



¹⁸F-FDG PET/CT Imaging in an Unusual Case of Cutaneous Melanoma Arising From Congenital Melanocytic Nevus in a Two-year-old Girl

İki Yaşındaki Bir Kız Çocuğunda Konjenital Melanositik Nevüsten Kaynaklanan Nadir Bir Kutanöz Melanom Olgusunda ¹⁸F-FDG PET/BT Görüntüleme

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Abstract

Childhood malignant melanoma (MM) is extremely uncommon. We report an unusual case of cutaneous melanoma that developed from a medium-sized congenital melanocytic nevus (CMN) in a two-year-old girl. The patient had a history of CMN on the right hip, and she presented with a new ulcerative area with irregular borders and bleeding on CMN. Histopathological examination of the nevus revealed a MM. ¹⁸Fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography/computed tomography was performed for metastatic evaluation. The scan demonstrated metastatic increased ¹⁸F-FDG uptake in the right external iliac and inguinal lymph nodes.

Keywords: ¹⁸F-FDG PET/CT, childhood, cutaneous melanoma, congenital melanocytic nevus

Öz

Çocukluk çağı malign melanomu (MM) oldukça nadirdir. İki yaşında bir kız çocuğunda orta büyüklükte konjenital melanositik nevüsten (KMN) gelişen nadir bir kutanöz melanom olgusunu sunduk. Sağ kalçada KMN öyküsü olan hasta, KMN üzerinde düzensiz sınırlı ve kanamalı yeni bir ülseratif alan ile başvurdu. Nevüsün histopatolojik incelemesi MM gösterdi. Metastatik değerlendirme için, ¹⁸flor-florodeoksiglukoz (¹⁸F-FDG) pozitron emisyon tomografi/bilgisayarlı tomografi görüntüme yapıldı. Görüntüleme sağ eksternal iliak ve inguinal lenf nodlarında metastatik artmış ¹⁸F-FDG tutulumunu gösterdi.

Anahtar Kelimeler: ¹⁸F-FDG PET/BT, çocukluk çağı, kutanöz melanoma, kongenital melanositik nevüs

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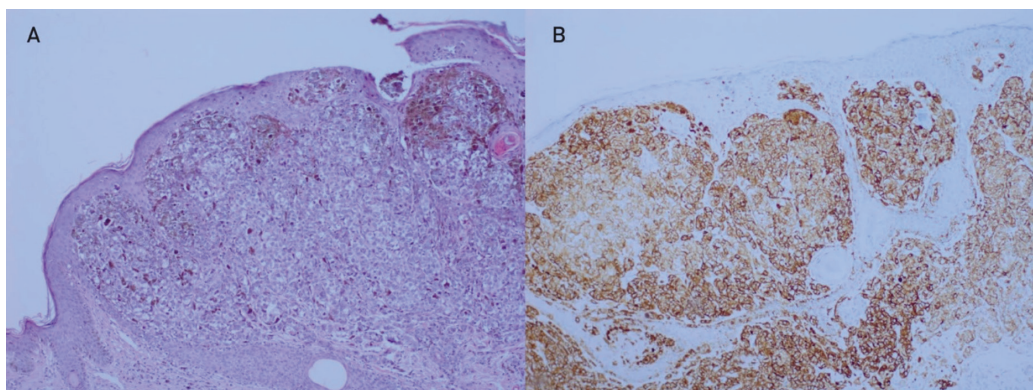


Figure 1. A 2-year-old girl with a medical history of congenital melanocytic nevus (CMN) on the right hip presented with a new ulcerative area with irregular borders and bleeding. At three months after the birth, histopathological examination of the nevus revealed CMN. She had no significant family history of atypical nevus or melanoma. Physical examination demonstrated hyperpigmentation of the right sclera, congenital hairy pigmented nevus of 11 cm in size on the right hip, multiple cafe au lait spots, and bilateral palpable inguinal lymphadenopathy. A recent histopathological examination of the nevus revealed a malignant melanoma (MM) with Breslow 1.2 cm and Clark level V (A). Nests of atypical melanocytes that filled the papillary dermis (hematoxylin and eosin staining, x100) (A). In immunohistochemical studies, tumor cells revealed positive expressions for HMB-45 (HMB45, x100) (B).

