



ULTRASOUND IN THE DETECTION OF MASTOPATHY IN WOMEN

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ABSTRACT

Mastopathy is one of the most common benign breast diseases in women of reproductive age. According to the World Health Organization, more than 60% of women aged 20 to 48 years are affected by various forms of mastopathy. The disease is characterized by an increase in connective and glandular tissue, which can lead to the development of nodular formations and an increase in the risk of oncological processes. In this regard, timely diagnosis is of great importance, which allows detecting pathological changes in the early stages and preventing possible complications. Ultrasound (ultrasound) is a non-invasive, convenient and safe method for diagnosing breast diseases. Unlike mammography, ultrasound does not expose the patient to ionizing radiation, which makes it the preferred method for examining women under 40 years of age. In addition, ultrasound allows you to assess the structure of the mammary gland in real time, detect even minor changes, and monitor the dynamics of the condition during treatment. However, despite the widespread use of the method, questions remain about its sensitivity and specificity in diagnosing various forms of mastopathy.

Relevance: Mastopathy is one of the most common benign diseases of the mammary glands, especially in women of reproductive age. According to various statistics, up to 60-85% of women experience some form of diffuse or nodular mastopathy during their lives. The main causes of pathology are hormonal disorders, stress, chronic gynecological diseases and adverse environmental factors, which emphasizes the multifactorial nature of the disease. In the context of the increase in the incidence of mammary gland diseases, as well as increased vigilance against oncological processes, timely diagnosis of mastopathy is of particular importance. Currently, ultrasound (US) is one of the most popular and safe diagnostic methods, especially in women under 40 years of age, who have predominantly dense glandular tissue, which limits the effectiveness of mammography. Ultrasound allows not only

to detect structural changes in the mammary gland tissue, but also to conduct differential diagnostics between benign and suspicious formations. In addition, the method does not require the use of ionizing radiation, which makes it safe for repeated use, including dynamic monitoring of patients. Thus, the study of the effectiveness of ultrasound as a diagnostic tool for mastopathy in women of reproductive age is of high clinical importance. This will not only increase the accuracy of early detection of breast diseases, but also optimize the direction of patients, reduce the time to diagnosis and timely start of treatment, prevent the development of complications and reduce the risk of oncological changes.

Materials and methods: This study evaluated the effectiveness of ultrasound (US) in the diagnosis of mastopathy in women of reproductive age. The work was conducted at the Bukhara Regional Oncology Scientific Center. The study included 100 women aged 20 to 48 years who presented with complaints of pain, heaviness, swelling of the mammary glands, as well as during a preventive examination. All participants signed a prior informed consent to participate in the study. Inclusion criteria: reproductive age, history of malignant neoplasms of the mammary glands, absence of pregnancy or lactation at the time of the study. Patients with confirmed oncological diseases, as well as severe inflammatory processes in the mammary glands were excluded. Each participant underwent:

- Clinical examination, including history taking and palpation of the mammary glands.
- Ultrasound examination of the mammary glands using high-frequency linear sensors with a frequency of 7.5–13 MHz on the Mindray Zonare device. The study was conducted in the first phase of the menstrual cycle (on days 5–12) to minimize the impact on hormonal levels.
- In some cases (as indicated), mammography and / or cytological examination (puncture) were performed to confirm the diagnosis.

According to the results of the ultrasound examination, the following parameters were determined:

- the echostructure of the mammary gland tissue;
- the presence and characteristics of focal changes (cysts, fibrous areas, nodular formations),
- signs of proliferative processes;
- the state of regional lymph nodes.

The data of ultrasound diagnostics were compared with the results of the clinical examination, additional examination methods (if any) and the final clinical diagnosis.

In this study, sensitivity and specificity were calculated using the following formulas:

$$\text{Sensitivity} = (\text{True Positive} / (\text{True Positive} + \text{False Negative})) \times 100\%$$

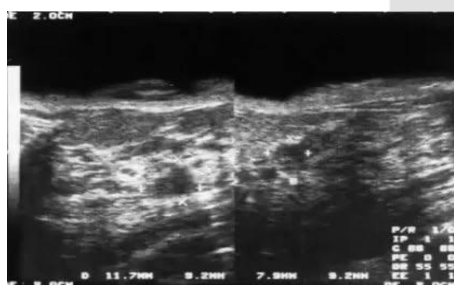
$$\text{Specificity} = (\text{True Negative} / (\text{True Negative} + \text{False Positive})) \times 100\%$$

Results and Discussion: The results of the questionnaire showed that 38.2% of the respondents (38 women) were urban residents, and 61.8% (60 women) were rural residents. In terms of the frequency of development, diffuse mastopathy prevailed over other clinical forms of mastopathy. The results of the occurrence of mastopathy by clinical types are presented below (Table 1).

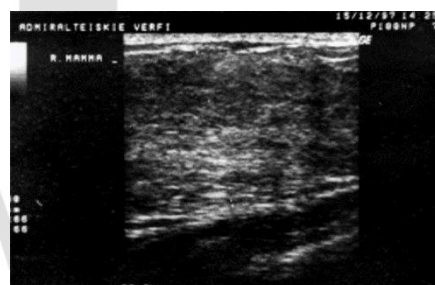
Table 1. Clinical forms of mastopathy

Forms of mastopathy	Residence	Age			
		20-30		31-45	
		Abc	%	Abc	%
Diffuse mastopathy	City (n=19)	8	42,1	11	57,8
	Village (n=28)	12	42,8	16	57,1
Nodular mastopathy	City (n=10)	3	30	7	70
	Village (n=20)	4	20	16	80
Mixed form	City (n=8)	1	12,5	7	87,5
	Village (n=12)	4	33,3	8	66,7

As can be seen from the table, the diffuse form of mastopathy (Fig. 2) was diagnosed in almost every second woman examined, which accounts for 48.4% of cases (47 patients) and is the most common form. Nodular mastopathy (Fig. 2) occurred in 30.9% of cases, almost every third woman (30 patients). The mixed form of mastopathy was detected in 20 women, which accounts for 20.6% of all cases.



1. Nodular mastopathy.



2. Diffuse mastopathy.

The study found the following:

1. Ultrasound revealed diffuse mastopathy in 41 of 46 cases, which corresponds to a sensitivity of 88.9%.
2. The sensitivity of ultrasound in the diagnosis of nodular mastopathy was 93.8% (30 of 31 cases were morphologically confirmed).
3. In the group of patients with a mixed form of the disease, ultrasound revealed pathological changes in 20 of 24 cases (sensitivity 90%).

The overall sensitivity of the method was 90.5%, and the specificity was 85.7%. False negative results were observed in 14.3% of cases, which is associated with microscopic changes that are difficult to see on ultrasound.

Conclusion: The results of the study confirm the high efficiency of ultrasound in detecting mastopathy in women of reproductive age. The method shows high sensitivity, especially in nodular and mixed forms of the disease. However, for more accurate diagnosis, an integrated approach is recommended, including mammography and morphological methods of analysis. Ultrasound allows for dynamic monitoring of patients, which is especially

important when prescribing conservative therapy. Despite the high sensitivity and specificity, the method has limitations associated with the dependence of the quality of the study on the level of training of the specialist and the technical characteristics of the device. In this regard, it is advisable to conduct additional training for diagnosticians and introduce modern ultrasound technologies.

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