

Clinical management of mastodynia in female patients under 35 years of age

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Abstract

Aim: Seen frequently in young women, mastodynia impairs patients' quality of life by raising worries about breast cancer.

Material and Methods: In this study, 101 mastodynia patients under 35 years of age who presented to our clinic between July 2018 and July 2019 were reviewed retrospectively. The data collected included age, family history of breast cancer, time passed since the onset of mastodynia, localization, relationship with menstrual cycles, physical examination findings, regularity of menstruation, breast USG results, number of outpatient clinic revisits, diagnoses made for those who were resistant to treatment upon a psychiatric examination, and general follow-up outcomes.

Results: The ages of the patients ranged between 19 and 35 years. A family history of breast cancer was present in 10%. Mastodynia was cyclic in 70%. In breast USG, 58.4% of the patients had signs of BI-RADS 1. Those who had BI-RADS 2 and BI-RADS 3 were followed up for an average of 7 months and no malignancy developed. A psychiatric examination was administered to patients who were resistant to treatment and 23 (22.8%) were diagnosed with various psychiatric disorders, mostly with anxiety disorder and panic disorder. Specific treatments were given to these patients and mastodynia alleviated or disappeared in half of them.

Conclusion: The incidence of breast cancer is very low in mastodynia patients under the age of 35 years. The main treatment approach for these patients should be to eliminate their worries about cancer and to relieve them mentally. A psychiatric examination can be useful in treatment-resistant cases.

Keywords: Breast; mastodynia; ultrasonography; therapeutics

INTRODUCTION

Described as a pain in the upper portions of breasts or soreness, tingle or ache in one or both of the breasts, mastodynia is one of the most common complaints seen in breasts. Mastodynia affects approximately 70% of the general female population in some period of their lives and is either cyclic or non-cyclic depending on its relationship with the menstrual cycle (1). Mastodynia can be severe enough to affect the routine daily activities of patients and the etiology and optimal treatment do remain undefined (2). The causes of mastodynia are thought to include large breast volume, diet, life style changes, stress, hormone replacement therapies, and pathologies such as duct ectasia and mastitis (3,4). Clinical management of mastodynia is usually poor due to its unclear etiology and subjective nature (5).

After the initial assessments of patients with mastodynia

through anamnesis and physical examination, some radiological tests such as breast ultrasonography (USG), mammography or magnetic resonance (MR) imaging will be required also considering the ages of patients. In fact, the tests turn out to be negative in a large majority of these patients who present to radiology units (6). Generally speaking, mastodynia is rarely a sign of cancer, but it evokes the possibility of a breast cancer or mastitis, causing considerable anxiety. In these cases, which are responsible for redundant workload and time in terms of radiological and biochemical testing, the main goal should be to rule out the likelihood of cancer and to help patients relax mentally and psychologically.

Our purpose in this study was to review breast USG findings of patients under 35 years of age who presented to our clinic complaining about mastodynia and to assess if their mastodynia was associated with breast cancer.

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MATERIAL and METHODS

Patients and study protocol

In this study, 101 consecutive Caucasian female patients under the age of 35 years who presented with mastodynia to the General Surgery Clinic in Trabzon Kanuni Training and Research Hospital between July 2018 and July 2019 were assessed retrospectively. Those who had a history of any malignancy or a history of surgical intervention in their breasts, who were found to have a mass in their breasts or axillary region, who had a discharge from their nipples, who had a breast trauma, who were pregnant or breastfeeding, who had hyperemia/induration in their breasts, and those who received exogenous hormone therapy were excluded from the study. The data evaluated included age, family history of breast cancer, time passed since the onset of mastodynia, its localization, its relationship with menstrual cycles, physical examination findings, regularity of menstruation, breast USG results, number of outpatient clinic revisits, diagnoses made for those who were resistant to treatment based on a psychiatric examination, and general follow-up outcomes.

