

Mastalgia-Cancer Relationship: A Prospective Study

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ABSTRACT

Objective: Mastalgia is an important symptom affecting approximately 70% of women and it disrupts the quality of life especially due to the worry of having cancer. In our study, the type and severity of mastalgia symptom of patients who presented to the outpatient clinic with mastalgia complaint were assessed along with their physical examination findings and radiology results. The purpose of the study is to demonstrate the relationship between mastalgia and malignancy when assessed in combination with the risk factors of patients.

Materials and Methods: The age, family history, menopausal status, age at the first childbirth, menarche, presence/absence of hormone replacement therapy, type of mastalgia, comorbidities and examination findings of 104 patients, who presented to the General Surgery outpatient clinic with mastalgia symptom, were recorded and assessed in the light of radiological study results.

Results: With respect to the mastalgia types of the patients, 38.5% had cyclic pain, 57.7% non-cyclic pain and 3.8% other types of pain. Mild mastalgia was present in 46.2% of the patients, moderate mastalgia in 24% and severe mastalgia in 29.8% of them. According to the BIRADS category, 48.1% of the patients were identified to have BIRADS 1 mass lesions, 39.4% BIRADS 2, 9.6% BIRADS 3 and 2.9% BIRADS 5 mass lesions. The patients who were identified to have BIRADS 5 mass lesions described non-cyclic and severe pain in the post-menopausal period. They had palpable masses along with the pain symptom.

Conclusion: Our study suggests that mastalgia symptom does not per se result in suspicion of malignancy, but physical examination and radiological imaging should also be used as needed for confirmation. Studies with a larger patient population are needed to shed light on the mastalgia epidemiology and its relationship with cancer.

Keywords: Mastodynia, breast cancer, ultrasonography, mammography

Introduction

Breast pain, which is termed “mastalgia” or “mastodynia” in the literature, is an important symptom of which the etiology and treatment have not been fully clarified and which causes approximately 70% of women to see a doctor at one period in their lives (1). Mastodynia is defined as nipple as well as tension, discomfort and pain in one or both of the breasts (2). It significantly influences the daily lives of women and it causes a serious uneasiness due to the worry of having cancer. Our main objective for patients with symptom of mastalgia according to contemporary study methods is to rule out the diagnosis of cancer. Various factors related to mastalgia etiology have been held accountable in the literature (3). A large breast volume, changes in diet and lifestyle, hormone replacement therapy (HRT), ductal ectasia and mastitis rank the first among them. Increased water and salt retention related to mastalgia developing in the premenstrual period was also held responsible (4). Especially changes in the levels of estrogen and progesterone, major hormonal factors, were discussed. Even though it is stated that high dose caffeine intake is associated with mastalgia, the discussions are controversial; on the other hand, there are publications reporting decreased symptoms with reduced caffeine in diet (5). The identification of the character of breast pain for patients presenting with breast pain plays an important role in diagnosis, treatment and follow-up (6). Breast pain is classified as cyclic and non-cyclic (7). Cyclic breast pain is defined as sensitivity felt in the first 2-3 days of menstruation in 2/3 of cases (8). As for non-cyclic breast pain, it is pain that does not follow the normal menstrual pattern and it is often one-sided. Its localization in the breast is variable (7). In case of extra-mammary pain, it may result in spinal or para-spinal problems and traumatic pain originating in the chest wall with the muscle-skeletal system ranking the first. Furthermore, it may be associated with biliary, pulmonary, esophageal and cardiac diseases (9). When breast pain is believed to be benign in character, psychological support methods, primarily placebo or suggestion, are deemed the first choices; however, there are also medical treatment options with proven efficiency (10). The search for solution in cases that are re-

