

PLEOMORPHIC LIPOSARCOMA OF THE BREAST MISDIAGNOSED AS CARCINOMA IN A TRU-CUT BIOPSY

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Bu çalışma, 9. Ulusal Meme Hastalıkları Kongresi'nde (2007) sunulmuştur.

ABSTRACT

Although liposarcomas are one of the more common sarcomas found in other tissues, they are among the rarest tumors in the breast. The purpose of presenting this case is to highlight one of rarest and interesting variant of breast sarcoma and the importance of misdiagnosis of liposarcoma in a tru-cut biopsy.

Keywords: breast sarcoma, liposarcoma, pleomorphic

TRU-CUT BİYOPSİ İLE YANLIŞ OLARAK KARSİNOM TANISI ALAN MEMENİN PLEOMORFİK LİPOSARKOMU

ÖZET

Liposarkomlar diđer dokularda en sık görülen sarkomlar içinde bulunmasına rağmen, meme tümörleri için en nadir görülenler arasındadır. Bu liposarkom olgusunu sunmadaki amaç, en nadir ve ilgi çekici meme sarkomlarından biri olması ve tru-cut biyopsi ile yanlış tanı verilmesinin önemini vurgulamaktır.

Anahtar sözcükler: meme sarkomu, liposarkom, plemorfik

Introduction

A primary breast liposarcoma is a tumor, representing 3-24% of all breast sarcomas. Breast sarcomas comprise approximately <1% of all malignant breast tumors (1). Preoperative diagnosis is important in planning the most appropriate type of treatment. Here, we report a case of primary pleomorphic liposarcoma of the breast, first initially diagnosed as carcinoma in a tru-cut biopsy.

Case report

A 55-year-old Albanian woman was admitted to a hospital in Albania with a mass in her right breast. She had no significant previous medical history. A tru-cut biopsy was performed and the diagnosis was breast carcinoma. The treatment administered consisted of four courses of chemotherapy. No surgery was performed. She came to us due to an increase in the growth of the mass in her right breast after chemotherapy. The physical examination revealed redness, tenderness, induration, and a palpable ill-defined mass in her right breast. There was no nipple discharge. There were no palpable axillary lymph nodes. There were no other masses in her other organs or tissues according to either the physical or radiological examination. Mastectomy and intraoperatively frozen examination of the sentinel lymph node biopsy were planned.

The mastectomy and sentinel lymph nodes were thoroughly examined and accurately sampled. The surgical specimens were

fixed in 10% buffered formaldehyde and embedded in paraffin, and routine histological sections of 4-5 µm were prepared and stained with hematoxylin and eosin. Immunohistochemical detection with vimentin (NeoMarkers), cytokeratin (NeoMarkers), and epithelial membrane antigen (EMA, NeoMarkers) was performed on paraffin tissue sections.

Sentinel lymph nodes (two pieces 7 and 4 mm in diameter) were dissected intraoperatively for frozen examination. The sentinel lymph nodes were reported as tumor negative and no axillary dissection was performed.

The resected specimen of the right breast, measured 36 cm by 27 cm by 18 cm. Almost all of the breast tissue had been replaced by the tumor, which measured 33 cm by 25 cm by 16 cm. It was covered by skin that had erosive foci in some areas. The areola and the nipple were normal in appearance (Figure 1).

The cut section of the breast showed a solid nodular growth pattern with cystic and hemorrhagic areas in some foci. The tumor had a gelatinous appearance and was white to yellow with pushing margins (Figure 2). The skin had no tumoral infiltration. The sentinel axillary lymph nodes were homogeneous on the cut surface. The microscopic examination of the tumor revealed scattered spindle cells and giant cells containing pleomorphic,

