

## Malignant Melanoma of the Foot: The Tip of an Iceberg – A Creeping Danger that Lurks Beneath the Surface

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This is a report of a patient who presented with a history of what resembled a skin-tag on the plantar aspect of his left foot, which later grew in four months, causing discomfort during ambulation. Little did we know that the growth was just the tip of the iceberg of a vicious malignant melanoma (MM) lurking underneath with metastasis.

Upon clinical suspicion, a biopsy was scheduled to obtain histopathological examination (HPE). Magnetic resonance imaging (MRI) reported the lesion to be a malignant melanoma and contrast enhance computed tomography of the thorax abdomen and pelvic (CECT TAP) surveillance and positron-emission tomography (PET) were requested to stage and guide the treatment modalities. A wide surgical resection was performed and wound was left to heal via secondary intention.

The aim of this report is to create awareness of early suspicions and detection of MM and treatment, which could lead to a better prognosis and the acceptance of post excision allowing for wound to heal via secondary intention healing.

**Keywords:** *Malignant melanoma, early detection, biopsy, Breslow, prognosis, secondary intention healing.*

### Introduction

Melanoma is a skin malignancy that originates from melanocytes which produce melanin, the pigment that gives skin its colour. The exact cause of melanomas is not clear, but exposure to ultraviolet (UV) radiation from sunlight or tanning devices increases risk of developing melanoma.

Early detection of skin cancer ensures that malignant transformations are detected and treated prior to

spread. Melanomas are curative if detected early. A five-year relative survival rate for patients with stage 0 – AJCC Staging System for Cutaneous Melanoma is 97%, compared with about 10% for those with stage IV disease.<sup>1</sup>

Although the long-term survival rate of patients with metastatic malignant melanoma is very poor, early diagnosis and treatment carries an excellent prognosis, with surgical excision coupled with chemotherapy often being curative.

### Case

A 45-year-old gentleman presented with a left plantar skin lesion for 4 months. It was insidious in onset, gradually increases in size (Figure Ia) from a 1x1cm lesion to a 3x4cm fungating lesion without history of trauma or injury. A palpable mobile mass was found that was non-tender, firm, pink fungating lesion at the plantar region – with an inguinal lymphadenopathy on the ipsilateral limb. Blood investigations were within normal limits and no bony involvement was noted clinically.

A wide excision biopsy of left foot with a minimal 2cm cuff or normal tissues was performed (Figure Ib) with lymph node clearance. The histopathological reported as Malignant Melanoma, favoring Spitzoid melanoma with Breslow thickness: 15 mm, Clark's level: V, TNM staging: pT4b. The wound was sealed with a vacuum assisted dressing. CECT TAP showed left inguinal lymphadenopathy, left upper lobe lung and liver nodules. PET scan revealed a high FDG uptake at left inguinal and femoral node (Figure IIc). The patient was referred to the oncology team for targeted therapy.

The patient was followed up post operatively in the orthopedics and oncology clinics. Unfortunately, the

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disease was found to have progressed systemically, evident on routine CECT-TAP with new lesions subcutaneously and peritoneally, so the patient was offered seven cycles of intravenous (IV) Dacarbazine instead, approximately a month post-surgery. Oncologists suggested a BRAF gene mutation test, that can identify suitable patients who benefit from targeted therapy with Trametinib or Dabrafenib (BRAF inhibitors). After 10 months, the wound healed very well with secondary intention healing (Figure 1c).

### Discussion

Skin cancer ranked the tenth most common cancer in Malaysia with 347 cases of skin melanoma between 2012-2016.<sup>2</sup> The skin is the most common primary site of melanoma.

