Journal of BUON **8:** 385-387, 2003

CLINICAL CASE

Fine-needle aspiration of bilateral breast metastases from malignant melanoma: a case report

A. Eroglu[1], C. Ugurluoglu[2]

[1]Department of General Surgery and Surgical Oncology and [2]Department of Pathology, Numune State Hospital, Selçuklu, Konya, Turkey

Summary

Metastasis of malignant melanoma to the breast is uncommon. A 32-year-old woman had previously undergone big toe amputation with inguinal lymph node dissection for malignant melanoma of the toenail (2 lymph nodes were positive for melanoma), followed by adjuvant immunotherapy with interferon. After 12 months, she was put on chemotherapy with dacarbazine because of intransit metastases. Brain metastases developed while on chemotherapy and whole brain irradiation was delivered. She then presented with bilateral multiple breast masses. Breast ultrasonography revealed multiple hypoechoic solid masses in both breasts. Fine-needle aspiration cytology (FNAC) showed clusters of pleomorphic hyperchromatic cells, exhibiting malignant features. Immunohistochemically (IHC) the cells were strongly positive for HMB 45.

Key words: breast, fine needle aspiration, HMB 45, immunohistochemistry, melanoma, metastasis

Introduction

Metastasis to the breast from extramammary malignancies is relatively uncommon and originates from a wide variety of primary tumors. It accounts for 1.2-2% of all breast tumors [1,2]. Apart from the lymphoproliferative diseases, the most common primary tumor which metastasizes to the breast is cutaneous melanoma. Breast nodule in a patient with a history of malignant melanoma is most likely a primary breast malignancy, but may rarely represent a metastasis from melanoma [3]. The presence of any breast mass in a patient with a past history of melanoma requires close histologic evaluation for differential diagnosis. FNAC is usually sufficient to confirm the diagnosis [4]. IHC studies may be helpful in identifying the source of metastases [1].

We present herein a case with bilateral breast metastases from malignant melanoma, where the diagnosis was suggested by FNAC and IHC.

Case presentation

A 32-year-old woman was admitted to our surgical oncology clinic with a 4-week history of rapidly growing masses in both breasts. Two years ago she had undergone big toe amputation and inguinal lymph node dissection for malignant melanoma located beneath the toenail at another medical centre. Two out of 13 dissected nodes were infiltrated by melanoma. She had then received adjuvant interferon alpha-2α. Intransit metastases developed after 12 months and she therefore was put on systemic chemotherapy with dacarbazine 300 mg/m^2 for 5 consecutive days every 3 weeks at another medical center. After 4 cycles of

Received 06-09-2003; Accepted 28-09-2003

Author and address for correspondence:

Aydan Eroglu, MD
Department of General Surgery and Surgical Oncology
Konya Numune State Hospital
Selçuklu, Konya, 42050
Turkey
Tel: +90 332 2389848
Fax: +90 332 3509611
E-mail: aydaneroglu@hotmail.com (or aydaneroglu@yahoo.com)

chemotherapy brain metastases developed and she received whole brain irradiation. Following radiation therapy she received one cycle of cisplatin and temozolomide.

At presentation physical examination confirmed multiple and different diameter irregular, hard and mobile lumps in both breasts and bilateral axillary lymphadenopathy. Ultrasonography showed multiple irregular hypoechoic masses without shadowing in both breasts (Figure 1). Concurrent metastases to the liver, bone, and lungs were detected.

FNAC was performed and revealed hypercellular clusters of tumor cells with hyperchromatic nuclei, prominent nucleoli and large or restricted cytoplasm (Figure 2). Some cells were binucleated. Mitoses were clearly seen (Figure 2). There were no intraductal or lobular components. Necrosis was not detected.

IHC analysis was performed with HMB 45. AEC chromogen peroxidase conjugate was used for melanoma Ab-1 (clone HMB 45; Cat.#MS-364-R7, Neomarkers, CA, USA) and showed strong intracytoplasmic positivity (Figure 3).

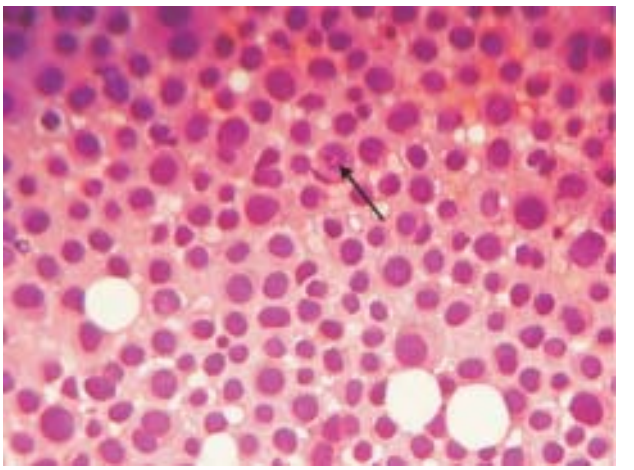

Figure 2. Pleomorphic, hyperchromatic tumor cells. Arrow shows mitosis (H&E ×400).

