

## NODULAR PSEUDOANGIOMATOUS STROMAL HYPERPLASIA OF THE BREAST: A CASE REPORT

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### MEMENİN NODÜLER PSÖDOANJİOMATÖZ STROMAL HİPERPLAZİSİ: OLGU SUNUMU

#### ÖZET

Psödoanjomatöz stromal hiperplazi (PASH), meme stomasının nadir görülen ve anastomoz alanları içeren tümöral bir lezyondur. Bu az rastlanan proliferatif lezyon, histopatolojik incelemelerde anjiosarkom ile karışabilmektedir. Olguda, kliniğe meme ağrısı ve sağ memede 6 yıldır ele gelen kitle şikayeti ile başvuran, ultasonografik incelemeleri sonucu fibroadenom ön tanısı ile memeden eksiyonel biyopsi uygulanan ve biyopsi materyalinin incelenmesi sonucu psödoanjomatöz stromal hiperplazi gelen hastayı dikkatinize sunmaktayız.

**Anahtar sözcükler:** Psödoanjomatöz stromal hiperplazi, nodüler psödoanjomatöz stromal hiperplazi, meme, selim meme hastalıkları

#### ABSTRACT

Pseudoangiomatous stromal hyperplasia (PASH) of the breast is a rare benign tumoral lesion of mammary stroma containing complex anastomosing spaces. This uncommon proliferative lesion is in differential diagnosis with angiosarcoma in histopathological examinations. A 38 year-old woman was admitted to our clinic with a complaint to of mastalgia and a mass in her right breast since six years. Ultrasonographic examinations revealed 4 cm mass with a diagnosis of fibroadenoma. Total excision of the mass was performed without any complications. Histopathologic examination revealed pseudoangiomatous stromal hyperplasia.

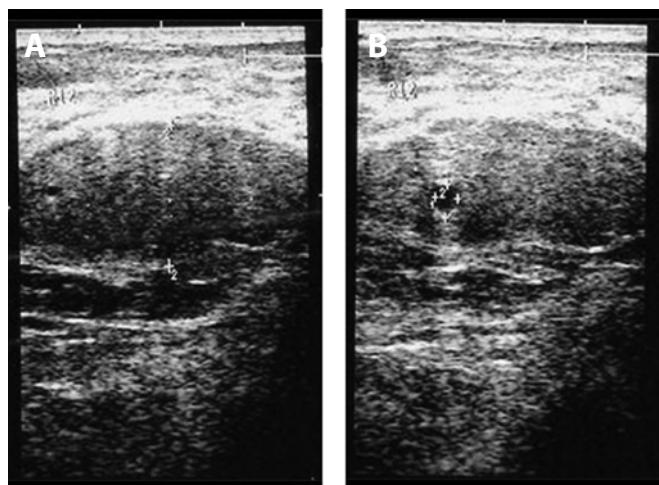
**Key words:** Pseudoangiomatous stromal hyperplasia, nodular pseudoangiomatous stromal hyperplasia, breast, benign breast diseases

#### Introduction

Benign mesenchymal tumors include focal fibrosis, pseudoangiomatous stromal hyperplasia (PASH), and fibromatosis or desmoid tumor (1). PASH, is an uncommon benign proliferation of mesenchymal stromal cells composed of myofibroblasts with the characteristic appearance of anastomosing channels imitating vessels. It may present in a diffuse or nodular form. The clinical, radiographic, and fine-needle aspiration (FNA) biopsy findings are similar to those of fibroadenomas (2, 3). Although its etiology and pathogenesis are still uncertain, it is generally thought that PASH represents a neoplastic process of myofibroblastic origin (2).

