection to the epidermis

suggested a disseminated carcinoma, as opposed to a sarcoma or hematolymphoid neoplasm which are discohesive. Aside from clinical correlation, delineating the cell type of the epithelioid carcinoma was done systemically via performing immunohistochemical stains. AE1/3 and CK5/6 negativity ruled out epithelial carcinomas originating from cells bearing high molecular weight cytokeratins (e.g. metastatic squamous cell carcinoma). Positive melanocytic markers such as Melan-A and Sox-10 clinched the diagnosis of metastatic melanoma. Sox-10 is a more sensitive stain for melanocytes as its a nuclear stain and was performed in this case should Melan-A (a less sensitive cytoplasmic stain), return spuriously as a false negative.²

In Western studies, SSM is the most common subtype followed by NM, LMN and lastly ALM.³ ALM in Western countries only accounts for 2% to 3% of all cases of melanomas.⁴ However, this is converse in Asians where ALM is the commonest subtype. A 2019 retrospective study in the multi-ethnic country of Singapore revealed that ALM was the commonest subtype, accounting for 33% of all cases followed by SSM accounting for 24% of all cases.⁵ This is similar to other studies in other Asian countries such as Hong Kong, Japan and Taiwan, where ALM makes up roughly 50% of the total cases of melanoma.⁶⁻⁹

Currently, there are no screening guidelines on melanoma for Asian individuals. Resources have instead been allocated in educating the general public regarding the increased incidence of ALMs in Asians, the specific anatomical sites that it affects and the importance of early detection. Fair skinned Asians who develop hyperpigmentation over acral sites or melanonychia are advised to seek medical

attention early so as to avoid the delay in diagnosis. These strategies to increase population based awareness have been effective in improving the survival rates for patients diagnosed with ALMs.⁹⁻¹⁰

CONCLUSION

When dealing with patients with a suspicious pigmented skin nodule, early referral to a dermatologist is warranted for consideration of biopsy so as to prevent delay in diagnosis. In the setting of multifocal pigmented skin nodules, cutaneous metastases has to be considered and investigating for a possible visceral primary malignancy is recommended. Given the ease of migration across the world, it is imperative for clinicians to be aware of the ethnic and geographical difference in disease spectrum and have a low threshold for diagnostic biopsies to avoid late diagnosis with catastrophic sequelae. This case underscores the importance of examining the acral skin and nail apparatus for melanoma in Asians and the need for increased public awareness regarding ALMs.

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