FIBROADENOMATIOD HYPERPLASIA: IMAGING APPEARANCES AND PATHOLOGICAL CORRELATION.

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Fibroadenomatoid hyperplasia is a benign breast lesion with the composite histologic features of a fibroadenoma and fibrocystic changes. This well-described but rare lesion has been referred to previously as fibroadenomatosis, fibroadenomatoid mastopathy or sclerosing lobular hyperplasia.[1-4] There have been reports with 5-11.5% of this changes in the biopsy population.[1,2] The radiographic finding is unique but the natural history and appropriate diagnostic designation were still in question. We report 3 cases of this specific entity, one with unusual presentation of nonpalpable mass in the breast and enlarged right axillary lymph node, and others presenting with solid masses.

CASE REPORT

CASE 1

A 38-year-old woman presented in January 1999 with a palpable lump in her right axilla and tenderness for 2 weeks. There was no abnormal nipple discharge. She had experienced right breast mass 10 years ago and it turned out to be benign mass after surgical removal. Physical examination revealed a 3 cm. well circumscribed mass that was firm and freely mobile in right axilla. The left breast contained nodular area at upper outer quadrant. There was no palpable breast mass bilaterally. Right axillary adenopathy was clinically diagnosed. The patient had been investigated to search for primary lesion within the breast, including mammography, ultrasonography and MRI. Mammography showed ill-defined lobulated mass located at the upper outer quadrant of left breast (Fig. 1A). As correlated with ultrasonograms, it revealed a lobulated-shaped hypoechoic lesion, about 1.8x0.5 cm. in size. No architectural distortion or microcalcification was observed. There were multiple enlarged dense lymph nodes in right axilla, ranged from 2.6-1.2 cm. in diameter, with increased vascular flow on doppler scan. MRI of the breasts was then performed with contrast enhancement and dynamic study. The study showed an area of low signal intensity on T1WI, high signal intensity on T2WI, STIR and SpGr (Fig. 1B) and homogeneous enhancement after Gd DTPA injection at left upper outer quadrant. The enhancement kinetic showed a slow enhancement mass with a linear time course of the time/signal intensity curve (Fig. 1C) Multiple enlarged right axillary lymph nodes were seen. No definite mass or parenchymal distortion of the right breast was visualized. The patient was then admitted with initial diagnosis of right axillary adenopathy.

After excisional biopsy of the left breast mass under stereotactic needle localization and fine needle aspiration of the right axillary lymph nodes were performed. Microscopically, the mass-like lesion shows ill-defined margin blending with the surrounding breast that elicits fibrocystic change (Fig.1D). No sharp circumscription is appreciated. The stromal proliferation and slit-like

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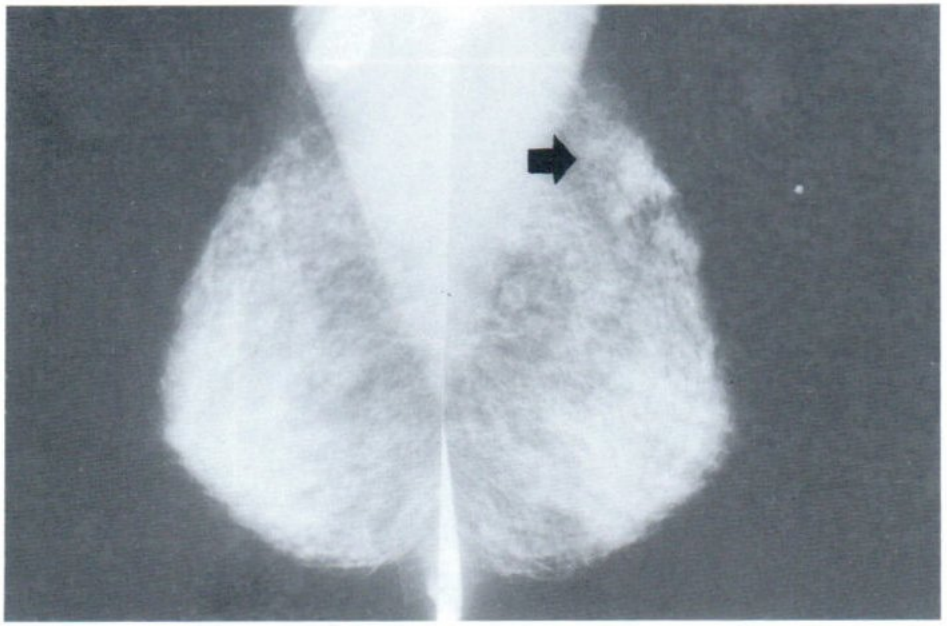
epithelial formations result in a picture reminiscent of fibroadenoma. Fibrohyalinization of stroma is prominent. Lobular architecture maintains in part on the left lower field (Fig.1D). At higher magnification, the lobule undergoes fibrohyalinization and so-called fibroadenomatoid change (Fig. 1E).

