Abstract

Primary malignant melanoma of the breast parenchyma is a very rare entity, only a few cases have been cited in the literature, none to our knowledge with sonographic or mammographic description.

This report describes a case of a primary malignant melanoma, with ultrasonographic and mammographic characterisation. The gray scale ultrasonographic features and mammographic aspects in our case are evocative of a benign lesion. Only the analysis of vascularisation by Doppler examination suggested the malignant nature of the mass. Thus, altough rare, this condition should be included in the differential diagnosis of benign looking breast mass.

Key words: primary malignant breast melanoma, ultrasound, mammography

Introduction

Primary malignant breast melanoma is a very rare malignancy. There are a few cases reported before. However, imaging characteristics of this tumor were not reported. We report the mammographic and sonographic findings of a pathologically proven primary malignant breast melanoma.

Case Report

An 83-year-old woman came to our institution to investigate a breast nodule that she had discovered incidentally three months ago. She had been menopausal for 34 years, with no hormone therapy. No history of surgery, radiation or other pathology except heart disease. She had no family history of breast cancer or any other cancer.

Physical examination revealed a 1.5 cm mobile mass in the left upper outer quadrant. There was no color change or other abnormality in the overlying skin, no nipple discharge and no palpable axillary abnormalities.

Mammograms showed a 1.5 cm circumscribed round isodense nodule within the upper outer quadrant of the left breast, better seen in the MLO projection (fig.1a,b). There was no evidence of associated calcifications. Both breasts had scattered fibroglandular densities with no other anomaly.

Gray scale sonography revealed a well circumscribed oval, homogeneous, isoechoic nodule with posterior enhancement (fig.2). This nodule had a thin fatty tissue interposed between itself and the skin. No halo or secondary signs were seen, including alteration of the skin or Cooper’s ligament; no suspicious axillary adenopathies.
Color Doppler examination showed rich vascularity of the nodule and spectral Doppler revealed moderate systolic velocity and a high resistivity index, IR = 0.86 (fig. 3a, b).

Both mammography and ultrasonography confirmed the absence of other anomalies in both breasts.

The lesion was categorized as a category 4 suspicious finding according to the American College of Radiology Breast Imaging Reporting and Data System because the nodule was palpable and it was excised.

The macroscopic examination revealed a 1.5 cm pigmented, brown mass. Subsequent histological examination by a dedicated breast pathologist diagnosed a nodular malignant melanoma localized in the glandular breast tissue with no axillary node involvement.

The patient has now three years from surgery and is well.

**Discussion**

The pathology of the breast is very complex. Besides many benign and malignant mammary lesions, the breast is a host for non-mammary malignancies as well. These are mostly represented by metastasis (0.5-2% of all breast neoplasms) from tumors such as malignant melanoma, lung cancer, hematologic, ovarian and gastro-intestinal neoplasms [1,2]. More rarely, there are cancers that normally belong to other organs or tissues, such as leukemia, multiple myeloma, granulocytic sarcoma and malignant melanoma, which can develop in the breast [2].

The manifestations of malignant melanoma in the breast can be very different: primary melanoma of the breast skin [3,4], melanoma metastasis to the breast [5], in-transit metastases to breast tissue and breast skin [6],...
primary breast melanoma [7-10] and metastasis in the intramammary lymph nodes [11].

Primary malignant breast melanoma represents a very rare entity and we only found a few reports [9,10,12] on it and one report on primary melanoma associated with invasive ductal carcinoma [8].

It is very important that a malignant extramammary melanoma should be excluded before a diagnosis of primary malignant breast melanoma is established [13].

There is no ultrasound or mammographic description of primary malignant melanoma in the literature.

Imaging differential diagnoses in our case could include benign lesions, such as a fibroadenoma (fig.4) or a benign papillary lesion (fig.5a,b) (usually associated with nipple discharge in this location of the lesion).

The increased vascularity of the nodule at this age and the high value of the resistivity index, IR = 0.86 were indicative of a malignant tumor [14].

The differential diagnosis should also include well circumscribed malignant tumors, both primary and secondary. In the first category, the main tumors are: colloid carcinoma (very similar in appearance and more frequent at this age), papillary carcinoma, medullary carcinoma (more lobulated and hypoechoic and usually at a younger age), invasive ductal carcinoma and even in situ nodular carcinoma and some forms of non-Hodgkin primary lymphomas (usually markedly hypoechoic). Breast metastases are rarely the initial sign of malignancy; they usually occur in the setting of known malignant disease and are most often premenopausal [15].

**Conclusions**

This report describes a case of primary malignant breast melanoma, with ultrasound and correlative mammographic findings. To our knowledge, imaging features of primary malignant breast melanoma have not been reported. In our case, the sonographic and mammographic findings were indicative of a benign lesion, except the Doppler examination. Thus, although rare, this condition should be included in the differential diagnosis of benign looking breast mass.

**References**


