Sonoelastography Findings of Breast Juvenile Papillomatosis: A Case Report

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Abstract

This paper presents sonoelastography findings of a case with histopathologically proven breast juvenile papillomatosis and review literatures on its imaging findings.

Key Words: Breast juvenile papillomatosis, sonoelastography, breast sonography.

Introduction

Juvenile papillomatosis is an uncommon, benign and proliferative disease seen with young women. These patients are generally under the age of 30 and have a family history of breast carcinoma. Additionally it has been reported to be associated with breast carcinoma in up to 15% of cases.

It has complex imaging appearances in various imaging tools. To our knowledge there is no paper describing sonoelastography findings of the disease. In this case report we describe the sonoelastography findings of juvenile papillomatosis with reviewing previously reported imaging findings.

Case Report

An 18-year-old female patient with family history (mother) and bilateral breast masses was referred to our department for breast sonography and sonoelastography. Sonography with compressive sonoelastography (EUB 6500:Hitachi Medical, Tokyo, Japan) was performed in supine position. Bilateral subareolar both solid and cystic masses, dilated and thick-walled ducts were found (Figures 1). Sonoelastography revealed the same elastic diameter, type 1 and 2 elastic pattern and strain ratio values under 2.07 of solid and cystic masses and thick walls (Figure 2).

Sonography findings were considered suspicious. Histopathologic examination by excision of the largest lesion showed juvenile papillomatosis (Figure 3). The patient is taken under a strict follow-up.

Discussion

Juvenile papillomatosis was first described by Rosen et al in 1980 (1). It is a rare, benign, localized, proliferative condition. Disease is regarded as premalignant and may exist with carcinoma (1-3). The risk factors for associating or developing carcinoma are positive family history, accompanying atypia, proliferative lesions, bilaterality, multifocality and recurrence (1). The highest risk for developing breast carcinoma has been reported to be a positive family history with recurrent bilateral lesions (4). Our patient had family history and bilateral lesions also.

Sonographic appearances have been reported in various papers. Sabate et al. reported ill-defined hypoechoic masses clearly demarcated from the surrounding normal parenchyma and filled with multiple cysts of variable size at sonography. According to their opinion this sonographic appearance is characteristic but not specific (2). Hsieh et al. acknowledged an ill-defined, inhomogeneous mass with numerous small hypoechoic cystic components at sonography (5). Chung et al. stated that cysts of juvenile papillomatosis are generally multiple, small and peripherally located within the lesion and microcalcifications may be seen by sonography (2-5). On sonography we revealed branching, thick-walled tubular structures, complex cysts and nodular solid lesions. We think these findings contribute to porous structure described in pathology specimens as Swiss cheese pattern.

Magnetic resonance imaging findings were first described by Mussurakis et al (6). They found a lobulated mass of low signal intensity on the pre-contrast T1-weighted images. The lesion was slightly hyperintense on T2 and contained multiple small cystic areas. In the post-contrast series marked

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Conflict of Interest: None
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enhancement and type 1 time-intensity curve were found (6). The most specific feature was the presence of numerous small internal cysts, best shown on the T2-weighted images to them. Durur-Subasi et al. reported magnetic resonance imaging findings of two cases of juvenile papillomatosis (7). They described bilateral, multiple, well-bordered breast masses with complex cystic and solid components for he one of the cases. Some of the cysts were continuing each other, and many had thick, local nodular walls. Near the cysts, they described multiple solid clusters of lesions. The dynamic evaluation showed continuous and plateau patterns. The other case had a giant mass in the entire right breast, in addition to the presence of a number of cysts and clusters of many nodular solid lesions. The kinetic evaluation showed continuous curves. Durur-Subasi et al. also proposed a name of white dahlia to describe the unique appearance of these crowded cysts or nodules on the postcontrast T1-WI and the maximum intensity projection images.

To our knowledge there is no paper describing sonoelastography features. Sonoelastography is used to characterize a lesion discovered in B mode.
Compressive sonoelastography assesses qualitative and semi-quantitative features (8-9). Colour maps showing the distribution of deformities or elasticity (elasticity score) as a qualitative parameter are evaluated. Another qualitative variable is the ratio of the diameters of lesion in B mode to those on elastography (elastic diameter) (10). Semi-quantitative data are deformation or elasticity ratios for two ROI (strain ratio, SR) obtained from lesion and the neighbor fat tissue.

Many of papers have been available describing sonoelastography features of the breast lesions. Generally benign lesions have lower elasticity scores than the malignant ones (2.1 vs 4.2). In addition they illustrate smaller or equal elastic diamater. Cho et al. suggested that an SR cut-off value of 2.24 enables the best distinction between benign and malignant masses (10). In this case report all these data of the patient were revealed and findings were consistent with benign ones. The same elastic diameter, type 1 and 2 elastic pattern and strain ratio values under 2.07 of solid and cystic masses and thick walls were all consistent with the benign nature of the disease.

As a conclusion sonoelastography findings of the juvenile papillomatosis favours its benign nature. Because disease has complex appearances on imaging modalities such as sonography and magnetic resonance imaging, sonoelastography may serve an alternative imaging modality in especially follow up continuum.

References