Small Metaplastic Carcinoma of the Breast: A Case Report

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Metaplastic carcinoma of the breast is a rare form of breast cancer and has a poorer prognosis than other breast malignancies. Preoperative diagnosis of this tumor by imaging is difficult because of its rarity. Sonography of this small neoplasm has not been reported previously. We describe a case of this rare tumor together with the preoperative mammographic and sonographic findings. When these images present in a lesion, metaplastic breast carcinoma should be included in the differential diagnosis.

(KEY WORDS: sonogram • mammogram • breast neoplasm • metaplastic)

INTRODUCTION

Metaplastic carcinoma is a rare form of breast tumor, accounting for less than 5% of all breast cancers [1–3]. The prognosis in metaplastic carcinoma is usually poorer than that of other breast malignancies [1,4]. The radiologic findings in metaplastic carcinoma have been rarely reported [1]. However, a correct diagnosis is important in determining treatment and prognosis [5]. We report a case of small metaplastic breast carcinoma and review the mammographic, sonographic, and histologic findings.

CASE REPORT

A 53-year-old woman presented with a 3-month history of a palpable lump in the upper outer quadrant of the right breast. A mammography performed with commercially available equipment (Senographe 800T and DMR, GE Medical Systems, Milwaukee, WI, USA) revealed asymmetric increased density in that area of the right breast (Fig. 1). A sonogram was obtained by using a 7.5 MHz linear array transducer (Sonolayer SSA-250A, Toshiba Medical Systems, Tokyo, Japan), and this revealed an ovoid cystic lesion measuring about 1.0 × 1.5 × 2.0 cm with an intracystic mural nodule (Fig. 2). The margin was ill defined in some areas, but very well delineated in others. Prominent posterior acoustic enhancement of the lesion suggested that it was mostly cystic in nature. The differential diagnoses at that time included an intracystic tumor, such as intracystic papilloma or carcinoma.

Excisional biopsy of the lesion was carried out 1 week later and pathologic examination showed it to be malignant. After counseling the patient and family, a modified radical mastectomy of the right breast was performed 2 days later. A 1.3 cm metaplastic carcinoma was found with negative
Metaplastic breast carcinoma occurred in the female patient, with surgical margins and without involvement of the axillary lymph nodes. Histologically, the tumor had an infiltrative growth pattern typical of intraductal carcinoma with areas of squamous differentiation (Fig. 3). The immunostain for estrogen and progesterone receptors was negative.

**DISCUSSION**

Metaplastic carcinoma of the breast is a rare tumor, accounting for less than 5% of breast cancers [1–3]. The tumor is regarded as a ductal carcinoma that undergoes metaplasia in a non-glandular growth pattern [2,4,5]. The name describes a morphologically heterogeneous, diverse group of neoplasms characterized by ductal adenocarcinoma with other forms of cellular differentiation [1,6]. The extent of metaplasia varies from a few microscopic foci to complete replacement of glandular elements [1]. Four variants of metaplastic carcinoma have been described: matrix-producing carcinoma, spindle cell carcinoma, squamous cell carcinoma, and carcinosarcoma [5,7,8]. The most common metaplastic change evident in invasive ductal carcinoma is squamous metaplasia, with a reported incidence of 0.5% to 3.7% in breast carcinoma specimens [1,4]. Although metaplastic carcinoma has pathologic features of both carcinoma and sarcoma, differentiating it from a pure breast sarcoma is important since the natural history, surgical treatment, and chemotherapy of the two types of cancer differ [1,2]. Patients with breast carcinoma often respond to adjuvant chemotherapy or hormonal therapy, whereas those with breast sarcoma show little or no response [1]. Metaplastic carcinomas are not usually associated with estrogen or progesterone receptors, as presented in our case.

Metaplastic breast carcinoma usually occurs in women older than 50 years [5,8,9]. It often presents as a rapidly growing, palpable mass. The mean and median sizes (3–4 cm) tend to be greater than those of ordinary breast carcinoma [1]. In our patient, the tumor was much smaller than expected (only 1.3 cm). The mammographic appearance of this small tumor has previously been reported as a small round mass with associated calcification [1], while the sonographic appearance has never been reported. To our knowledge, this is the first report of a case of small metaplastic breast carcinoma (about 1 cm in size) with sonographic findings.

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Fig. 1. Mammogram: (A) mediolateral oblique view shows pronounced, asymmetric stromal density (arrow) in the upper half of the right breast; (B) craniocaudal view shows the asymmetric stromal density (arrow) in the outer half of the right breast.
Mammography of metaplastic breast carcinoma is limited in published work to isolated case reports or small series [1,2,4,5,10]. On mammography, the tumor may appear as a well-circumscribed mass, with an irregular or spiculated margin [4], or as a predominantly circumscribed, non-calcified mass with a spiculated border [1,2]. Associated architectural distortion has also been reported [1]. In our case, the margin of the tumor was obscured, as was described in three of eight cases by Gunhan-Bilgen et al [5]. It has been claimed that the presence of both circumscribed and spiculated parts may be helpful in the differential diagnosis of metaplastic breast carcinoma. This suggests a mixed pattern of metaplastic and invasive carcinoma [2,5]. However, we believe that the mammographic features, including the appearance of the margin, are nonspecific. Complementary sonographic diagnosis, therefore, plays an important role.

In one series of 11 cases with reported sonographic findings, the tumor was well defined in nine cases (82%) and round to ovoid in shape in six (55%) [1]. There may be complex internal echogenicity with solid and cystic components [1]. The cystic areas may be a result of necrosis and hemorrhage, and are commonly associated with squamous components [1]. Our case demonstrates that small metaplastic carcinoma may also present as a cystic lesion resembling intracystic papilloma. The sonographic finding of a partly ill-defined margin seems to parallel the reported mammographic feature described by other authors [2,5].

In conclusion, it is difficult to make a confident diagnosis of metaplastic carcinoma since the disease is rare and the imaging features are not very distinctive. However, the combination of a non-calcified but partly ill-defined breast mass on mammography with a mixed solid and cystic lesion on sonography should raise the possibility of metaplastic carcinoma. This should be included in the differential diagnosis. As far as we are aware, our sonographic findings of small metaplastic carcinoma, which resemble those of the larger well-reported metaplastic carcinoma, have not been previously described. It is important that physicians are familiar with this rare form of breast tumor, as early diagnosis can improve prognosis.

REFERENCES