CASE 2

A 36-year-old woman was referred for screening mammography in September 1999. She also had pain in her left breast for 3 months but there was no palpable mass on the physical examination. The mammograms showed a small mass with partially obscured margin at upper outer quadrant of left breast (Fig.2A). Bilateral benign-appearing axillary lymph nodes were visualized. The additional sonography reveals a 7 mm. low echoic mass at left upper outer quadrant corresponding with the nodule in mammography. Microlobulation of border of the lesion and minimal posterior enhancement were apparent, being cathegorized as indeterminated lesion (Fig. 2B). Needle localization excisional biopsy of the mass under ultrasound guidance at left upper outer quadrant was then performed (Fig. 2C). Microscopically, the well-defined mass consists of proliferating ducts and myxomatous stroma. Fibroadenomatoid hyperplasia is the pathological diagnosis.

CASE 3

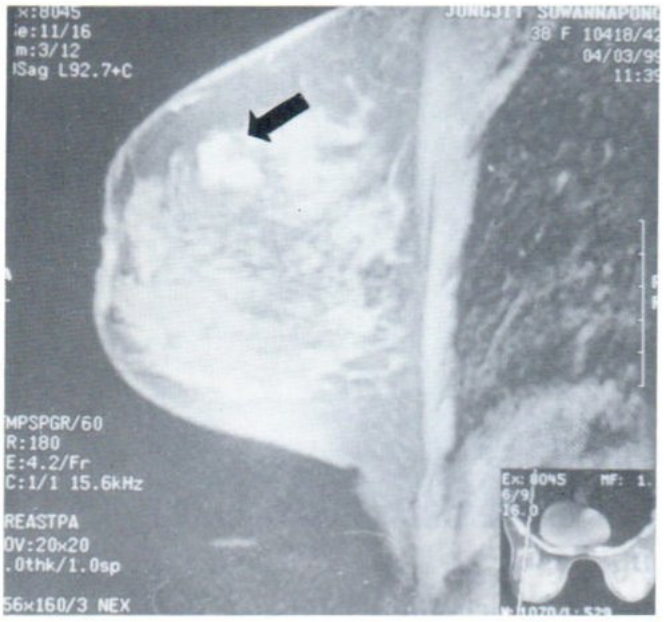
A female patient, 52 years of age, sought medical attention for her postmenopausal hormonal replacement therapy in October 1999. She was then referred for screening mammography. The study showed isodense lobulated mass with indistinct margin at inner middle portion of the right breast, measured about 1.2 cm. in diameter. No microcalcification was seen (Fig. 3A). The additional sonography revealed lobulated low echoic mass with ill-defined margin, measured about 0.8x1.2 cm. in size, at inner middle portion of the right breast (Fig. 3B). Excisional biopsy of the mass for tissue diagnosis was done. The section demonstrates confluent lobules with fibroadenomatoid change (Fig. 3C, D).