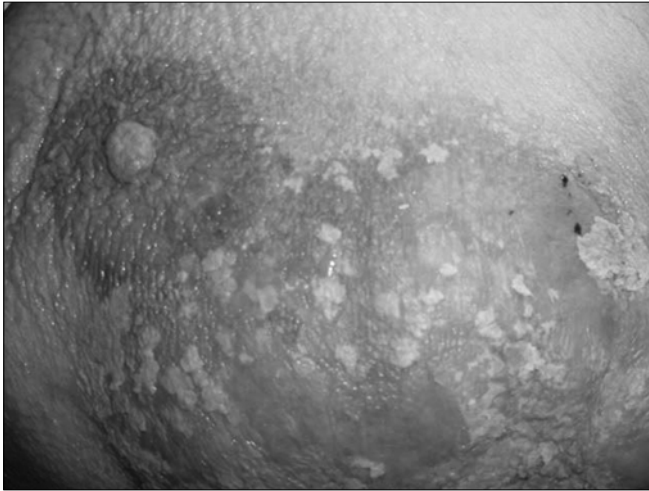


Figure 1. Macroscopic appearance of the breast demonstrating erosive areas in the skin without tumoral infiltration of the areola and the nipple.

multilobated, and hyperchromatic nuclei (Figure 3). Occasional atypical cells with vacuolated cytoplasm and scalloped nuclear margins were observed. Increased mitoses and geographic necrosis were seen. The immunohistochemical examination revealed vimentin positivity and cytokeratin and EMA negativity in tumor cells. The skin, nipple, and fascia were intact. There were no features of a phyllodes tumor. The final diagnosis was pleomorphic liposarcoma. No other subtypes of liposarcoma or cystosarcoma phyllodes were observed. Chemotherapy was recommended; however, she returned to Albania and was lost to follow up post-operatively.

Discussion

Sarcoma of the breast represents less than 1% of all primary breast malignancies (2,3,4). The most common sarcomas are fibrosarcoma and osteosarcoma in the breast (5). Although over 90 cases of breast liposarcoma are documented in the literature, a critical review of the literature showed only 39 cases with sufficient data to be classified as pure liposarcoma of the breast (6).

Primary breast liposarcoma arises directly from mammary interlobular stromal tissue (7). Most patients are women; only three men have been reported to our knowledge (8). The age ranges from 19 to 76, with the median age at occurrence of 47 years. They are generally unilateral at presentation, but bilateral involvement is also reported. They manifest as slowly growing, painful breast masses of variable duration; rapid growth is seen in the setting of malignant phyllodes tumor (7). Typical gross appearance shows a median size of 8 cm in greatest diameter, ranging from 2 to 40 cm in diameter. These masses are well circumscribed in some tumors; some are multinodular or infiltrative. Necrosis and cavitation are rarely described. There is no consistent relationship between tumor histologic subtype, size, and age at diagnosis (9).

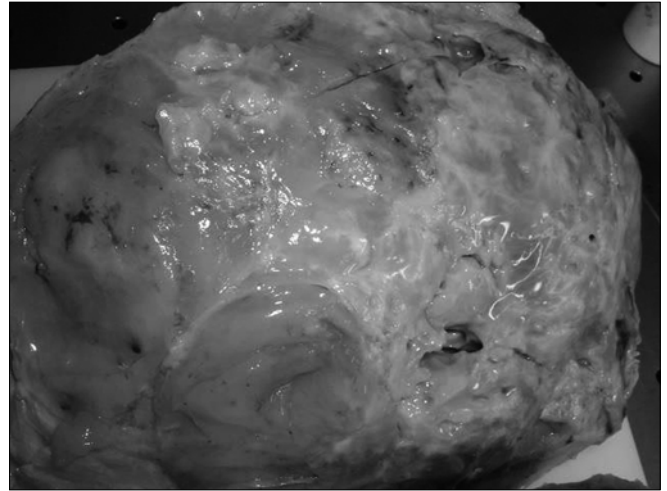


Figure 2. The cut section of the breast showed a solid nodular growth pattern with cystic and hemorrhagic foci in some areas. The tumor had a gelatinous appearance and was white to yellow with pushing margins.

Liposarcomas are classified as well differentiated, myxoid, round cell, pleomorphic, and de-differentiated according to the World Health Organization classification. Their behavior and pattern of recurrence depend on their histological subtype (10). Pleomorphic liposarcomas are highly cellular tumors with spindle shaped and polygonal tumor cells. They have prominent nuclear atypia. Multinucleated lipoblasts are often numerous (11).

Cystosarcoma phyllodes are regarded as a distinct entity, since the diagnosis depends on the demonstration of scattered epithelial elements in a predominantly cellular stroma. The sarcomatous elements of malignant cystosarcoma phyllodes, described in descending order of frequency are fibrosarcoma, liposarcoma, fibrosarcoma with liposarcoma, chondrosarcoma, rhabdomyosarcoma, and osteogenic sarcoma (12). Pleomorphic liposarcoma arising within a phyllodes tumor is an extremely rare event (13). However, many reports of liposarcomas of the breast actually are malignant phyllodes tumors with liposarcomatous stroma (14).