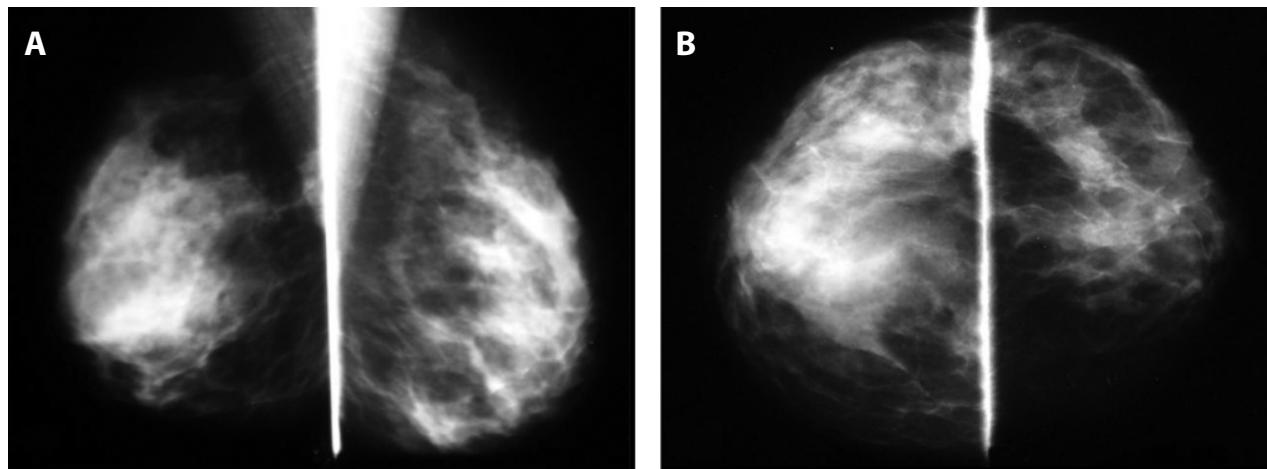
#### Case

A 38-year-old woman who had no history of hormonal medications was admitted to our general surgery department with a complaint of a mild cyclical right breast pain and breast mass since year 2000. During the previous six years, this lesion was followed by several physicians. A FNA biopsy was performed in 2001 and diagnosed as a fibroadenoma. The patient continued with routine polyclinic follow-up with ultrasound (US) examinations each year. In the last four months, she noticed a significant increase in size of the mass. Physical examination revealed a mobile



**Figure 1.** (A) Radial US images of the right breast show a isoechoic circumscribed solid mass measuring 38.7x15.4 mm. (B) containing a 3.6x2.7 mm anechoic cystic space.

mass lesion of about 4 cm diameter in the upper outer quadrant of the right breast. No axillary lymphadenopathy or contralateral mass lesion was found. Ultrasonographic examinations revealed



**Figure 2.** There is only a mammographic asymmetry that slightly increases in density of the right breast tissue in (A) mediolateral and (B) craniocaudal mammograms.

a 38.7 x 15.4 mm mass diagnosed as fibroadenoma (Figure 1). No pathologic findings were noticed in mammography (Figure 2). An US-guided tru-cut biopsy was performed. Biopsy findings showed a nonspecific stromal fibrosis.

Laboratory parameters were all within normal limits. An excisional biopsy was performed with a circumareolar incision. The lesion was 4 cm in diameter as a well-circumscribed rubbery solid mass without a capsula. There were multiple irregular tan-pink areas in different size and a lobulated, cut surface with clefts at cross section. During the operation, the removed specimen was examined in frozen section and diagnosed as a fibroadenomatous hamartoma. The patient had no postoperative complications and was discharged the 2nd postoperative day.

Histologic examination of the 4x3x2 cm mass revealed interanastomosing empty slit-like spaces, presenting between lobular structures with a perilobular concentric arrangement. The spaces were localized between collagen fibers and mostly seen acellular (Figure 3). No mitoses and atypia were detected. Therefore the histopathological diagnosis was nodular PASH.

During the six-month follow-up of the patient, after 6 months, no medical problems were found.