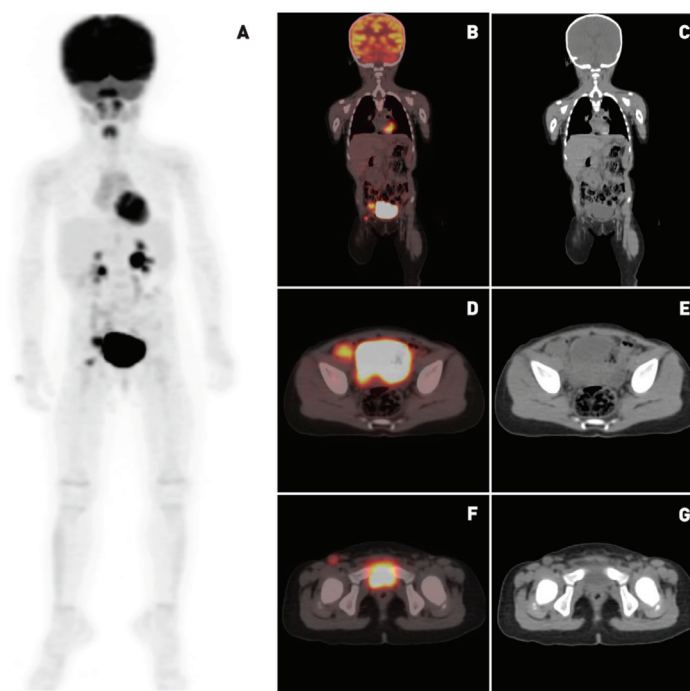


Figure 2. For metastatic evaluation, ^{18}F -fluorodeoxyglucose (^{18}F -FDG) positron emission tomography (PET) imaging with non-contrast and low-dose computed tomography (CT) was performed. ^{18}F -FDG PET/CT maximum intensity projection (A), fusion PET/CT (B), CT (C), transaxial fusion (D, F), and transaxial CT (E, G) images show increased ^{18}F -FDG uptake in the right external iliac [largest 25x14 mm, maximum standardized uptake value (SUV_{max}) 7.6] and right inguinal (largest 10x9 mm, SUV_{max} 5.6) lymph nodes, consistent with metastases. Nasopharyngeal and tonsillary ^{18}F -FDG uptake were considered normal variant (SUV_{max} 7.1), and mild ^{18}F -FDG uptake in bilateral cervical lymph nodes at the 2B level was considered reactive (SUV_{max} 2.4).

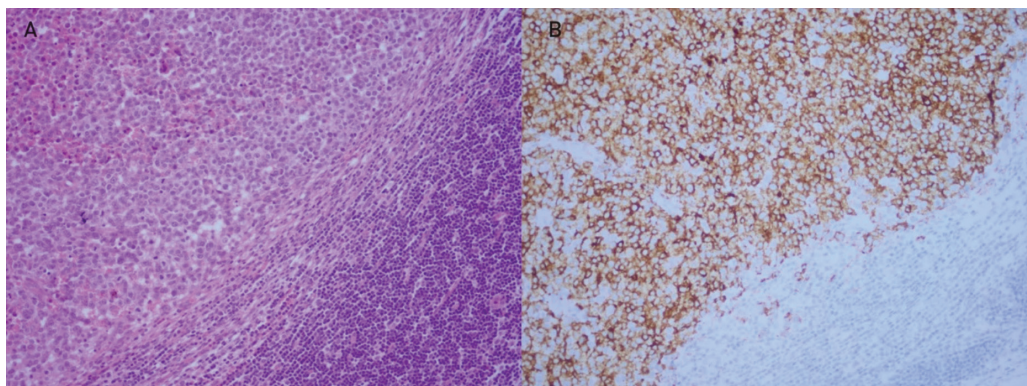


Figure 3. The patient underwent excisional biopsy of the inguinal lymph node, and the pathologic diagnosis was consistent with metastatic MM (hematoxylin and eosin staining, x200) (A). HMB45 positivity in atypical melanocytes that metastasized to the lymph node (HMB45, x200) (B). The patient underwent a combined wide local excision with negative margins and inguinal and parailiac lymph node dissection. The skin defect in the hip was reconstructed with a split skin graft. Pathologic examination demonstrated that the MM infiltrated into the entire dermis and metastasize into the lymph node. Two months later, magnetic resonance imaging showed soft tissue mass of 5x3.5x3 cm in size in the right pelvic region, considered conglomerate lymph nodes. The patient underwent surgery for this mass, and pathological examination revealed melanoma metastasis to the lymph node with extranodal soft tissue involvement. The patient was treated with chemotherapy, interferon, and radiotherapy. The patient died 12 months after the diagnosis of MM.

Childhood MM is extremely uncommon, representing only 0.3%-0.4% of all melanomas in prepubertal children aged <15 years (1). Depending on the size of the lesion, CMN carries an increased risk for the development of childhood melanoma. Giant CMNs (>20 cm) have been reported to have increased risk of developing melanomas, particularly during the first and second decades of life (2). However, cutaneous melanomas rarely arise from small (≤ 1 cm) and medium (1.5-20 cm) CMNs. Risk factors for developing melanoma from a CMN include irregular borders, increased diameter, color change, surface ulceration, and bleeding. Cutaneous MM poses a high risk of dissemination to regional lymph nodes and visceral organs. Childhood MM is a potentially fatal disease. Accurate staging of patients with melanoma is especially important if clinically occult systemic metastasis is present, which may preclude them the benefit of a complex lymph node dissection for locoregional control (1). The most appropriate imaging approach for diagnosing and following pediatric patients with MM has been adopted usually from adult guidelines because of its rarity (3). In staging melanoma, ^{18}F -FDG PET/CT is often employed to evaluate distant metastatic disease, as melanoma is very ^{18}F -FDG avid (3). In addition to staging, PET/CT plays an important role in patient management, such as deciding on the extent of surgery, determination of radiation field, and evaluation of treatment response. The current case also underlines the importance of whole-body oncologic assessment by ^{18}F -FDG PET scan in pediatric MM, which is a rare but a serious clinical entity.

Ethics

Informed Consent: Waived.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: S.E., Design: S.E., Data Collection or Processing: S.E., M.R., N.B., N.T., A.F.Y., Analysis or Interpretation: S.E., M.R., N.B., N.T., A.F.Y., Literature Search: S.E., Writing: S.E.

Conflict of Interest: No conflict of interest was declared by the authors.

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