유방 섬유종증의 유방초음파 소견

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Mammary Fibromatosis: Sonographic Features and Pathologic Correlations

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Purpose: The purpose of this study was to determine if the sonographic features of mammary fibromatosis had correlation with the pathologic findings.

Materials and Methods: We identified four cases of fibromatosis of the breast at our institution over a 10-year period. The patients were all women, and they ranged from 25 to 48 years of age (mean, 34.3 years). All four patients complained of palpable breast masses and were subsequently diagnosed with mammary fibromatosis. We retrospectively reviewed their imaging findings.

Results: Mammography obtained in one patient revealed architectural distortion. On sonography, all four cases showed spiculated, irregular, hypoechoic masses that could not be differentiated from malignant lesions. After surgical excision and vacuum-assisted biopsy of the masses in four patients, there was no recurrence on clinical or sonographic follow-up over a 13−36 month period.

Conclusion: Although mammary fibromatosis is a very rare condition, it should be included in the differential diagnosis when an un-calcified, spiculated, irregular and hypoechoic masses are encountered on breast sonography.

Key words : Breast; Fibromatosis; Desmoid tumor; Sonography

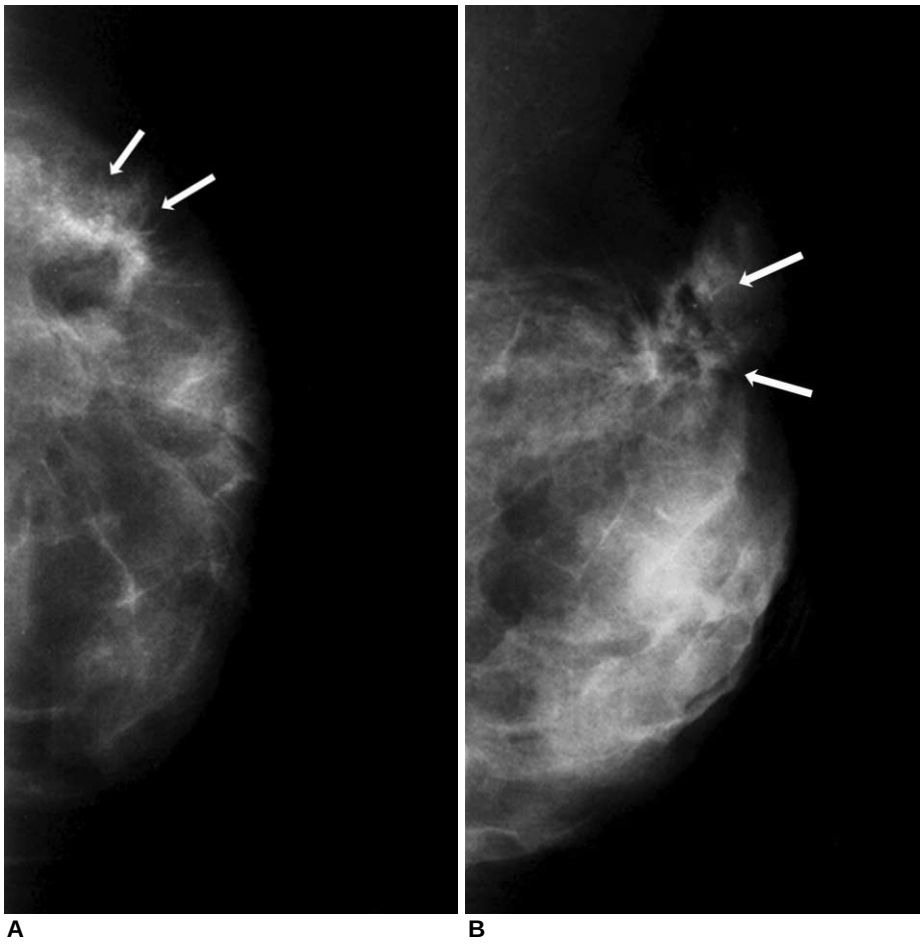
Introduction

Fibromatosis is the preferred terminology for extra-abdominal desmoid tumors of the breast, although a variety of terms have been used to describe this entity, including desmoid tumor, extraabdominal desmoids, low-grade fibrosarcoma, and aggressive fibromatosis [1−2]. There have been very few reports describing fibromatosis of the breast, and only a limited number of these reports evaluated the sonographic appearance of mammary fibromatosis [3−5]. We identified four cases of mammary fibromatosis at our institution during a 10-year period. In this report we reviewed the sonographic features and the pathologic correlation of these four cases.

