

Malignant Melanoma with Simultaneous Inguinal and Popliteal Lymph Node Metastases: A Rare Case Report

Malign Melanomanın Eş Zamanlı Olarak İnguinal ve Popliteal Lenf Nodu Metastazı: Nadir Görülen Olgu Sunumu

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Abstract

Metastatic malignant melanomas of the distal leg and foot typically metastasize to the lymph nodes of the groin. In rare cases, the first site of nodal metastasis is the popliteal fossa. The rate of popliteal metastasis in lower extremity melanomas ranges from 0.3% to 7%. Simultaneous popliteal and inguinal lymph node metastases are also quite rare. We present a case of a melanoma located in the heel with palpable popliteal lymph node involvement, which was not evident on clinical examination and positron emission tomography imaging. Despite this lack of evidence, the histopathological results revealed that the inguinal lymph nodes were infiltrated with melanoma. This case report is presented to draw surgeons' attention to the possibility of lymph node metastases in inguinal and popliteal regions even when neither clinical examination nor imaging reveals inguinal metastasis.

Keywords: Malignant melanoma, lymphatic metastasis, positron emission tomography

Öz

Bacak distalinde ve ayakta görülen metastatik malign melanomlar genellikle inguinal lenf noduna metastaz yaparlar. Popliteal fossa ise nadir görülen ilk nodal metastaz alanıdır. Alt ekstremitte melanomlarının popliteal metastaz oranları %3 ila %7 arasındadır. Eş zamanlı olarak inguinal ve popliteal lenf nodu metastazları ise oldukça nadir görülmektedir. Biz bu makalede, palpe edilebilen popliteal lenf nodu metastazı olan fakat hem klinik muayenede hem de pozitron emisyon tomografisi (PET) görüntülemesinde inguinal metastaza dair herhangi bir bulgu olmadığı halde histopatolojik sonuçlara göre inguinal lenf nodlarında metastaz görülen, topukta malign melanom olgusunu sunmaktayız. Bu olgu ile hem klinik muayenede hem de görüntüleme yönteminde inguinal metastaza dair bir bulgu saptanmasa dahi, popliteal ve inguinal bölgelere eş zamanlı olarak lenf metastazı ihtimali olabileceği cerrahların dikkatine sunulmuştur.

Anahtar Sözcükler: Malign melanoma, lenfatik metastaz, pozitron emisyon tomografi

INTRODUCTION

Malignant melanoma is a skin cancer that is increasing in prevalence worldwide. The effective treatment of malignant melanoma involves the early and wide excision of skin lesions. Chemotherapy has value in certain clinical situations; however, it is not generally used to treat the primary tumor.¹

Regional lymph node metastasis is the most important prognostic factor for malignant melanomas, because, as with many solid tumors, metastasis is associated with poor prognosis. Typically, melanomas of the distal leg and foot metastasize to the lymph nodes of the groin.² In contrast, popliteal lymph node metastases are quite rare. In a retrospective study at the Sidney Melanoma Unit, only 0.3% of patients with distal leg melanomas had clinically palpable popliteal metastases.³ In addition, simultaneous popliteal and inguinal sentinel lymph node metastases are quite rare.⁴ Because the popliteal region is an uncommon nodal basin for metastases from skin tumors below the knee joint, screening of the popliteal region is usually neglected. Therefore, few studies in the literature have reported on popliteal dissection for malignant melanoma metastases.^{1,2}

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Figure 1. PET image showing uptake of the radiotracer in the right popliteal and heel areas (arrows) but not in the inguinal area



Figure 2. The nodular lesion with satellites in the posterolateral region of the heel

We present the case of a patient with a malignant melanoma in the heel with palpable popliteal lymph node involvement but without evidence of inguinal lymph node involvement on performing a clinical examination and positron emission tomography (PET) imaging. However, histopathological analysis revealed the presence of malignant melanoma metastases in both regions.