1A

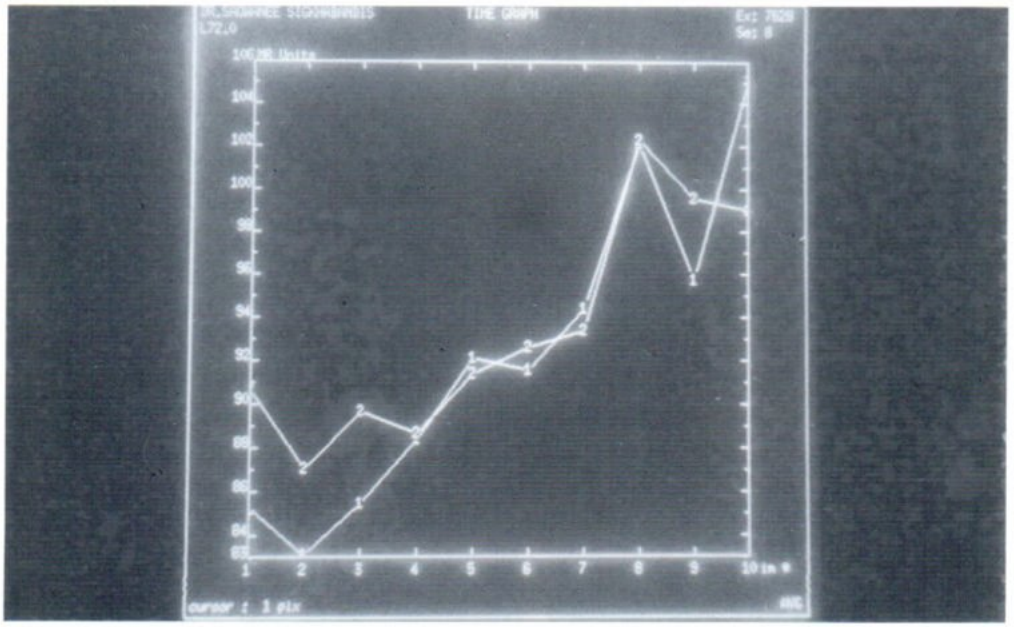
Fig. 1 – 38-year-old woman with fibroadenomatoid change of the left breast and contralateral axillary lymph node hyperplasia

A. Mediolateral mammograms of both breasts show ill-defined lobulated mass at upper outer quadrant of the left breast (arrow). Enlarged right axillary lymph nodes are also demonstrated.