The USG results of the patients were assessed according to the Breast imaging-reporting and data system (BI-RADS) classification. In this system, BI-RADS 1 is considered normal, BI-RADS 2 indicates benign changes, BI-RADS 3 most likely benign but attention requiring findings, BI-RADS 4 suspicious findings that may have low, moderate or high risk of malignancy, BI-RADS 5 very high risk of malignancy, and BI-RADS 6 biopsy-evidenced malignancy (7,8).

The protocol of this study was approved by the local ethics committee and it was implemented in accordance with the principles of the Helsinki Declaration as revised in 2000.

Statistical Analysis

All statistical data analyses were performed using the Statistical Package for Social Sciences (SPSS), version 15.0 for Windows (SPSS Inc., Chicago, IL). Descriptive statistics were used for comparisons. The Chi-Square test was used to compare mastodynia localization, physical examination findings, regularity of menstruation, and breast USG results. The statistical significance level was accepted as $p < 0.05$.

RESULTS

The ages of 101 female patients in this study ranged between 19 and 35 years with a mean age of 28.4 ± 5.4 . The anamneses of the patients showed that 91 (90.1%) patients did not have a family history of breast cancer, 8 (7.9%) had a family history of breast cancer in their 3rd degree relatives, 1 (1%) in their 2nd degree relatives and 1 (1%) in their 1st degree relatives. The time passed since the onset of patient complaints ranged between 1 month and 38 months with a Median: 1 (IQR: 1-2).

The localization of mastodynia was in both breasts in 71 (70.3%) patients, in the left breast in 20 (19.8%) patients and in the right breast in 10 (9.9%) patients. The physical

examinations of 43 (60.6%) patients out of the 71 patients who had mastodynia in their both breasts were normal, 21 (29.6%) patients had increased nodularity in both breasts, 5 (7%) patients had increased nodularity in the left breast, 1 (1.4%) patient had increased nodularity in the right breast, and 1 (1.4%) patient had a mass in the left breast. The physical examinations of 10 (50%) patients who had mastodynia in the left breast were normal, 5 (25%) patients had increased nodularity in the left breast, 3 (15%) patients had a mass in the left breast, and 2 (10%) patients had increased nodularity in both breasts. The physical examinations of 5 (50%) patients who had mastodynia in the right breast were normal, 3 (30%) patients had increased nodularity in the right breast, 1 (10%) patient had increased nodularity in both breasts, and 1 (10%) patient had a mass in the right breast. A statistically significant correlation was found between the localization of mastodynia and patients' physical examination findings ($p < 0.001$).

Considering the relationship between mastodynia and menstrual cycles, 70 (69.3%) patients were found to have cyclic mastodynia and 30 (29.7%) non-cyclic mastodynia. The remaining 1 (1%) patient had an early surgical menopause.

The examination results of 58 (57.4%) patients were normal. The breast USGs of these patients revealed that 49 (84.5%) had BI-RADS 1, 8 (13.8%) BI-RADS 2 and 1 (1.7%) BI-RADS 3. There was increased nodularity in both breasts in 24 (23.8%) patients. BI-RADS 2 was found in 11 (45.8%) of these patients, BI-RADS 3 in 8 (33.3%), and BI-RADS 1 in 5 (20.8%). Increased nodularity was found in the left breasts of 10 (9.9%) patients. Of these patients, 5 (50%) had BI-RADS 2, 3(30%) BI-RADS 1, and 2 (20%) BI-RADS 3. There was increased nodularity in the right breasts of 4 (3.9%) patients. Of these patients, 2(50%) had BI-RADS 1 and 2 (50%) BI-RADS 2. A mass was found in the left breasts of 4 (3.9%) patients. Of these patients, 3 (75%) had BI-RADS 3 and 1 (25%) BI-RADS 2. There was a mass in the right breast of 1 (1%) patient. The USG of this patient showed that she had BI-RADS 3. A statistically significant correlation was found between the examination findings and the breast USG findings of the patients ($p < 0.001$).

