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IMPROVEMENT OF ULTRASOUND DIAGNOSTICS OF BREAST BENIGN TUMORS

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Annotation:
The analysis of data from foreign and domestic articles published over the past 10 years on the problems of instrumental diagnosis of benign diseases of the mammary glands (BDMG). The possibilities of ultrasound, X-ray mammography and magnetic resonance imaging in the differential diagnosis of various firms of BDMG and breast cancer are described. The importance of using the BI—RADS in describing the results of radiation methods for diagnosing breast diseases is shown.

Keywords: benign diseases of the mammary glands, radiation diagnostic methods.

Introduction

The early detection and differentiation of breast cancer (BC) is currently an issue in relation to the high incidence of morbidity and mortality among women. One in four women under the age of 30 and 60 per cent of older women are diagnosed with diseases of mammary glands; only the diffuse form of cystic fibrosis mastopathy (FCM) affects 50 to 95 per cent of women.

Ultrasonography is the main diagnostic method, allowing to diagnose structural features of the structure of the cystic component. Breast cysts are classified as simple, complicated and complex. The complicated cyst differs from the simple presence of an echogenic homogeneous content, and the complex cyst is heterogeneous: has both cystic and solid component.

The use of the category BI-RADS 3 (probably benign formation) is usually limited to a single solid oval formation with clear contours and a parallel orientation (most often fibrodenoma), isolated complicated cyst and cluster of microcysts. Clusters of microcysts are cystic dilation of individual acinni and are one of the benign cystic breast changes. By ultrasound, cluster cysts are a well-defined formation consisting of many small cysts separated by thin septums (less than 0.5).

In a typical ultrasound display, cluster microcysts can be assigned to BI-RADS 2. However, in deep locations or in cases where it is difficult to adequately characterize cluster cysts, in women with new microcysts in the postmenopausal period it is possible to estimate BI-RADS 3. Cystic formations with a solid component are classified as BI-RADS 4 unless there is data on the etiology of a solid component (e.g., a blood clot after aspiration biopsy).

Research Objective

Study and evaluate the results of ultrasound research methods of benign breast formations.

Materials and Research Methods

The reference standard for the study was defined as a combination of a histological study and a 12-month interval for re-examination and was available to 2,662 women. During the three years from

2017 to 2020, these patients underwent three annual independent mammograms and randomized ultrasounds, and 703 women from 14 centres agreed to one session of MRI. The main parameters studied were: cancer detection rate, sensitivity and specificity of ultrasound, mammography and MRI, positive prognostic value of conducted biopsies, interval frequency of cancer.

Research Findings

The results of the two studies were evaluated by two independent experts who did not know the results of the other screening. The cancer detection rate for the ultrasound was higher than for the mammogram alone, and the predictive value of the biopsy was higher using both diagnostic methods. 519 (19.5%) of the 2,662 participants had 745 BI-RADS category lesions, 124 (16.6%) of which were biopsied. In histological biopsies of lesions BIRADS 3 benign cystic lesions were found in each 3 cases - 31.1%, fibrosis and FCM - 22.6%, fibroids - 20.2%, fat necrosis - 11.3%, malignant formations - 4%, sclerosing adenosis - 3.2%, benign papillary lesions - 3.2%, other changes - 3.2%. It is important that the frequency of cancer according to the biopsy of layered cysts with a solid structure, thick walls and septums, intracystic formations, up to 36%. According to the three-year ACRIN 6666 experience, cluster microcysts were malignant in 0.8% of cases.

Thus, ultrasonography is a priority in the diagnosis of cystic changes of the breast, and the use of modern terminology BI-RADS is an effective tool in determining patient management tactics. The ultrasound image of the focal mastopathy deserves special attention. In half of the cases (46.6%) the focal FCM on ultrasound is visualized as a solid formation, in the form of heterogeneous echogenic tissue - 15%, in the form of cysts - 13.3% and in every fourth woman - 25% - a focal change was not observed. Ultrasonic signs are not specific enough to differentiate the dominant component: focal fibrosis, sclerosing adenosis or FCM. Thus, focal mastopathy requires additional methods that increase the sensitivity and specificity of the eaxamination.

Withdrawal

Thus, the sensitivity of the complex ultrasonography was 97.6%, the specificity of 86%, the accuracy of 96.3%. Introduction of a system of interpretation and recording of the results of breast ultrasound on the scale of BI-RADS will help to systematize the results, determine the optimal further examination and management of patients with breast cancer, ensure continuity of treatment and treatmentdiagnostic measures.

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