



## Retrospective Analysis of Women with Only Mastalgia

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### ABSTRACT

**Objective:** Mastalgia is the most common symptom in women, who has gone under breast imaging. 70% of women face with mastalgia at least once in their lifetime. In our study, we aimed to investigate the examinations and the results of the females referred to our outpatient clinics with mastalgia and to determine the frequency of malignancy.

**Materials and Methods:** Files of all women patients referred to General Surgery Outpatient Clinics between 01.06.2014-31.05.2015 has been investigated retrospectively. Cases only with breast pain complaint (n=789) out of 2798 women has been included in the study. Women with lump in breast, nipple discharge, redness, breast retraction and pregnant and lactating women were excluded. Breast examination findings, ultrasonography (USG), mammography results, whether biopsies are done or not and diagnoses have been investigated retrospectively.

**Results:** Mean age was 42.97±12.36 (16-74) years. 59.7% (n=471) of the women had bilateral mastalgia and 91.1% (n=719) of the breast examinations were found to be normal. USG was required from 664 (84.2%) women and mammography was required from 448 (56.8%) women. Considering diagnoses; fibrocystic changes in 32.3% (n=201), ductal ectasia in 8.8% (n=55), fibroadenomas in 6.1% (n=38), reactive lymphoid hyperplasia in 1.1% (n=7) was observed. Only 1 (0.2%) woman was diagnosed with invasive ductal carcinoma.

**Conclusion:** According to researches, 0.5% of the women with mastalgia were diagnosed with breast cancer. In our study this rate was found as 0.2%. Women with only mastalgia without any abnormality in physical examination should be informed about dealing with pain.

**Keywords:** Cancer, frequency, mastodynia

### Introduction

Mastalgia is the most common symptom encountered in women who have gone under breast imaging, and 70% of women suffer from breast pain at least once in their lifetimes (1, 2). Mastalgia is defined as tension, discomfort and pain in one or both breasts (3). This pain is usually experienced bilaterally and in the upper outer quadrant (4). Mastalgia could stem from breast tissue itself, extra-mammary tissues or psychological reasons. Some of these are macromastia, diet or lifestyle changes, hormone replacement therapy (HRT), ductal ectasia, mastitis, increased water and salt retention, and high-dose caffeine intake (3). Slight premenstrual breast pain for 1-4 days is considered normal (5, 6). It should be kept in mind that mastalgia is a chronic problem that affects physical and social activity, work-school activities and sexual activity, and can last years (5). Breast pain not only disrupts women's daily life quality, but also causes women to worry frequently over whether or not they have breast cancer (2). As breast cancer is the most common cancer in women worldwide, the main goal is to exclude the diagnosis of cancer in women with mastalgia according to current examination methods (3, 7). This is because the incidence of breast cancer has recently increased based on the technological advances in screening methods and imaging technics (8). As a screening method for women who apply outpatient clinics with symptoms of mastalgia are usually asked to undergo ultrasonography (USG) if under the age of 40, and mammography if aged above 40 years. USG examinations are also an option for women that are above the age of 40 and have dense breast tissue in addition to mammography (9). Female patients with mastalgia are sufficiently relieved when told they do not have cancer after gathering normal findings from clinical examinations and imaging (10). However, they should be informed that pain can resurface after treatment and approximately 20% of patients have mastalgia that is resistant towards treatment methods (5).

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Received: 17.01.2016  
Accepted: 07.03.2016

In our study, we aimed to analyze the physical examination findings, required investigations and results of the female patients who applied the general surgery outpatient clinic in our hospital with symptoms of mastalgia and to determine the incidence of malignancy.

**Materials and Methods**

The documents of all the female patients that visited İzmir Katip Çelebi University Atatürk Training and Research Hospital General Surgery Outpatient Clinics between 01.06.2014 and 31.05.2015 with symptoms of mastalgia were scanned through the hospital information system retrospectively. Prior to the study, ethics committee approval was obtained from İzmir Katip Çelebi University Ethics Committee for Non-invasive Clinical Trials with the decision number of 252. Of 2798 women who applied with symptoms of mastalgia, only those who had mastalgia symptoms alone (n=789) were included in the study, excluding those who also had lump in breast, nipple discharge, retraction on breast skin and similar symptoms as well as those who were in their gestation or lactation period. The female patients' age, which breast was in pain, physical examination findings, USG and mammography imaging results if taken, whether or not they had a biopsy, and their diagnoses were examined retrospectively. The classification of breast imaging-reporting and data system (BI-RADS) in the mammography imaging reports and the USG reports were analyzed. The assessment of mammography reports were performed according to the classification by the American College of Radiology using "BI-RADS 0: assessment is incomplete, BI-RADS 1: normal, BI-RADS 2: benign, BI-RADS 3: probably benign, BI-RADS 4: suspicious abnormality, BI-RADS 5: highly suggestive of malignancy, BI-RADS 6: known biopsy-proven malignancy" (11).