Materials and Methods

Our institutional review board approved this retrospective study. From September 1999 to August 2009, we retrieved information on four patients with fibromatosis of the breast by searching the pathology database of our institution. All four patients were

women, and their ages ranged from 25 to 48 years (mean, 34.3 years). All sonographic examinations were performed using a high-resolution sonography unit with 7.5- or 12- MHz linear array transducers (HDI 3500 and iU22 systems, Philips-Advanced Technology Laboratories, Bothell, WA). Mammogram was obtained with a dedicated mammography unit (Senographe DMR, GE Healthcare). We reviewed patients' charts and the mammographic and sonographic findings.



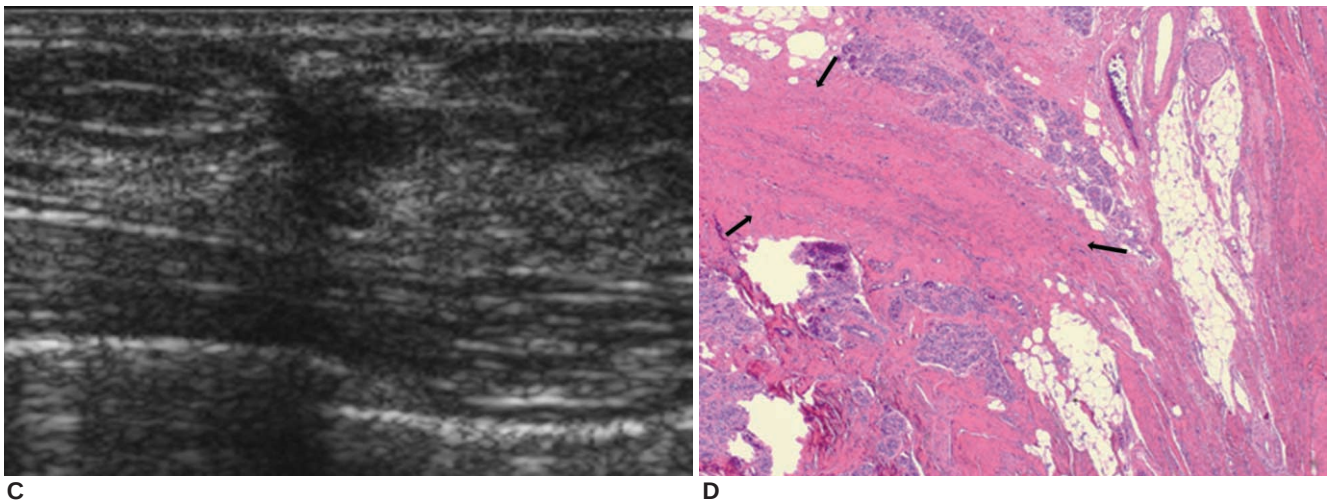


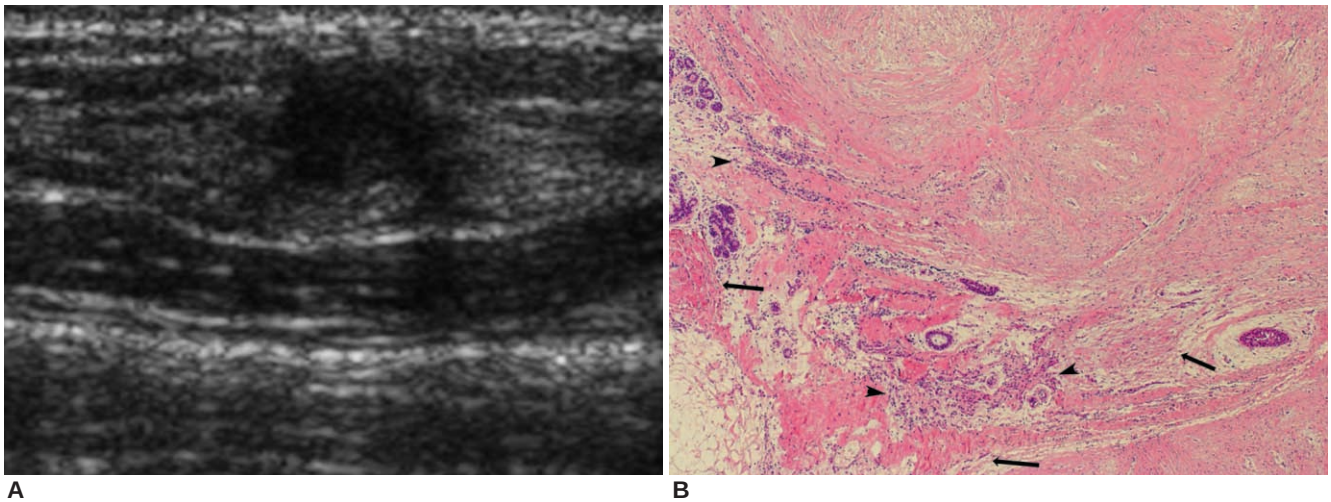
Fig. 1. Breast fibromatosis in a 35-year-old woman.
A. The craniocaudal mammographic view reveals an irregular, spiculated, hyperdense lesion with architectural distortion (arrows) in the left outer breast.
B. The mediolateral oblique view also reveals those findings (arrows) in the left upper breast.
C. The mass shows spiculated, irregular, hypoechoic features with posterior acoustic shadowing in the left upper outer breast on sonography.
D. The photomicrograph shows proliferated band-like spindle cells in a dense collagenous stroma infiltrating into normal breast tissue (arrows) (hematoxylin-eosin, ×40).

Results