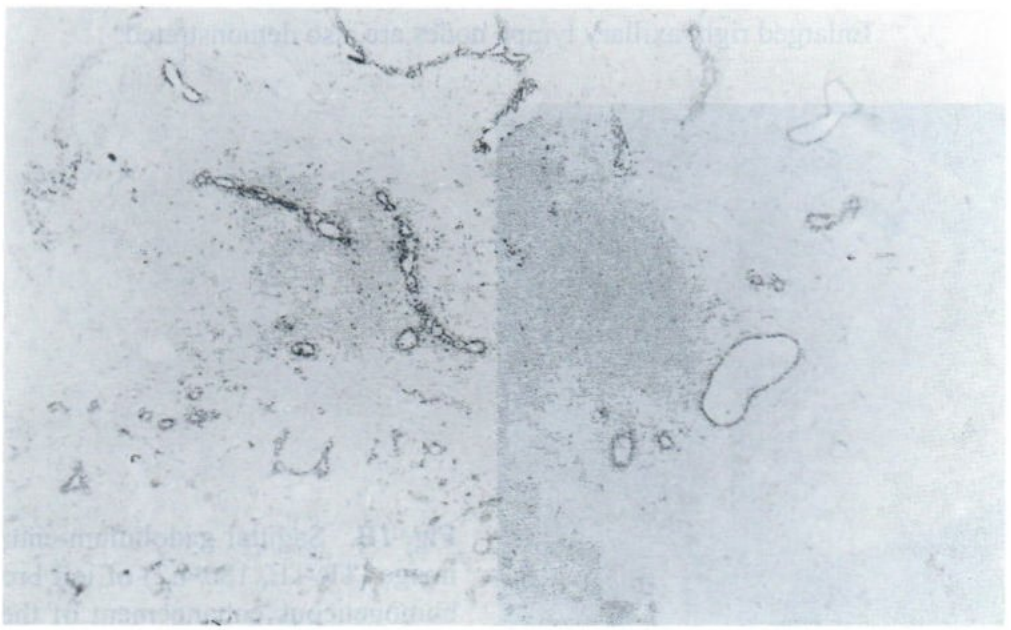
1B

Fig. 1B. Sagittal gadolinium-enhanced MRI image (TR/TE, 180/4.2) of left breast reveals homogeneous enhancement of the lobulated mass at upper outer quadrant of the left breast (arrow).



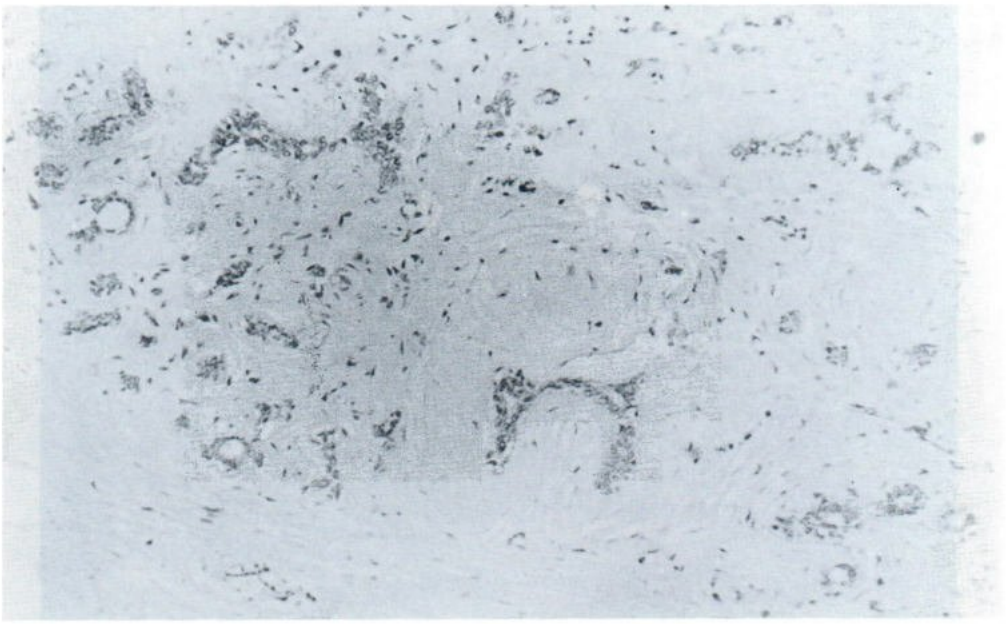
1C

Fig. 1C. Time/ signal intensity curve shows slow enhancement of the lesion with a linear time course.