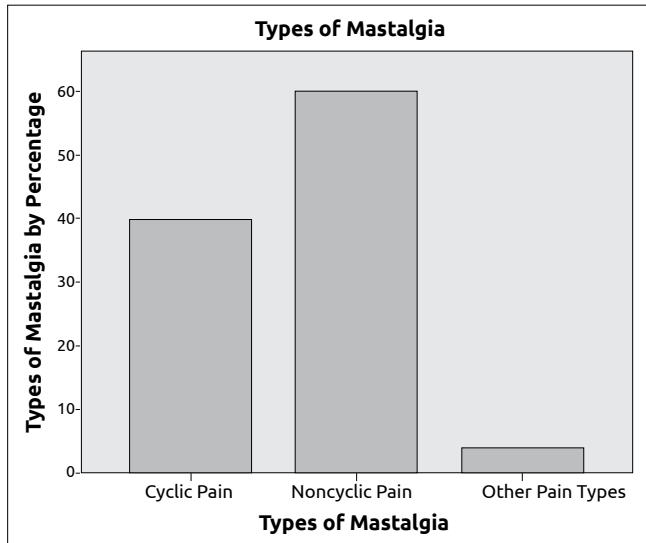


Figure 1. Percentage rates of mastalgia types

sistant to all treatment options is ongoing. In our study, mastalgia was investigated as an important problem influencing the quality of life for women and the cases were assessed in the light of medical records, examination findings and radiological study results. The main aim of the study is to demonstrate the relationship of mastalgia and the patients' risk factors with lesions that are suspected for malignancy.

The study is intended to contribute to the epidemiology of "mastalgia" in Turkey with the demographic data, personal history, physical examination results and study results.

Materials and Methods

One hundred and four patients, who presented at the General Surgery Outpatient Clinic of Dışkapı Yıldırım Beyazıt Teaching and Research Hospital with the symptom of mastalgia between June, 2010 and September, 2013, were included in the study. Before the study was started, approval was obtained from the local ethics committee of our hospital. After the study was explained to the patients, their written consents were obtained. The patients who presented for the first time to the general surgery outpatient clinic with the symptom of breast pain were included in the study. The patients, who were on follow-up due to breast pain, had repeated presentations or history of surgical intervention in their breasts, were not included in the study. The age, family history, menopausal status, age at the first childbirth, menarche, presence of hormone replacement therapy (HRT), cyclic or non-cyclic character of mastalgia as well as comorbidities of the cases were inquired and their physical examinations, breast USG (ESAOTE Gold Platform MyLab 60, Genoa, Italy) and mammography (Amulet, Fujifilm, Tokyo, Japan) studies were conducted. These findings for patients were recorded in the 'Mastalgia Assessment Form'. The mammography and ultrasonography findings were evaluated using the BIRADS (Breast Imaging-Reporting and Data System) classification described by the "Radiological Society of North America". The severity of pain was categorized in 3 groups. According to the assessment of cyclic and non-cyclic pain, the patients in both groups with pain lasting 1-2 minutes less than one week were included in the mild pain group; the patients with pain lasting 8-15 days or 1-2 hours in the moderate group and the patients with pain lasting more than 15 days or feeling continuous pain in the severe pain group. As a result of an examination of their breasts the patients with and without pathological findings

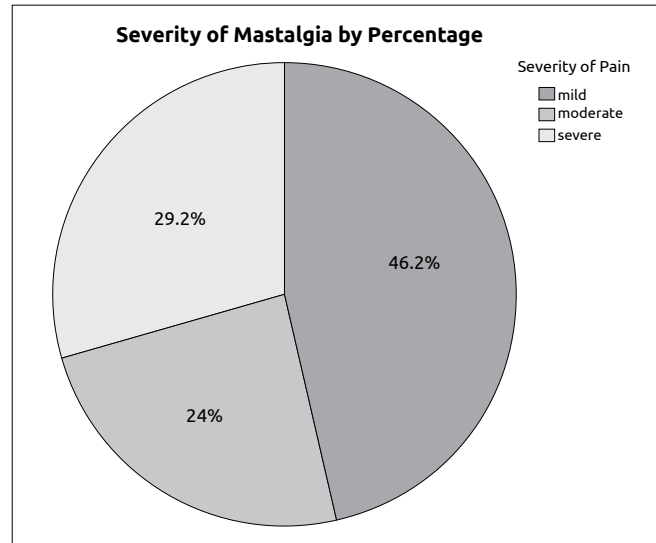


Figure 2. Percentage rates of mastalgia severity

were grouped separately. Breast ultrasonography was requested for 62 patients aged below 40 and ultrasonography as well as mammography was requested for 42 patients above the age of 40.