None of the patients had a specific clinical history suggesting elevated risk of fibromatosis, such as familial adenomatous polyposis, Gardner's syndrome, trauma or mammoplasty. All four patients complained of palpable breast masses. One patient's lesion was accompanied by overlying skin retraction. Three of the lesions were located in the left breast, and one was located in the right breast. There were no bilateral lesions. Mammography was performed on one patient, and it showed architectural distortion (Fig. 1). Sonography was performed in all four patients and revealed spiculated, hypoechoic masses that could not be differentiated from malignant lesions (Figs. 1, 2) in all four patients. All four masses were confined within the breast. All lesions were biopsied using ultrasound-guided 14-gauge automatic core biopsy, and the pathologic results were as follows: possible fibromatosis in two cases, and fibrous tissue only in two cases. A radiologist recommended surgical excision for the two cases of possible fibromatosis due to the need for wide excision of fibromatosis. Repeated biopsy was recommended for the other two cases, because the biopsy results were thought to be discordant with the imaging findings. Surgical excision was performed in three patients and vacuum-assisted core biopsy using 11-guage needle was performed in one patient. All final diagnoses were consistent with mammary fibromatosis (Figs. 1, 2). The patient with vacuum-assisted biopsy refused subsequent surgical excision. Sonographic or clinical follow up was performed in four patients over a 13 to 36 month period, and there were no signs of recurrence in any of those patients.