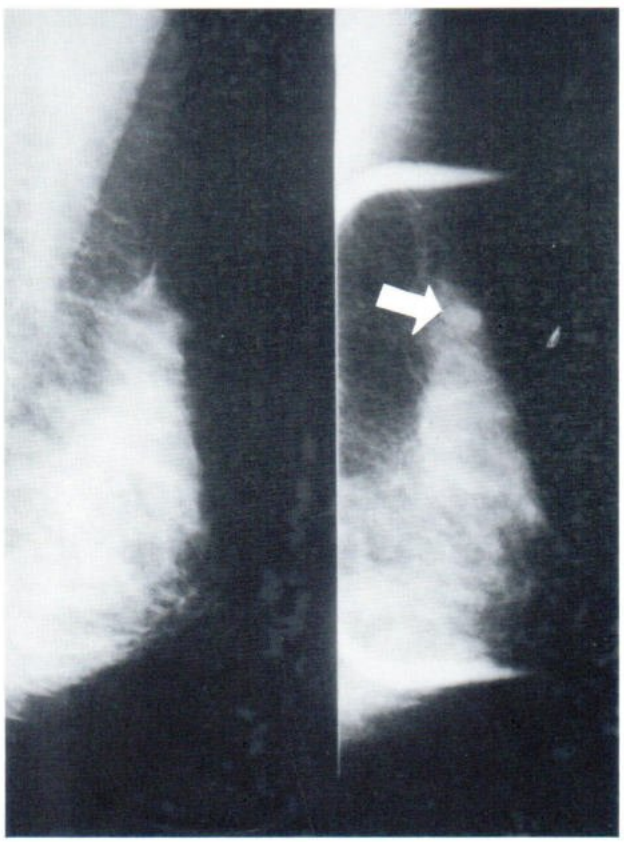
1D

Fig. 1D. Microscopic demonstration of the border of the mass-like lesion. Note the margin blends with the surrounding breast and a lobular architecture maintains (H&E x 40).



1E

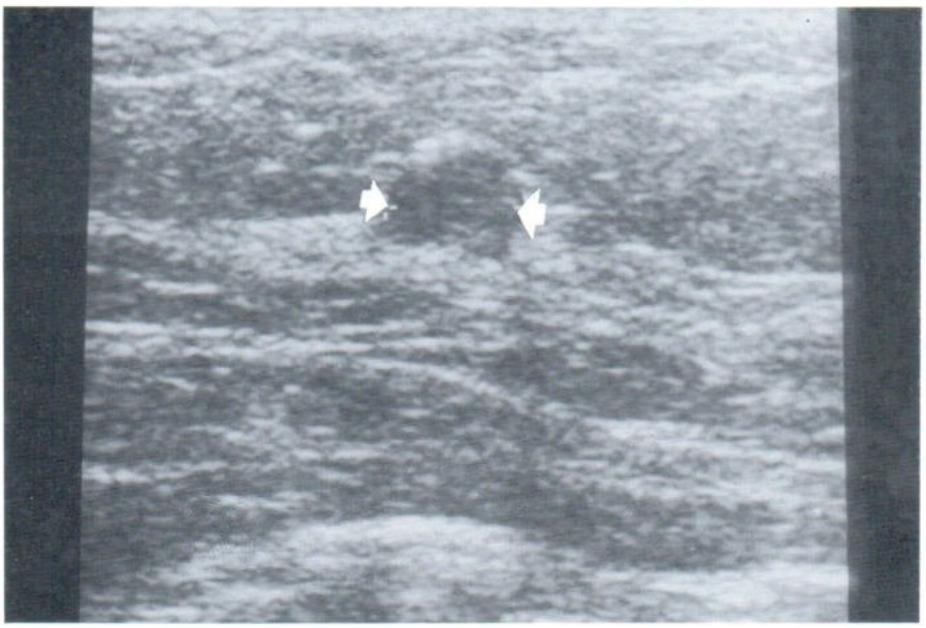
Fig. 1E. The lobule elicits fibroadenomatoid change (H&E x 100).



2A

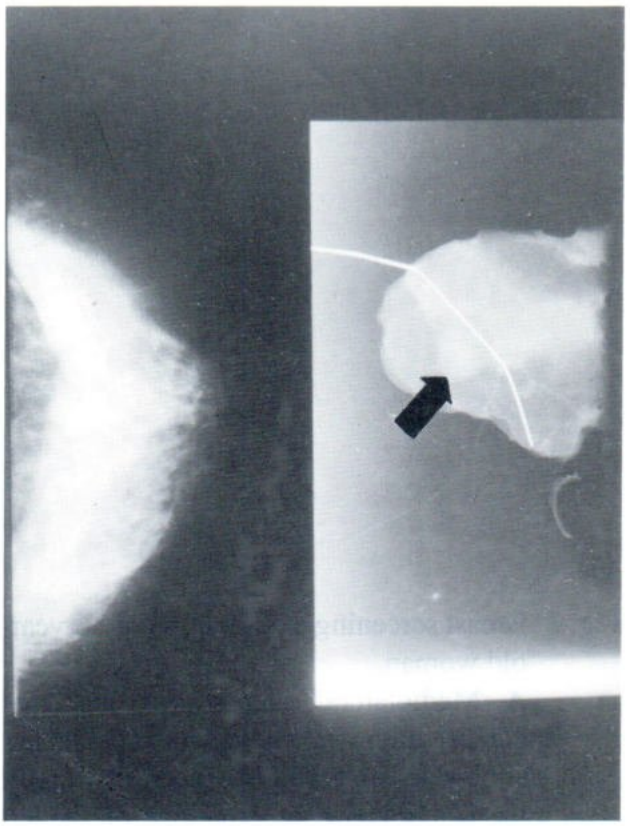
Fig. 2 Breast screening examination of 36-year-old woman