Statistical analysis

The data obtained were statistically analyzed using the software program "SPSS 17 (SPSS Inc., Chicago, Illinois, USA)". As statistical analysis method, descriptive statistics (frequency, percentage distribution, mean, median, etc.) were used. For the comparison of BIRADS scores of qualitative data, Chi-square test was used. The average values are stated as average (\pm) standard deviation. A value of $p \leq 0.05$ at a confidence interval of 95% was considered statistically significant.

Findings

The average age of 104 patients we included in the study is 38.6. The average age for the first menstruation was 12.6, average menopausal age was 50. Sixteen out of 104 patients were post-menopausal. In 43.3% (n:45) of the patients, there were comorbidities. Seventeen of 45 patients described mild, 13 moderate and 15 severe pain. In 12.5% (n:13) of the patients, history of cancer in the family was identified. Four of these patients define mild, 2 moderate and 7 severe pain. 14.4% (n: 15) of the patients received HRT. Among patients with history of HRT, 3 patients described mild pain, 3 patients moderate and 9 patients severe pain. 34.6% (n:36) of the patients had menstrual irregularity. Considering the types of mastalgia that the patients had, 38.5% had cyclic pain (n:40); % 57.7% had non-cyclic pain and 3.8% (n:4) had other types of pain (Figure 1). 46.2% of the patients (n:48) had mild mastalgia; 24% (n:25) had moderate and 29.8% (n:31) had severe mastalgia (Figure 2). Fourteen out of 16 post-menopausal patients described non-cyclic pain while 2 described cyclic pain. When the radiological study results of the patients were examined according to the BIRADS category, 48.1% of the patients were identified to have mass lesions in the category BIRADS 1, 39.4 in the category BIRADS 2, 9.6% in category BIRADS 3 and 2.9% in category BIRADS 5. None of the patients were radiologically found to have BIRADS4 mass lesions (Figure 3).

When the types of pain were examined, 18 out of 40 patients describing cyclic mastalgia were identified to have mass lesions in the category BIRADS 1, 16 in BIRADS 2 and 6 patients in BIRADS 3. Thirty one patients describing non-cyclic pain were identified to have mass lesions

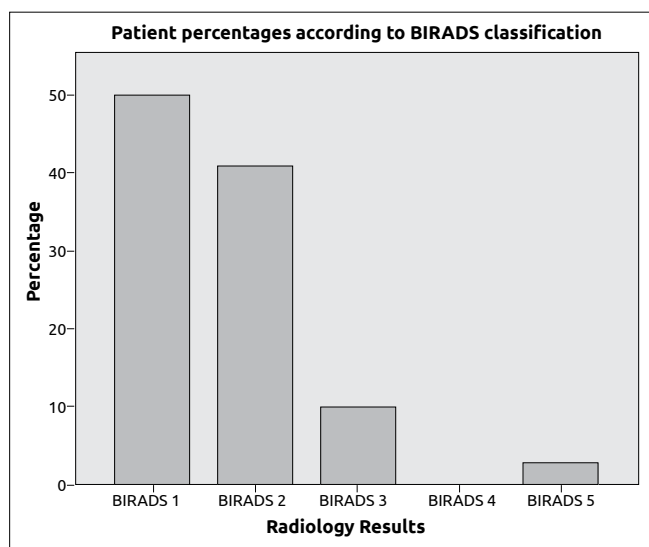


Figure 3. Patient percentages according to BIRADS classification

in the category BIRADS 1, 22 patients in BIRADS 2, four patients in BIRADS 3 and three patients in BIRADS 5. No statistically significant relations could be found between the type of pain and BIRADS category according to the results. ($p:0.37$) When the severity of pain was examined, 26 of 40 patients describing mild pain were identified to have lesions in the category BIRADS 1, 18 patients in BIRADS 2 and one patient in BIRADS 3. Thirteen out of 25 patients describing moderate pain were identified to have lesions in the category BIRADS 1, 9 patients in BIRADS 2 and 3 patients in BIRADS 3. Eleven patients describing severe pain were identified to have mass lesions in the category BIRADS 1, 14 patients in BIRADS 2, 3 patients in BIRADS 3 and 3 patients in BIRADS 5. According to these results, no statistically significant relations were identified between the severity of pain and BIRADS categorization ($p:0.16$). The patients identified to have lesions in the categories BIRADS 1 and 2 were recommended to return for control one year later while those identified to have lesions in the category BIRADS 3 were recommended to have 6-month follow-ups. Tru-Cut biopsy was performed in 3 patients identified to have lesions in the category BIRADS 5 and surgery was conducted in 3 patients with the diagnosis of invasive ductal carcinoma. The method of suggestion was primarily applied in the cyclic and non-cyclic mastalgia group. The patients that described other types of pain were referred to the physical therapy outpatient clinic. The patients who received suggestion and supportive bra and had therapy failure were started on medical treatment methods.

