

Breast Hamartoma: Radiologic Appearances

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Key words: Breast neoplasms, MRI, hamartoma, fibroadenolipoma

Hamartoma of the breast is a benign lesion and can be visualised by mammography ultrasonography, and magnetic resonance imaging. Mammographic and ultrasonographic features of breast hamartoma are well described but knowledge on MRI findings is limited in the literature. We present mammographic, sonographic and MRI features of breast hamartoma in two cases. There was a perfect correlation between the findings at MRI and the microscopic appearance of the tumor. This modality may be used in uncertain cases of breast hamartoma

Hamartoma (adenolipoma, fibroadenolipoma, lipofibroadenoma) of the breast that is a rare benign lesion mainly occurs in females. It is composed of lactiferous ducts, mammary glands, connective and fatty tissue, surrounded by a pseudocapsule. It leads enlargement of the breast, usually without palpation of localized lesion. As they show all the constituents of normal breast tissue histologically, the pathologist may not recognize these lesions, but radiologically and clinically, they present a distinct mass (1). Mammography and intra-operative findings were characteristic, but MRI was the best modality in demonstrating histopathological contents of breast hamartoma in our cases.

Case report

Case 1

A 50-year-old woman with a history of postmenopausal syndrome complaining from a growing painful mass in the right breast was evaluated. Clinical examination revealed a hard, irregular, mobile mass of 5-6 cm in diameter. There were no skin changes, nipple retraction, lymphadenopathies or history of trauma. Mammography, ultrasonography (US) and magnetic resonance imaging (MRI) were performed. Mammography showed liposclerotic breast tissue and an oval, partly well-circumscribed, heterogeneous opacity (fat and soft tissue) at the upper lateral quadrant (Fig 1A). A non-homogeneous hypoechoic mass and echogenic pseudocapsula were clearly detected in sonographic examination (Fig 1B). The

mass had no vascularisation in color Doppler US. MRI revealed a nodular hyperintense lesion surrounded by a thin hypointense capsule on T1 and T2-weighted images. There were hypointense linear structures within the lesion on T1 and T2-weighted images (Fig 1C). The mass was removed and histopathological diagnosis was found to be consistent with a hamartoma.

Case 2

A 49-year-old woman who had a tender mass in the left breast was referred to our clinic. On mammographic examination, we detected, 3x2 cm mass with well-defined margin in the lower lateral quadrant of the left breast, which showed hyperdensity in the central and hypodensity at the periphery (Fig 2A). The mass was surrounded by a thin radiopaque capsule. US showed regular hypoechoic lesion in the same location. Peripheral adipose and central fibrotic tissues within the mass were seen in MRI examination (Fig 2B). The appearance of mass was not enhanced after intravenous contrast agent injection (Fig 2C). Vascularity of the lesion was not detected in color Doppler US. Total excision of the mass was performed and histopathological diagnosis was breast hamartoma.

Discussion

Breast hamartoma is a benign breast tumor that is well defined in 1971 (2). There have been many reviews of this entity in the radiologic literature (3), but reports on MRI findings of this lesion were limited. Pathologically, hamartomas are benign, well-circumscribed tumors that are composed primarily of dense, fibrous tissue with associated ducts and a variable amount of fat. The role of pregnancy and lactation in the pathogenesis are controversial. The mass may not be palpable. The lesions are usually diagnosed radiologically and may be multiple (1). Mammographically, hamartomas have been described by Hessler et al (4) as having a characteristic appearance of a well-circumscribed mass composed of dysplastic mammary tissue mixed with fat, often large and in retroareolar location. Because of this characteristic appearance, avoidance of surgical excision was suggested in selected patients.

Helvie et al. reported that approximately 30 % of the



A



B



C



A



B



C

Figure 1. Mammography shows lipo-sclerotic breast tissue and heterogenous opacity at the lateral quadrant of the right breast. A thin radio-opaque line (pseudo capsule) is seen surrounding the mass (arrows). Ultrasonography shows hypoechoic pseudo capsule clearly (Arrows). T2-weighted sagittal MR images (TR: 3000, TE: 112) show a heterogenic hyperintense nodular mass in the right breast (Arrows). Hypointense linear structures are seen in the mass.

Figure 2. Mammographic examination shows a well-circumscribed mass in the left breast (A). T1-weighted MR image shows centrally hypointense and peripherally hyperintense nodular mass containing both fat and fibrous tissue (B). The appearance of the mass was not enhanced after intravenous GdDTPA (C).

tumours could not be detected mammographically, and only 12 % of the hamartomas have a pathognomonic radiographic appearance that allows a specific prospective diagnosis to be made (3). Some hamartomas are similar to the cyst, galactocele, lipoma or fibroadenomas. However, all of patients in the study by Andersson et al (5) had mammographically detectable masses that averaged 7 cm in the greatest dimension larger than those in Helvie's series. In our first case, the lesion had not been diagnosed mammographically during a routine control (two years ago). Probably, the lesion was smaller at that time. However, retrospectively we detected a suspicious lesion at the same location on this mammographic image. It may be inferred that as these tumors grow and attain a relatively large size, their mammographic appearance becomes more characteristic. The detection of hamartomas may be at an earlier time than in reported previous studies, which may be attributed to the increased use of mammography.

Breast hamartomas consist of normal breast tissue. Usually some fat and adenomatous or dysplastic tissue is surrounded by a typical capsule. Sonographically, a breast hamartoma is often well-circumscribed hypoechoic mass. A thin hypoechoic line (pseudocapsule) is often demonstrated with US. Hamartomas are always avascular lesions on color Doppler investigation because of fat and fibrous tissue contents. In our cases, lesions were avascular on Doppler US. In the second case the mass was easily detected with US but the first case can be differentiated because of pseudocapsule. T1 and T2-weighted MRI provides high accuracy in the evaluation of fat and pseudocapsule in the breast hamartoma (6). In addition, MRI may be necessary in order to show small lesions. Dynamic MRI investigation may also provide differential diagnosis of other breast lesions (7).

Finally, our cases typically revealed concordance between MRI and histopathological definition of hamartoma in contents of fat, fibrous tissue and pseudocapsule of the lesion. Therefore, MRI is a reliable modality that may be used in the diagnosis of small, uncertain cases of breast hamartoma

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