A. Mediolateral mammogram and spot compression views reveal a small-circumscribed lesion partially obscured by breast tissue at upper outer quadrant of the left breast (arrow).



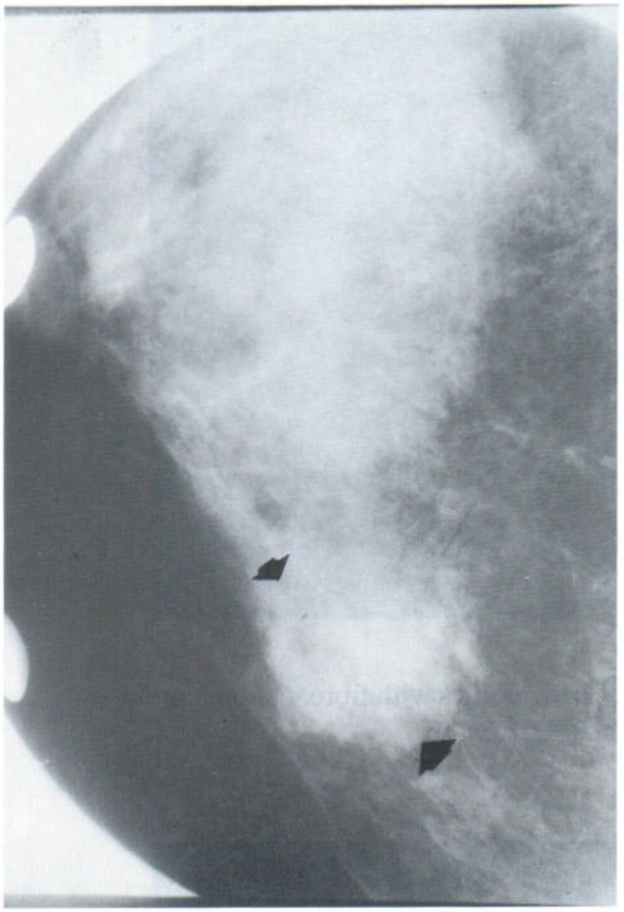
2B

Fig. 2B. The corresponding sonography of the lesion demonstrates a 7 mm. low echoic mass (arrowheads). Also noted is microlobulated border of the lesion and minimal posterior enhancement.



2C

Fig. 2C. The lesion (arrow) was excised after needle localization under ultrasound guidance.