Discussion and Conclusions

Mastalgia is the most common symptom in breasts and it is the most frequent reason for presenting to an outpatient clinic in relation to breast (11). Even though studies support the view that no strong relations exist between breast pain and breast cancer, the uneasiness and fear of breast cancer caused by pain are persistent (12, 13). In assessing the relation of mastalgia with cancer, it is important to determine the type of mastalgia and to uncover the underlying reason for pain using other diagnostic tools in the ensuing period. As per the types of mastalgia reported in the literature, cyclic mastalgia has an incidence of 2/3 while non-cyclic mastalgia has an incidence of 1/3. Especially cyclic mastalgia has been associated with edema in the breast stroma which causes patients to have bilateral and diffuse symptoms in the luteal phases of hormones and menstrual cycle (7). Non-cyclic pain is a pain

that is described as unilateral and focal in mostly post-menopausal women aged 40-50 years and above (14). In our study group patients, 38.5% had cyclic types of mastalgia while 57.7% had non-cyclic and 3.8% had other types of mastalgia. According to our results, the incidence of cyclic mastalgia was expected to be higher in our population with an average age of 38.6 while non-cyclic mastalgia was in the forefront. This result might have resulted from the fact that the type of mastalgia of patients was determined according to their medical history and this assessment was subjective. Even though mastalgia is not considered a symptom of cancer per se, its presence does not rule out the presence of cancer, either. In a study performed by Preece et al. (15), it was found important that pain in the presence of breast cancer was unilateral and continuous for its differentiation from cyclic premenstrual mastalgia. This study also examined 17 patients among 240 breast cancer patients, who had only mastalgia in their initial presentation, and it was found that the majority of these patients had T0 and T1 early stage breast cancers. This situation showed the relationship between the symptom of mastalgia in patients, who had no physical examination findings, with early stage and small tumors. All the three cases in our study identified to have lesions in the category BIRADS 5 described non-cyclical, persistent and severe pain. Furthermore, palpable masses were also detected in the physical examinations of these patients. This result demonstrates once again the requirement to assess the symptoms and findings in a combined fashion for the diagnosis of breast cancer. Considering that non-cyclic pain mostly develops in post-menopausal patients, the results of our study are consistent with the literature (7). On the other hand, the study by Kızılkaya et al. (16) identified malignancies in two out of 530 patients with only mastalgia symptoms and both these patients described non-cyclic pain in the pre-menopausal period. In a study performed by Fariselli et al. (17) in Italy with 200 patients, only 5 out of patients who had no physical examination findings and described only local mastalgia were identified to have sub-clinical cancer. Our study found no statistically significant correlations between the types of pain and BIRADS categories, which may be explained by the limited number of cases in our study population. In our study, no statistically significant relations were found between the severity of pain and suspicion of malignancy. There are no studies conducted on this subject in the literature.

The first step of approach for patients presenting with mastalgia symptoms includes the assessment of pain type, review of the associated risk factors and completion of physical therapy in a meticulous way. It should be clarified whether the mastalgia symptom is underpinned by a pathology using breast ultrasonography and/or mammography depending on the patient's current situation. Both literature data and our study results suggest that pain does not constitute per se a symptom which may trigger suspicion of cancer. A patient presenting with only mastalgia and no physical examination and radiological results should be explained that pain does not constitute an additional risk for cancer. The limitation of our study was that it was designed as a study based on the medical history of patients in a cross-sectional time period. We are convinced that studies with longer durations conducted on larger patient populations with detailed medical history findings and supported by serum markers are needed.

Ethics Committee Approval: Ethics committee approval was received for this study.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

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