

# Unusual Recurrence of Malignant Melanoma After 14 Years, diagnosed by $^{18}\text{F}$ -FDG PET-CT Imaging: A Case Report

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## ABSTRACT

According to the World Health Organization, the number of malignant melanoma cases increases faster worldwide. Early diagnosed and adequately managed malignant melanoma shows a good prognosis. Rare cases of late metastasis of melanoma after long disease free survival, and their growing incidences are reported. This reported case is about a metastatic malignant melanoma who was apparently disease free for 14 years but showed late recurrence and earned clinical interest. A 60-year-old male patient was referred to PET-CT division of National Institute of Nuclear Medicine & Allied Sciences (NINMAS) for the evaluation of a biopsy proven malignant melanoma in right inguinal region. The patient presented with a newly developed asymptomatic nodule on his right thigh. Relevant past medical history included a completely excised lesion in his left axilla for malignant melanoma. Fine-needle aspiration and cytological analysis report of new lesion showed subcutaneous localization of malignant melanoma.  $^{18}\text{F}$ -FDG PET-CT imaging showed hypermetabolic soft tissue density mass in right inguinal region; Histopathology report (HPR) proved malignant lesion. Multiple hypermetabolic lesions were seen intra abdominally involving spleen and pancreas with corresponding hypodense lesions on CT scan. Multiple hypermetabolic enlarged intraabdominal, right axillary and right inguinal lymph nodes are also evident. After 14 years of disease free survival the reported case developed malignant melanoma with distal metastases. Although late metastasis is uncommon however physicians should be aware of any newly developed suspicious lesions and PET-CT can play an important role in workup for detection of metastases from melanoma.

**Keywords:** Malignant melanoma, disease free survival, recurrence, PET-CT.

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## INTRODUCTION

Malignant melanoma (MM) is the commonest tumor of the skin, but it can occur in other parts of the body. MM

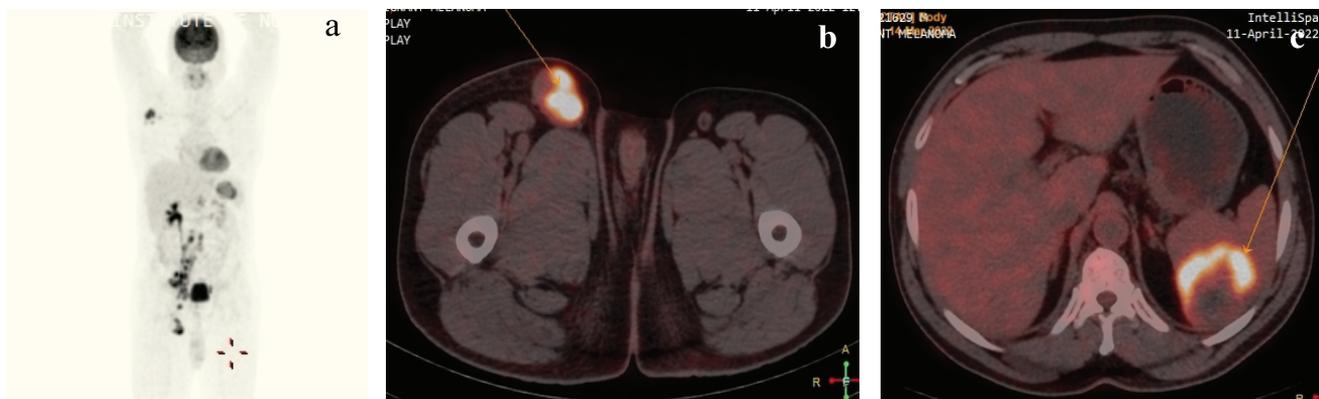
is a malignancy of pigment producing cells. Early diagnosis of MM is very important as only surgical excision can be curative if diagnosed in early stage. However, some patients may present with metastatic disease after disease free survival. Here a case of MM with recurrence and metastasis after 14 years of disease free survival is reported.

## CASE REPORT

A 60 years old gentleman, came to PET-CT division of National Institute of Nuclear Medicine & Allied Sciences (NINMAS). He was diagnosed with MM of left axillary region in 2005. As it was localized disease he was treated by surgical excision of the left axillary lesion followed by adjuvant chemotherapy with six cycles of Cisplatin, Vincristine and Dacarbazine. After completion of treatment the patient was in regular follow up for five years and then he lost follow up. He was disease free till 2019. Then he developed painful blackish discoloration of overlying skin in subungual region of 3rd finger of left hand. The patient underwent amputation of middle finger of left hand on first week of October, 2019 and histopathology proved malignant melanoma, Clark level IV, without LVI and clear margins. The patient also developed painful swelling in left axilla and CT scan on third week of October, 2019 revealed left axillary lymphadenopathy. Patient had undergone  $^{18}\text{F}$ -FDG PET-CT imaging for further evaluation and multiple metabolically active left axillary lymph nodes were detected. No other suspicious or metabolically active lesion was identified elsewhere in the body. Clearance when the patient underwent left axillary lymph nodes clearance surgery on 11th February 2020. HPR revealed

one of twenty-two (1/22) lymph nodes with metastatic tumor deposit without extra nodal extension. He was treated with Tab. Tamoxifen and adjuvant radiation therapy to left axilla. Recently he developed right inguinal swelling and HPR showed malignant melanoma. Physician advised  $^{18}\text{F}$ -FDG PET-CT scan for further evaluation. Latest PET-CT scan on 14th March 2022 showed hypermetabolic soft tissue density mass in right

population are the main sufferer of MM which amounts to total 3% of all malignancies (3). Darker skin produces much more melanin than lighter skin which results less damage by the ultraviolet radiation when exposed in sun. Localized disease shows better survival expectancy than those with disseminated disease. Younger patient shows better prognosis than older ones and women has a higher relative survival rate than men (4).