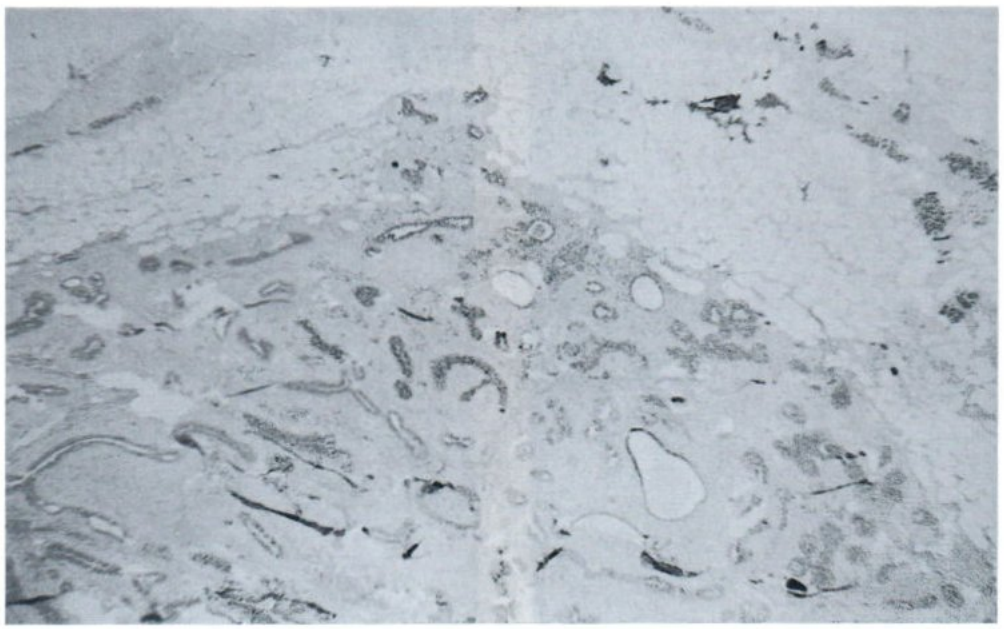
3A

3B

Fig. 3 – 52-year-old woman with fibroadenomatoid hyperplasia of the right breast mass

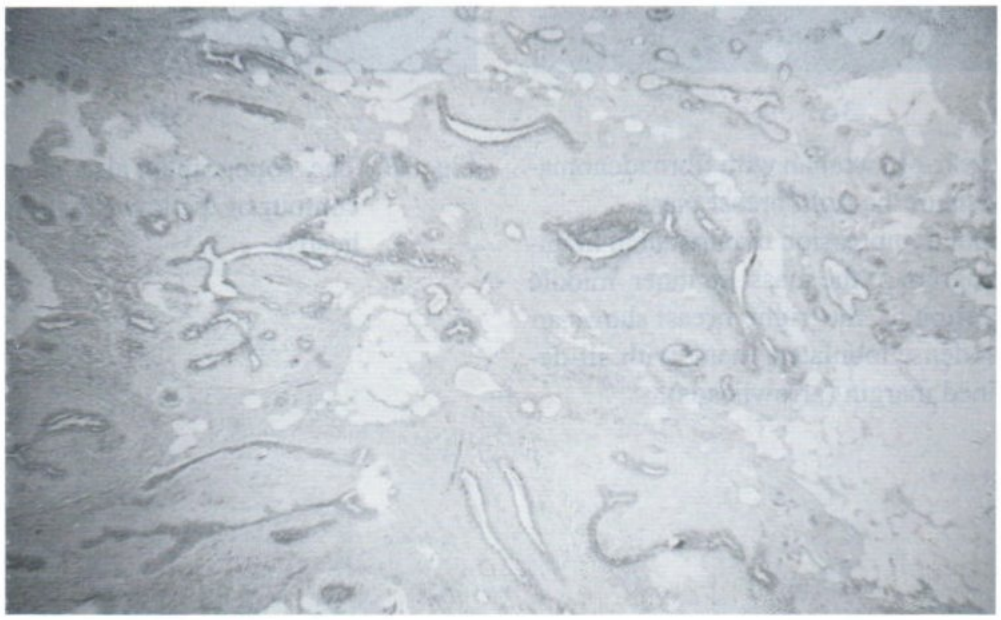
A. Spot compression craniocaudal mammogram of the mass at inner middle portion of the right breast shows an isodense lobulated mass with ill-defined margin (arrowheads).

Fig. 3B. The sonography also shows lobulated contour of the low echoic mass (arrowheads).



3C

Fig. 3C. Microscopic demonstration of confluent lobules with fibroadenomatoid change. Note the spiculated outline (H&E x 20).



3D

Fig. 3D. The breast lobules with fibroadenomatoid change merge with each other and leave some adipose tissue at the interface areas (H&E x 20).