Discussion

Fibromatosis of the breast is a locally aggressive tumor without metastatic potential that has a predilection for recurrence. It generally originates from the muscle fascia or the aponeurosis, and rarely from the breast parenchyma [1, 2, 6, 7]. Due to the rarity of this disease, published studies are limited. The etiology of mammary fibromatosis remains unclear even though there a few reported cases demonstrated association with genetic disorders, such as Gardner's syndrome and familial adenomatous polyposis [8]. In addition, a few cases have been reported after surgical trauma, including after breast implant the placement [9, 10]. Unlike abdominal desmoids, fibromatosis of the breast has not been found to be associated with pregnancy [11]. Most



A B

Fig. 2. Breast fibromatosis in a 25-year-old woman.
A. Sonography shows an irregular, hypoechoic nodule confined within the breast.
B. The photomicrograph of an excision specimen shows fibromatosis invading into surrounding normal breast parenchyma and fatty tissue (arrows) and peripherally aggregated lymphocytes (arrowheads) (hematoxylin-eosin, ×40).

cases have been reported in women, with a few rare cases reported in men [12]. These lesions affect patients of all ages, from 18 to 70 years of age, and the lesions usually present as a firm, mobile, palpable mass without tenderness, occasionally with skin retraction or dimpling. The lesions are most often unilateral [2, 6, 11].

Typical imaging features on mammography are irregular, spiculated, non-calcified masses, similar to malignant lesions [3, 13]. Sonography typically shows spiculated, irregular, hypoechoic masses with posterior acoustic shadowing that are often suspected of malignancy [3, 4, 13]. Chest wall involvement, including invasion into the pectoralis muscle may be demonstrated on sonography [3, 4], although MRI is the best imaging tool to evaluate the extent of the tumor [14]. Rare unusual benign-like sonographic findings have been reported [3−5]. Our four cases had typical sonographic findings mimicking malignancy without evidence of chest wall invasion. The radiologic differential diagnosis also includes benign lesions, such as post-operative scar, fibrosis or diabetic mastopathy. Post-operative scar or diabetic mastopathy could be distinguished from fibromatosis by surgical history or longstanding type Ⅰ diabetes. Fibrosis more commonly presents with mammographic asymmetry, and a sonographic circumscribed hypoechoic, probable benign looking mass.

Fibromatosis should be treated with wide excision [2, 6, 11, 15], and local recurrence often occur within the first three years of surgery [2, 6, 11]. Lesions with positive surgical margins tend to recur [2, 6, 11], and as such, the current recommended treatment is complete surgical excision. After excision or vacuum-assisted biopsy, our four cases were followed-up over a 13 to 36 month period without evidence of recurrence.

In conclusion, the clinical and imaging features of mammary fibromatosis may mimic malignancy. Although it is a very rare condition, we suggest that radiologists consider fibromatosis when they encounter an un-calcified, spiculated, irregular and hypoechoic mass on breast sonography.

요 약

목적: 유방 섬유종증의 초음파 소견을 병리 결과와 연관하여 고찰하고자 한다.

대상 및 방법: 본원에서 10년 동안 유방의 섬유종증으로 확진된 4명의 환자 4예를 대상으로 하였다. 4명의 환자 모두 여자였으며 나이는 25세에서 48세 (평균 34.3세)였다. 4명의 환자 모두 만져지는 종괴를 주소로 내원하였다. 저자들은 종괴의 영상 소견을 후향적으로 분석하였다.

결과: 유방 촬영술은 1예에서 시행되었으며 구조 왜곡의 소견을 보였다. 유방 초음파에서 종괴의 모양은 4예 모두 침윤성 경계, 불규칙한 모양, 저에코를 보였으며 이는 악성 종괴와 감별되지 않는 소견이었다. 수술적 절제 (3예)와 맘모톰 조직 검사 (1예)에 의해 섬유종증으로 진단되었으며 13개월에서 36개월 동안 임상 혹은 초음파 추적 검사에서 재발의 징후는 없었다.

결론: 유방의 섬유종증이 매우 드문 질환이라 하더라도 유방초음파 검사 도중 석회화가 없는, 침윤성 경계, 불규칙한 모양을 보이는 저에코의 종괴를 발견하였을 때 감별진단에 섬유종증을 포함해야 한다.

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