CASE PRESENTATION

A 60-year-old female presented with a 1.5-year history of a pigmented nodule in the right heel region, which was diagnosed as verruca plantaris by a dermatologist. According to the patient’s history, after the lesion began to increase in size and color intensity, the patient was referred to a plastic surgeon, who performed excisional biopsy. Following a pathologic examination, the biopsy specimen was confirmed to be a malignant melanoma; the patient was then referred to the Plastic, Reconstructive and Aesthetic Department from the Oncology Department with her whole-body PET imaging results, which showed uptake of the radiotracer in the right popliteal and heel areas but not in the inguinal area (Figure 1). In her physical examination results, the patient showed not only a clavus-like pigmented nodule that was 1 cm in diameter and surrounded by multiple irregularly shaped macules in the posterolateral region of the heel (Figure 2) but also a palpable popliteal lymph node with a hardened consistency that was approximately 3 cm in diameter. The inguinal region did not show any abnormalities in her physical examination results or in a whole-body PET scan.

The patient underwent a wide local excision with a 2-cm margin around the primary tumor, and the defect was covered with a split-thickness skin graft. During the same operation, radical popliteal lymphadenectomy (Figure 3), as described by Karakousis⁵, and groin lymphadenectomy were performed, although there was no clinical evidence of malignant melanoma in the inguinal region. Pathologic examination of the primary tumor revealed that there was no tumor at any of the margins of the specimen and no ulcerations; the Breslow tumor thick-



Figure 3. Intraoperative view of popliteal lymphadenectomy and the popliteal melanoma metastasis overlying the tibial nerve (the metastatic lymph node is indicated by the arrow)

ness was 6 mm, with a Clark level of IV. The mitotic rate was 8 divisions/mm². However, malignant melanoma metastases were found in the popliteal and inguinal lymph nodes.

The patient recovered uneventfully, and there was no local sign of recurrence or lymphedema in the patient's lower extremities at her six-month follow-up examination. Informed consent was obtained.

DISCUSSION

Popliteal lymphatic metastases from melanomas located in the distal region of the lower extremities (lower legs or feet) are extremely rare; there are few reports on such metastases in the literature because of the difficulty in examining the popliteal fossa, where the nodes lie deep in the fascia and are not easily palpable.^{1,2} This initial obstacle tends to lead to a delayed diagnosis; therefore, the disease may only be discovered at a late stage.²

Simultaneous popliteal and inguinal lymph node metastases are also quite rare. Kretschmer et al.⁴ reported that among 166 patients with distal melanomas, only 16 (9.6%) showed popliteal sentinel lymph node (SLN) involvement on lymphoscintigraphy.

Of these 16 patients, popliteal SLN metastasis was diagnosed in three cases, inguinal SLN metastasis in seven cases, and both popliteal and inguinal SLN metastases in one case. Menes reported that performing lymphoscintigraphy and a physical examination identified 10 cases of drainage to the popliteal basin with concurrent drainage to the groin among 106 patients with distal leg melanomas.⁶

Two drainage routes have been described for melanomas of the distal lower extremities. The principal route originates from the lateral region of the foot and drains to the popliteal nodes; the secondary route originates from the medial portion of the foot and drains to the inguinal nodes.⁷ In contrast, previous authors have suggested that tumors located in the posterolateral region of the heel below the lateral malleolus, as observed in the presented case, tend to disseminate to the popliteal region.^{2,4} However, Thompson et al.³ demonstrated that drainage was variable and that any melanoma below the knee could disseminate to the lymph nodes along the popliteal region.

In several retrospective studies, patients with intermediate-thickness melanomas (1.5–3.99 mm) who had clinically negative but pathologically positive lymph nodes were reported to have a survival advantage as high as 25% following prophylactic lymph node dissection.⁸ In a study, inguinal lymphadenectomy was demonstrated as a complimentary surgery of popliteal lymphadenectomy in a patient who showed a primary malignant melanoma in the heel, palpable lymph nodes in the popliteal region, and no clinical abnormalities in the inguinal region in the physical examination results.¹ Furthermore, false-negative PET scan results in the presence of melanoma metastases were reported at a rate of 4% due to the small size (<0.3 to 0.5 cm) or diffuse nonfocal involvement.⁹

In our case, there was no evidence of clinical disease in the groin at presentation, while the popliteal node was palpable and corresponded to the first site of recurrence. Despite the lack of clear signs of involvement, we performed prophylactic groin lymph node dissection because of the conferred survival advantage as well as the possibility of a false-negative PET scan result as reported in the literature; the results of the histopathological analysis were compatible with melanoma metastasis.

CONCLUSION

In conclusion, although clinical examinations and radiological imaging are important tools for detecting malignancies, histopathological examinations of the related lymph nodes are much more meaningful for detecting occult metastases.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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