No menstrual irregularity was found in 83 (82.2%) patient, whereas 18 (17.8%) patients had irregular menstruations. In their breast USGs, BI-RADS 1 was found in 50 (60.2%) of these 83 patients who had no menstrual irregularity, BI-RADS 2 in 20 (24.1%), and BI-RADS 3 in 13 (15.7%). The breast USGs of the 18 patients who had irregular menstruation revealed that 9 (50%) patients had BI-RADS 1, 7 (38.9%) had BI-RADS 2, and 2 (11.1%) BI-RADS 3. A statistically significant correlation was not found between the regularity of menstrual cycle and the breast USG findings of the patients ($p = 0.431$).

In breast USG scans, a total of 59 (58.4%) patients had BI-RADS 1, 27 (26.7%) patients BI-RADS 2, and 15 (14.9%) patients BI-RADS 3.

After completing necessary procedures, all patients were prescribed appropriate treatment regimens. Stating that they did not benefit from medical treatment, 34 (33.7%) patients presented to our outpatient clinic again. All of these patients were referred to the psychiatry outpatient clinic. Anxiety disorder was found in 13 (12.9%) of them, panic disorder in 7 (6.9%), major depression in 2 (1.9%), and somatization disorder in 1 (0.9%) and they were prescribed respective therapies by the psychiatry clinic. All of these patients were invited for re-examination and mastodynia complaints of 6 (5.9%) were found to decrease and those of 5 (4.9%) to disappear.

The patients who had BI-RADS 2 and BI-RADS 3 were followed up for 3 to 11 months (mean 7 months) and their control physical examinations and USG scans were performed. None of these patients developed malignancy.

DISCUSSION

This study underlines eight points: a) mastodynia seemed to occur mostly in women's 30s, b) 10% of the patients had a family history of breast cancer, c) mastodynia was cyclic in approximately 70% of the patients, d) mastodynia was commonly seen in both breasts, e) physical examination was normal in approximately 60% of the patients, f) breast USGs revealed presence of mostly BI-RADS 1 followed by BI-RADS 2 and 3, g) no malignancy developed in any of the patients with BI-RADS 2 or 3, h) all of the 34 treatment-resistant patients underwent psychiatric examination and the majority of this group was diagnosed with various psychiatric diseases, mostly with anxiety disorder and panic disorder.

The patients with mastodynia in this study were mostly in their 30s. In the literature, mastodynia is reported to appear generally between ages 30 and 50 and the result we obtained was consistent with this literature data (2,9).

Familial tendency has long been known to play a role in breast cancer. It was found in this study that all of the 10% patients who had relatives with breast cancer were very curious about mastodynia and highly worried about breast cancer, and they were very much willing to undergo advanced radiological tests.

Mastodynia may involve a broad spectrum of conditions from a simple pain that would disappear spontaneously to a severe form that would affect daily activities and impair quality of life. Cyclic mastodynia is usually a mild and bilateral pain felt more in the upper outer quadrant where breast tissue is denser and lasts for at least 7 days per month and persists for a long time disappearing often with menopause (10). Cyclic mastodynia affects patients' sexual, physical, social, educational, and work-related activities (9). The incidence of 70% cyclic mastodynia found in our study is compatible with the literature information stating that cyclic mastodynia accounts for approximately two thirds of breast pain in clinics (1,2,9). Occurring often after menopause, non-cyclic mastodynia was found in 30% of our patients. In general, non-cyclic

mastodynia is unilateral, often described as a sharp or burning ache localized within a quadrant of the breast, but it can also appear as a more generalized pain even extending to the axillary region (2). This type of unilateral, more localized, constant and intense mastodynia is more likely to be associated with malignancy. Yet, no malignancy was encountered in the cyclic and non-cyclic mastodynia cases in our study.

Mastodynia was seen mostly in both breasts in this study and physical examinations turned out normal in approximately 60% of all patients. Most of these patients had cyclic mastodynia. Under normal conditions, edema occurs in the tissues of both breasts due to the hormonal changes taking place during the menstrual cycle, causing approximately 40% increase in the breast volume. We think that mastodynia was caused by the increased load and strain associated with this edematous volume increase in most of the patients in this group whose physical examinations and USG results were normal.