## Discussion

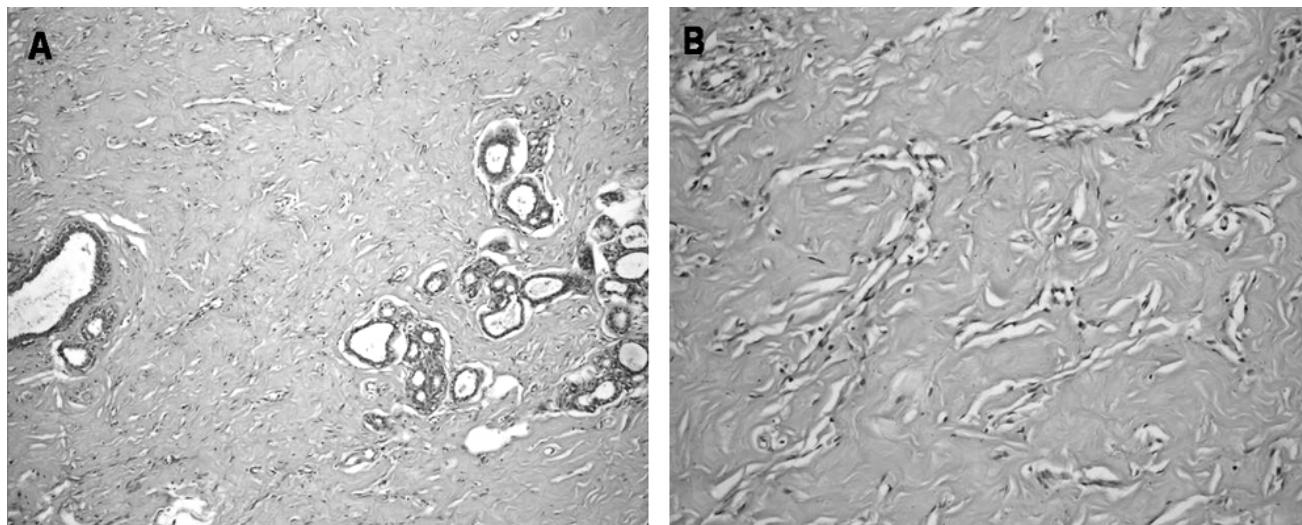
Pseudoangiomatous stromal hyperplasia (PASH) of the breast is a rare benign tumoral lesion characterized by proliferation of mesenchymal stromal cells composed of myofibroblasts with the typical appearance of anastomosing empty channels imitating vessels first described in 1986 by Vuitch et al. (4). The frequency of this tumor is reported 0.4% (n=7) in a study of 1661 breast biopsies (5). In another study, as incidental microscopic foci of PASH have been demonstrated in 23% of 200 consecutive breast specimens obtained for various benign and malignant conditions (6). Whereas the tumoral form is rare, PASH may

present in a pure diffuse or nodular form. The tumoral form of PASH most commonly manifests as a painless and a relatively soft single palpable solid mass.

Despite in many reported cases, PASH is not only described in premenopausal women but also in a wide range of patients including teenagers, men, and immunosuppressed patients (2). Estrogen replacement therapy is considered to be related to the pathogenesis (6, 7). Its etiology is still unknown and the diagnosis may be difficult on FNA biopsy because of its clinic and cytologic features overlapping with those of fibroadenomas (2, 3, 8). It may also be mistaken as low-grade angiosarcoma.

Mammographic examinations usually describe PASH as a round or oval circumscribed or partially circumscribed non-calcified tumoral mass (9). PASH has a wide variation of sonographic appearance, which is not helpful for differential diagnosis, although most of the nodular lesions are slightly heterogeneous, hypoechoic solid mass in echotexture without posterior acoustic shadowing (9). Mass lesions in PASH often grow over time and may recur locally after excision, whereas they are neither associated with malignancy nor considered to be premalignant lesion (5).

FNA biopsy cannot confirm the histologic diagnosis. In a study of ten patient, FNA biopsy could not discriminate PASH from fibroadenoma in 4 of 10 cases (40%) or suggest a diagnosis of PASH in any case, altought all the excisional biopsies which was performed to these patients diagnosed as PASH (8). Nevertheless, FNA can help to exclude malignancy. The characteristic finding is a complicated pattern of slit-like spaces that dominate the stroma between glandular units. The myofibroblasts in PASH are variably reactive for CD34 and SMA, but negative for factor VIII, and rarely positive for CD31 (10). In this case, the histopathological morphology was patognomonic, therefore the diagnosis doesn't needed any confirmation by immunostaining for



**Figure 3.** (A) Interanastomosing empty slit-like spaces within a collagenous stroma localized between breast lobules (HE, x100).  
(B) Empty slit-like spaces seen mostly acellular at high power (HE, x400)

vascular markers such as CD31, CD34, or factor VIII. The acellular empty slit-like spaces provided the differentiation of the diagnosis from low-grade angiosarcoma.

Diagnosis of unusual entities is often problematic. Surgeons should be aware this rare lesions that can present as breast

masses (11). Based on the mammographic and sonographic findings, the mass suggests the possibility of benign disease and follow-up may be advised by some authors. The use of tamoxifen in the management of this benign condition successfully was also reported (12). However, surgical treatment is still the curative method to PASH.

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