A study by Kyung WN *et al.* looked into salient differences comparing melanoma of the foot versus other melanomas.<sup>3</sup> Melanoma of the foot is more commonly acral lentiginous melanoma, where else nodular melanoma was the most common in other locations. Otherwise, no significant differences were found between gender, Clark's level, age, lymph node involvement, stage, tumour thickness and survival rates.<sup>3</sup>

PET scan using 18-fluoro-deoxy-D-glucose (18-FDG) has become increasingly popular in the staging of melanoma. The malignant cells are believed to have a higher metabolic rate, and this allows imaging an injected radio-labelled glucose analogue which is taken up by the tumour cells.<sup>4</sup>

Wide local excision of a melanoma remains the gold standard for treatment corresponding to Kawaguchi concept of curative margin in surgery. Balch *et al.*

evaluated 2-cm versus 4-cm margins for 1-4-mm thick primary melanomas. In their multifactorial analysis of prognostic factors, they reported that thickness, the presence of ulceration, and anatomic site were important prognostic factors and that a 2-cm or 4-cm margin demonstrated no statistical difference in overall survival or local disease recurrence.<sup>5</sup>

Healing by secondary intention had always been a valuable method of wound management. As cosmetic results are highly subjective, the goal in the end is patient's satisfaction. Some guidelines would be beneficial to determine the need for immediate wound closure or allowing healing by secondary intention. No universal guidelines have been established to date, however John A Zitelli<sup>6</sup> outlines helpful guidelines in management of wound healing by secondary intention.

Chemotherapeutic approaches to treating melanoma show progress with research. Various combination regimens have been studied in numerous trials and have been associated with response rates ranging from 9% to 55%. The challenge for the oncologist in the future will be to identify which combination of chemotherapeutic agents, if any, will offer consistent improvement over Dacarbazine (DTIC) alone.<sup>4</sup>

The identification of BRAF mutation and introduction of BRAF targeted therapy has improved outcomes in patients with metastatic malignant melanoma from a standard median survival of six months to a median of 25.9-33. Six months and decreased risk of relapse up to 53% as compared to placebo in certain groups of patients.<sup>7</sup> The patient in this case was not further tested for this mutation in view of logistics and financial constraints.

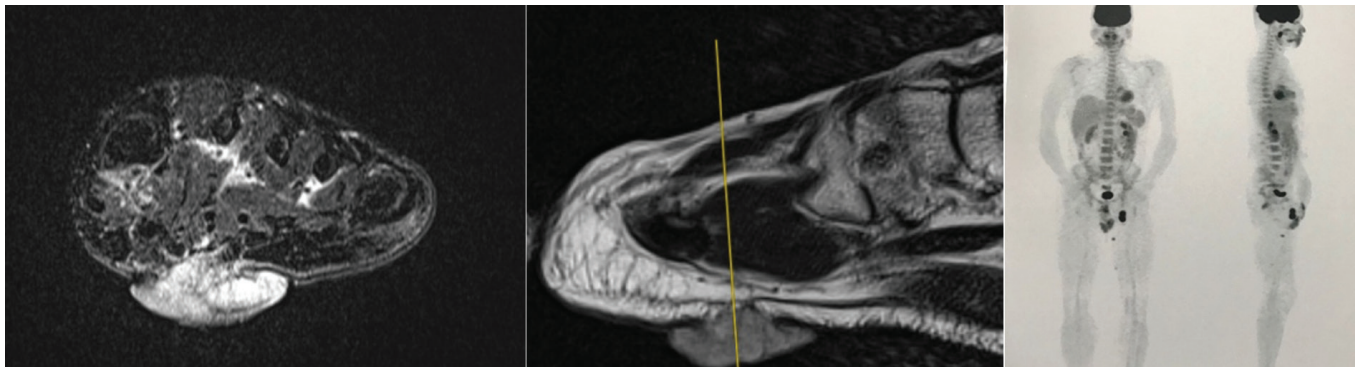
## Conclusion

Despite potentially exciting developments in the treatment of advanced malignant melanoma, prevention and early detection remain the primary

goals in battling this cancer. Early detection of melanoma should be the goal. As wide surgical margin excision is the mainstay treatment for Malignant Melanoma, not every wound benefits from immediate skin coverage or reconstruction.



**Figure I: Images of the lesions – (a) Pre operative (tumour). (b) Post resection wound. (c) Post wound healing after 10 Months.**



**Figure II: Imaging – (a) Axial cuts of a T2 weighted MRI. (b) Sagittal cuts of a T1 weighted MRI. (c) PET scan showed high FDG uptake at left inguinal and femoral node, liver and lung nodules.**

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