The BI-RADS classification that was developed to standardize mammography, breast USG and breast MR reports defines the criteria to be considered when assessing solid breast lesions. This classification not only defines the lesion but also gives information as to whether it can be benign or malignant and suggests what needs to be done. If the criteria can be defined with correct interpretations through a comprehensive USG assessment using high-resolution USG, not only additional radiological tests or invasive procedures such as a biopsy will be prevented for benign lesions but also the number of diagnosed breast cancers will increase (8). The first question asked by mastodynia patients whom we see quite frequently in our General surgery outpatient clinic is whether the pain is associated with breast cancer. The likelihood of malignancy in patients with mastodynia has been found very low in many studies. In a study made by Duijm et al. which involved 987 mastodynia cases, radiological breast imaging was used and the prevalence of breast cancer turned out to be 0.8%, which was similar to that of the control group (11). Using USG, Leung et al. assessed 99 patients with focal breast pain in the absence of an associated palpable mass and did not find any malignancy in any of them (12). Malignancy was also not encountered in any of the breast USG scans in our study; mostly BI-RADS 1 and then BI-RADS 2 and 3 were obtained. The most common pathologies were fibroadenoma and fibrocystic disease and they were BI-RADS 2 and 3 lesions. From these, BI-RADS 3 lesions carry approximately 2% cancer risk and should be monitored in regular intervals. Biopsy should be considered in these patients only if required clinically. The patients who had BI-RADS 2 and BI-RADS 3 were followed up for an average of 7 months and their check-up physical examinations and USG scans were performed. Malignancy did not develop in any of these patients. However, the follow-up periods in our study were not long enough particularly for BI-RADS 3 patients due to their likelihood of developing malignancy in the long term.

There are publications in the literature stating that mastodynia may be associated with anxiety and depression, and showing that possible psychiatric pathologies are clinically definable (13,14). Patients with mastodynia who are resistant to treatment should definitely undergo a psychiatric assessment. In this context, 23 (22.8%) of 34 patients who did not benefit from treatment in our study were eventually diagnosed with anxiety disorder, panic disorder, major depression and somatization disorder. These patients were started medical therapy or psychotherapy by the psychiatry clinic. With these treatments, 11 patients were found to gain relief from mastodynia. This result is important in the sense that it provides a solution to the problem those mastodynia patients who are encountered quite often in daily practice keep visiting General surgery outpatient clinics when they do not benefit from the initial medical treatment. In this way, the psychiatric diseases of these patients can be diagnosed with a psychiatric examination and treated appropriately and repetitions of these visits, which are quite annoying for both the patient and physician, can be prevented.

The limitations of this study include being a single-site study, small number of patients, use of operator-dependent USG testing, and short follow-up periods. Nevertheless, we think that the results obtained in this study will gain more meaning with further multicenter studies including a broader patient population, in which all USG scans are performed by a single radiologist and follow-up periods are longer.

CONCLUSION

In conclusion, we believe that medical treatment can directly be started for those who are under 35 years of age with no family history of breast cancer, have cyclic and bilateral mastodynia, and whose physical examination turns out normal after explaining them that their imaging tests would be normal and thus are unnecessary. In patients of this age group with non-cyclic or focal mastodynia whose breast examination shows nodularity as well as in those who are highly worried about breast cancer due to their family history, assessment with USG would suffice, which would also provide patient reassurance. Since the incidence of breast cancer is very low in a large majority of the mastodynia group aged under 35 years, eliminating cancer worries of these patients and relaxing them mentally should be the main treatment approach. If these results can be reflected successfully in the practices of physicians working in community health centers and hospitals where radiological testing is not available, this will contribute to reducing the workloads and patient costs of secondary and tertiary healthcare institutions.

Competing interests: The authors declare that they have no competing interest.

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