**Figure 1:** a) MIP image showing FDG avid lesion in right inguinal region, pancreas, spleen, multiple lymph nodes of right axillary, abdominal and right inguinal region. b, c) PET-CT scan showing hypermetabolic lesion in inguinal region and spleen.

inguinal region; HPR proved malignant lesion. Multiple hypermetabolic lesions were seen intraabdominally involving spleen and pancreas with corresponding hypodense lesions on CT. Multiple hypermetabolic enlarged intraabdominal, right axillary and right inguinal lymph nodes are also evident. Patient consulted with oncologist, and he was advised for another six cycles of chemotherapy.

## DISCUSSION

There are three main types of skin cancer; basal-cell carcinoma (BCC), squamous-cell carcinoma (SCC) and malignant melanoma (MM). Melanocytes are normal pigment producing cells which are derived from the neural crest during the development. MM is a potentially serious type of skin cancer with an uncontrolled growth of melanocytes (1). Though it accounts to only 5% of skin cancer but causing more than 75% of deaths related to skin cancer. Over several decades, the incidence of MM has gradually risen with an incidence rate averages ranging from 3 to 8% per year. In 2009, the MM estimated 5% and 4% of cancer incidences in males and females, respectively (2). Melanomas may rarely occur in the mouth, intestines, eye or vagina. Fair-skinned Caucasian

Important risk factors for MM include family history and/or past history of melanoma, dysplastic nevi and hereditary genetic mutations (5, 6). The sun and ultraviolet light are known exogenous factors in the causation of malignant melanoma. This patient had no family history of melanoma, but had melanoma in the past in 2005, with a recurrence in 2019. Long-term sun exposure as a result of his occupation as a farmer might be the external predisposing factor in this case.

There are a variety of symptoms of MM; includes skin changes that do not heal, ulceration of the skin, discolored skin, and changes in existing moles etc. Other common signs of skin cancer are painful lesion that itches or burns and large brownish spot with darker speckles. Clinical diagnosis of a MM is made by its ABCDE rule characterized by its Asymmetry, Border, Color, Diameter, and Evolution in character of a melanoma. Diagnosis is confirmed by full thickness excisional biopsy in mm (Breslow), level of invasion (Clark level I-V), presence of skin characteristics, and clearance of surgical margins (7, 8). Treatment of MM may involve combination of surgery, chemotherapy, radiation therapy and targeted therapy. This patient was initially presented with left axillary swelling and skin discoloration and diagnosis

was confirmed as MM by doing histopathology. Patient was treated by surgical excision followed by adjuvant chemotherapy in 2005. He was disease free till 2019. Again he developed painful blackish discoloration in subungual region of 3rd finger of left hand. Amputation of middle finger of left hand was done and HPR revealed MM, Clark level IV.

Most of the MM recurrences (65 - 81%) occur within 3 years after treatment (9). Less than one fifth of MM diagnosed in early stage may develop metastasis. Although almost all organs can be involved, the most frequent target sites are the liver, bone, brain or distant lymph nodes may indicate late-stage disease (10). MM has one of the higher survival rates among cancers, with over 86% of people in the UK and more than 90% in the United States surviving more than five years (11). Almost 14 years of disease free survival of this patient and is still surviving with advanced disease correlates with this reported case.

PET-CT is a non-invasive valuable imaging tool for the diagnosis and staging of MM. MM was one of the first indications for which Medicare approved coverage for PET-CT. The main indication of PET-CT in MM is to detect recurrence or to restage disease.  $^{18}\text{F}$ -FDG PET for the detection of metastasis are high with a sensitivity of 83% and specificity of 85%. In advanced stages,  $^{18}\text{F}$ -FDG PET has proven to be an adjunctive imaging modality as it is useful in detecting deep soft-tissue, lymph node, and visceral metastases (12). MM often shows a prolonged disease course with disease-free period following the proper management of the primary tumor and may develop visceral metastases; months, years, or even decades later, where PET-CT plays an important role in detection of metastases (13). This reported case developed late recurrence of disease and metastases after 14 years of disease free survival.  $^{18}\text{F}$ -FDG PET-CT scan on 14th March 2022 showed hypermetabolic soft tissue density mass in right inguinal region was suspicious for recurrence which was proven on histopathology. The other hypermetabolic lesions revealed on PET-CT involving the spleen, pancreas, and multiple abdominal, right inguinal and right axillary lymph nodes were highly suggestive of metastatic infiltration in distal organs.

Hence PET-CT plays an important role in identifying the recurrence and metastatic infiltration in MM.

## CONCLUSION

Early diagnosed and properly managed MM may show delayed recurrence and metastases after disease free survival as the reported case. Regular follow-up is essential in cases of disease free survival for early detection of recurrence or metastases. Inclusion of PET-CT scan in workup can enhance early detection of recurrence or metastases in MM.

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