**Statistical analysis**

The descriptive data were assessed in percentage (number), mean± standard deviation (minimum-maximum values). The obtained data were analyzed using SPSS 22.0 demo package software. The inter-group comparisons were carried out by chi-square test ( $\chi^2$ ). In the results of the analyses with 95% confidence interval, values  $p < 0.05$  were considered significant.

**Result**

The study included the data of 789 cases with only symptoms of mastalgia, the mean age of whom was  $42.97 \pm 12.36$  (16-74) years. Of the female patients, 5.3% (n=42) were aged 65 or older, 59.7% (n=471) had bilateral mastalgia, and 91.1% (n=719) had uncomplicated breast exams (Table 1).

The records showed 664 (84.2%) women were required to undergo a breast USG, however, 120 (15.2%) of these women had not had a USG. It was determined that of the female patients who had undergone USG, 42.3% (n=230) had normal symptoms, 37.1% (n=202) had a cyst, followed by ductal dilatation with 9.9% (n=54) and fibroadenoma with 6.4% (n=35). There was a statistically significant difference in the distribution of USG results between the age groups (aged 40 or younger, aged 40 or older) ( $p < 0.05$ ) (Table 2).

We discovered that of 448 (%56.8) female patients who had been asked for a mammography, 10.4% (n=82) had not had a mammography. Of the women who had undergone mammography, 1.9% (n=7) were evaluated with BI-RADS 0, 33.6% (n=123) BI-RADS 1, 51.6% (n=189) BI-RADS 2, 11.5% (n=42) BI-RADS 3, 1.4% (n=5) BI-RADS 4. None of the female patients were determined to have

**Table 1. Demographic differences of the cases who included in the study**

		n	%
Age groups	Aged 40 years or younger	329	41.7
	Aged between 41-64	418	53.0
	Aged 65 or older	42	5.3
Breast with mastalgia	Bilateral	471	59.7
	Right breast	122	15.5
	Left breast	196	24.8
	Normal	719	91.1
Physical Examination	Increased nodularity	32	4.1
	Macromastia	13	1.6
	Mass	10	1.3
	Lymphadenopathy	2	0.3
	Folliculitis	2	0.3
	Nipple discharge	2	0.3
	Hyperemia	2	0.3
	Deformation	5	0.6
	Edema	2	0.3

**Table 2. Comparison of ultrasonography results by age group**

	Aged 40 or younger (n)	Aged 40 or older (n)	Total (n)	p (x2)
Normal	115	115	230	
Cyst	78	124	202	
Fibroadenoma	14	21	35	
Ductal dilatation	18	36	54	
Papilloma	0	2	2	0.026
Lymphadenopathy	1	8	9	
Solid lesion	3	5	8	
Infection	0	3	3	
Lipoma	0	1	1	

BI-RADS 5 or BI-RADS 6. A comparative analysis of BI-RADS score and whether pathological examination was performed is presented in Table 3. There was no statistically significant difference in the distribution of mammography results between the age groups (aged 40 or younger, aged between 41-64 years, aged 65 or older) ( $p = 0.166$ ). The ratio of not undergoing an examination in women aged 40 years or younger was found significantly higher compared with the women aged 41 years or older ( $p < 0.05$ ) (Table 4). A pathological examination was required from 39 people (4.9%) who were included in the study, 2 of which (0.3%) had not undergone a pathological examination. The patients were mostly diagnosed as having fibrocystic disease (32.3%) as can be seen in Table 5 in which the diagnosis distribution is presented.