Cangiarella reported a very interesting case of pleomorphic liposarcoma in the breast that most likely represented metastasis from liposarcoma of the thigh rather than a primary neoplasm (15). Pleomorphic liposarcoma tends to occur on the extremities; the trunk and retroperitoneum are less frequently affected (10) and thus the remote possibility of a metastasis should be suspected in such cases.

The differential diagnosis of breast liposarcoma includes silicon granuloma, fat necrosis, malignant fibrous histiocytoma, and signet ring cell carcinoma. The recognition of typical lipoblasts that have scalloped, irregular, hyperchromatic nuclei with sharply defined intracytoplasmic vacuoles and that stain with S100 is the key feature in differentiating liposarcoma from others (7). However, silicone can be seen within vacuoles closely resembling multi-

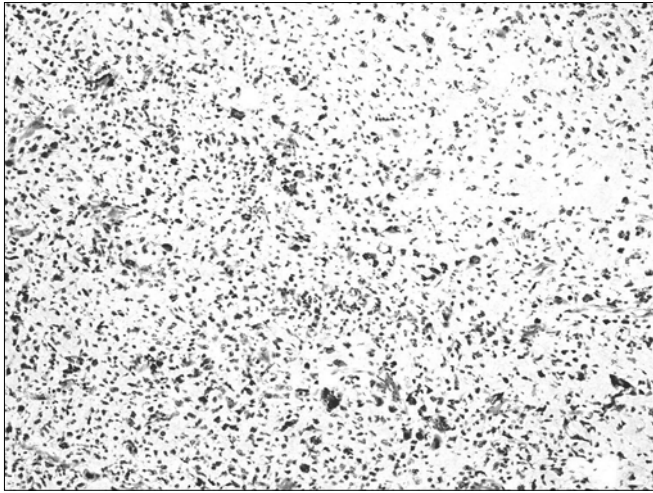


Figure 3. Microscopic examination revealed scattered spindle cells and giant cells containing pleomorphic, multilobated, and hyperchromatic nuclei (Hematoxylin and eosin x100)

vacuolated lipoblasts, but it does not stain with Oil Red-O unless it is contaminated by organic oils (6). In addition, there are inflammation with lipid-laden macrophages and multinucleated foreign body-type giant cells in both silicon granuloma and fat necrosis (9). In cases of signet ring cell carcinoma and high grade primary breast carcinomas, an immunohistochemical study demonstrating cytokeratin and EMA positivity is very helpful.

The distinction of pleomorphic liposarcoma from high grade malignant fibrous histiocytoma is probably of little importance since both are high grade sarcomas with a poor prognosis (16,17). Pleo-

morphic lipoma, another entity in the differential diagnosis, contains characteristic floret cells and no lipoblasts (6).

Mastectomy is the standard treatment for breast sarcomas. Limited surgery carries an increased risk of local recurrence. Distant metastases are also relatively frequent except for malignant cystosarcoma phyllodes and liposarcoma (3). Tumors that are large and high grade with uncertain surgical margins require adjuvant radiotherapy and chemotherapy (18).

There is no established protocol for the treatment of liposarcomas of the breast. Histological grade and the degree of microscopic invasion influence the prognosis (19). Complete excision is essential even in low grade liposarcomas, because of the possibility of dedifferentiation to more malignant forms (20). Most of the liposarcomas that recurred were of the pleomorphic subtype (9). It metastasizes hematogenously to the lungs, liver, and bones, and rarely metastasizes to axillary lymph nodes (19).

Austin and Dupree suggested that primary liposarcomas arising from cystosarcoma phyllodes behave similarly to primary breast liposarcoma, and so the distinction between the two entities may be of little clinical importance (9).

In conclusion, although breast sarcomas are very rare when compared to carcinomas of the breast, they must still be taken into account in the differential diagnosis. An immunohistochemical study should be considered in order to avoid misdiagnosis, especially in more pleomorphic tumors when an epithelial differentiation is not apparent and when the biopsy material is limited.

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