DISCUSSION

Fibroadenomatoid hyperplasia is a rare benign breast lesion that was previously described in many pathologic and radiologic reports. Semb first has used the term fibroadenomatosis in 1928 for the process that may have preceded a circumscribed fibroadenoma.[5] It has been defined by Cole et.al. in 1978 as mixed lesions having both fibrocystic and fibroadenomatous elements.[6] This lesion is distinct from the typical well-circumscribed fibroadenoma that may have fibrocystic change. The peak age incidence is 30-34 years, which is intermediate to both fibroadenoma (20-29 years) and fibrocystic disease (40-44 years) as well as its histologic appearance. The incidence is between 5-11.5% in benign breast lesions biopsy series with no significant difference in Japanese and American women.[1,2] This lesion has also been reported in a 69-year-old male patient receiving diuretics (spironolactone) for congestive heart failure treatment as multiple fibroadenoma-like nodules.[7] No association with the oral contraceptive pills or breast cancer is presented.

Pathologically, this lesion is characterized by diffusely fibrous and nodular processes rather than a discrete circumscribed mass the same as fibroadenoma, but microscopically fibroadenomatoid foci are intermingled with dilated ducts, epitheliosis and adenosis. It is suggested that fibroadenomatoid hyperplasia is yet another pattern in the complex morphologic spectrum known as benign proliferative breast disease.[1] It may represent a morphologic stage in the development of fibroadenoma but it is best to consider fibroadenoma as a completely distinct entity. It is also suggested that the natural history of fibroadenomatoid hyperplasia is parallel to that of fibroadenoma with regression and calcification over time reflecting degenerative process.[8]

As to our knowledge, the mammographic appearance of fibroadenomatoid hyperplasia has not been well documented in the radiology literatures. In 1995, Poulton described 15 patients with this features presenting with 1-8 cm. breast masses and the mammographic findings were well-defined, medium-density mass in about half of the patients (53%).[4] The most common mammographic findings were a well-defined mass or normal findings. Fibroadenomatoid hyperplasia was reported in 1998 by Kamal et.al. as a cause of suspicious microcalcification on mammographic screening in postmenopausal women older than 50 years of age.[8] Sonography cannot differentiate this specific entity from other solid breast lesions. Furthermore, our literature review showed that there was no previous report about MR characteristic of fibroadenomatoid hyperplasia. The breast MR appearance in case 1 was a focal mass with lobulated shape, homogeneous signal intensity, increased signal intensity on T2WI, slowly enhancement and a linear time-signal intensity curve. These features are indicative of benign lesion commonly found in fibroadenoma.[9] In contrary, the invasive breast cancers tend to exhibit irregular or spiculated contour, heterogeneous signal intensity, low signal intensity on T2WI and strong rapid enhancement with a washout time course.[10,11]

In the first case illustrated, the nonpalpable left breast mass was shown mammographically as an ill-defined mass and sonographically as a hypoechoic lesion, 1.8x0.5 cm. in size. This abnormal presentation warranted the biopsy for tissue diagnosis, which led us to the pathologic conclusion of fibroadenomatoid mastopathy of the mass and lymphoid hyperplasia of the lymph nodes. For the second and third cases, the lesions were found from the screening mammography and supplement sonography being a solid mass with lobulated contour and ill-defined margin.

In conclusion, the fibroadenomatoid

hyperplasia that found in our three cases showed the mammographic and ultrasonographic features of a mass with lobulated contour, being classified as category 3 and 4 according to American College of Radiology Breast Imaging Reporting and Data System (ACR BIRADS).[12] As compare to the MRI, the signal intensity and post contrast dynamic study of the lesion in our first case indicated the benign characteristic. Consequently, the fibroadenomatoid hyperplasia is one of the benign lesions that give the imaging features mimic that of malignancy. It is difficult to make the appropriate judgement for doing biopsy or follow up. In our opinion, the breast MRI with dynamic contrast study would help to distinguish benignity from malignancy in the lesion that is indeterminated by mammography and ultrasonography.

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