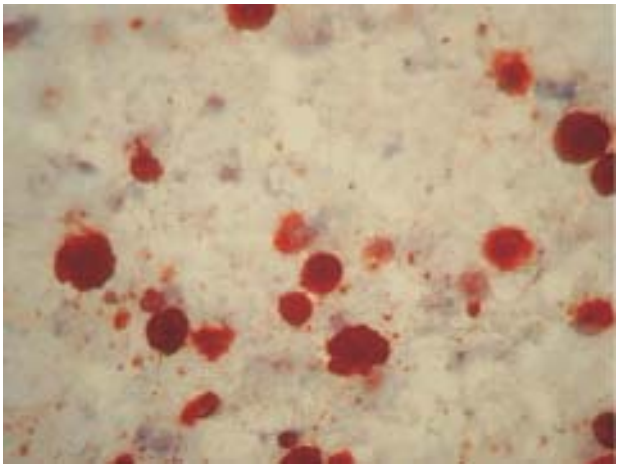

Figure 3. Tumor cells strongly stained for HMB 45 (melanoma Ab-1, clone HMB 45 ×400).

Discussion

Nielsen et al. reported malignant melanoma to be the most frequent source of metastases to the breast [5]. Its tendency to metastasize to the breast has been reported on a number of occasions. The common primary cutaneous melanoma sites that metastasize to the breast are upper extremities and upper trunk, whereas melanomas from the lower limbs rarely metastasize to the breast [6]. This tendency for breast metastasis of the upper half location of the body was attributed to direct lymphatic spread [2,6]. The majority of patients with breast metastasis from melanoma are premenopausal [6-8]. Therefore Arora and Robinson postulated that hormonal factors may play some role in the melanoma cell metastasizing to the breast [6]; however, its metastatic pathway remains unclear. Our patient was premenopausal and her primary tumor was located in the lower limb.

A breast metastasis usually presents as a rapidly growing solitary nodule in the upper outer quadrant of the breast [2,6,9]. Bilateral breast involvement is rare. Hajdu and Urban reported an 8% of bilateral breast metastases in their work [2]. Axillary lymphadenopathy is common, ranging from 25 to 85% [9].

Figure 1. Ultrasonography shows multiple hypoechoic solid masses in the breast.

Our case had bilateral breast involvement with bilateral axillary lymphadenopathy.

In order to avoid unnecessary surgery and to decide about further treatment, differential diagnosis is important in a patient with a past history of melanoma who develops any breast mass [1,4,5]. Although in the majority of the patients the malignancy that produced the metastasis has been previously diagnosed, the main concern is an accurate differential diagnosis from breast carcinoma. Although the personal history of our patient and the meticulous physical examination led to the diagnosis of malignant melanoma metastatic to the breast, FNAC and IHC were carried out to accurately confirm the diagnosis.

In general, metastasis to the breast is indicative of rapidly progressive disseminated disease with a poor prognosis [7,8]. In such cases the median survival is 10 months [6] and more than 80% of the patients die within one year [2]. Majeski reported that the prognosis of bilateral breast metastases from malignant melanoma was very poor despite aggressive therapy [7]. The objective of its treatment is palliation. When an operation is necessary, wide local excision is usually adequate.

References

1. Vergier B, Trojani M, de Mascarel I, Coindre JM, Le Treut A. Metastases to the breast: differential diagnosis from primary breast carcinoma. J Surg Oncol 1991; 48: 112-116.
2. Hajdu SI, Urban JA. Cancers metastatic to the breast. Cancer 1972; 29: 1691-1696.
3. Donegan WL, Spratt JS. Multiple primary cancers in mammary and extramammary sites, and cancers metastatic to the breast. In: Donegan WL, Spratt JS (eds). Cancer of the breast. Philadelphia, WB Saunders Co, 1995 (4th edn), pp 652-665.
4. Silverman JF, Feldman PS, Covell JL, Frable WJ. Fine needle aspiration cytology of neoplasms metastatic to the breast. Acta Cytol 1987; 31: 291-300.
5. Nielsen M, Andersen JA, Henriksen FW et al. Metastases to the breast from extramammary carcinomas. Acta Pathol Microbiol Scand 1981; 89: 251-256.
6. Arora R, Robinson WA. Breast metastases from malignant melanoma. J Surg Oncol 1992; 50: 27-29.
7. Majeski J. Bilateral breast masses as initial presentation of widely metastatic melanoma. J Surg Oncol 1999; 72: 175-177.
8. Plesnicar A, Kovac V. Breast metastases from cutaneous melanoma: a report of three cases. Tumori 2000; 86: 170-173.
9. Toombs BD, Kalisher L. Metastatic disease to the breast: clinical, pathologic, and radiographic features. Am J Roentgenol 1977; 129: 673-676.