**Table 3. The relationship between mammography scoring and status of pathological examination**

	Undergone pathological examination		Did not undergo pathological examination		Total		p (χ <sup>2</sup> )
	n	%	n	%	n	%	
Mammography	BI-RADS 0	2	33.3	4	66.7	6	1.7
	BI-RADS 1	1	0.8	122	99.2	123	33.9
	BI-RADS 2	3	1.6	186	98.4	189	52.1
	BI-RADS 3	17	41.5	24	58.5	41	11.3
	BI-RADS 4	4	100	0	0	4	1.1

**Table 4. Comparison of examination status by age group**

Age groups	n	%	Had an examination	Did not have an examination	p (χ <sup>2</sup> )
Aged 40 or younger	329	41.7	244	85	0.005
Aged 41 or older	460	58.3	379	81	
Total	789	100	623	166	

**Table 5. Distribution of the cases' diagnoses**

	n	%
Normal	308	49.4
Fibrocystic disease	201	32.3
Ductal ectasia	55	8.8
Fibroadenoma	38	6.1
Reactive lymphoid hyperplasia	7	1.1
Mastitis	4	0.6
Apocrine metaplasia	3	0.5
Folliculitis	2	0.3
Intraductal papilloma	2	0.3
Granulomatous inflammation	1	0.2
Lipoma	1	0.2
Invasive ductal carcinoma	1	0.2
Total	623	100

## Discussion and Conclusion

Although mastalgia is the most common reason of breast-related symptoms patients consult general surgery outpatient clinics and primary care physicians with, its etiology has not yet been clarified and it reduces women's quality of life considerably (12, 13). The increasing worry for cancer in women with mastalgia results in more doctor appointments and consequently significant cost increase. Controlled

Risk Insurance Company recommends that in breast care management algorithm, a radiological method should be determined depending on whether the case is aged younger or older than 30 years after mastalgias are divided into cyclical-non-cyclical, unilateral-bilateral, diffuse-focal, and women over the age of 30 with diffuse and unilateral pain should undergo bilateral mammography whereas women with focal pain regardless of their age should be examined through USG (9, 14).

Yüksekkaya et al. (9) determined no significant difference among the USG findings of the study and control groups and encountered no cancer case in their case-control study. In their study that included 937 mastalgia patients, Bilgin et al. (2) declared that 41.1% of the cases were radiologically normal while 50.6% had fibrocystic changes and 0.6% had cancer, 83.3% of which were above the age of 40. In a case-control study by Balcı et al. (6) found that marital status, smoking and anxiety affected mastalgia, and there was no significant relationship between breast self-exam and mastalgia. This proves that psychological factors are influential on mastalgia. This kind of patients can benefit from psychological support, regular clinic evaluation and follow-ups, breast-supporting clothing and non-steroidal anti-inflammatory creams (15). In our study, we obtained data that are in concordance with the literature.

In a prospective study by Plu-Bureau et al. (16), 247 women with mastalgia were monitored for 16±5 years; 77 of these women still had mastalgia during the monitoring, fibrocystic disease was discovered in 61.6%, and 22 women developed breast cancer. They stated that cyclical mastalgia increased the risk of breast cancer. Yakut et al. (17) indicated that the cause of cyclical mastalgia could be related to the pressure from venous congestion. These studies reveal that there should be more extensive and further studies regarding the relationship between cyclical/non-cyclical mastalgia and cancer.

In a case-control study by Dinç et al. (13) that included 376 cases, no statistical difference was detected in terms of USG findings amongst the groups, and it was reported that in both groups, fibrocystic changes were the most frequently encountered finding, and those with nipple discharge had 2.4 times, those with a physical examination finding had 5.1 times, and those with biopsy history had 1.2 times more mastalgia. In their prospective study, Yıldırım et al. (3) found no statistically significant difference between the BI-RADS categories and pain types of the cases, and reported that the female patients who only had mastalgia with no physical examination or radiological finding had not carried an extra risk in terms of breast cancer.

In a prospective study by Joyce et al. on 5841 patients, 3331 (57%) of the cases had mastalgia as their only symptom, 1.2% of the cases had cancer and all the cancer patients were aged above 35 years. Furthermore, in this study, in cases where the women aged less than 35 years with only mastalgia symptom had normal clinical examination, breast imaging was considered unnecessary and they could be managed in primary care (18). In our study, the incidence of breast cancer in the cases with only breast pain was found 0.2%. Low ratio of malignancy reveals the importance of counseling services for cases with mastalgia. Regular diaries for pain assessment, after-treatment such as written description of mastalgia, and effective treatments such as evening primrose oil should be provided for patients younger than 35 years old with mastalgia in primary care services (18).

Women who only have symptom of mastalgia and did not receive a result of any abnormality in their physical examination should be

comforted on their worries for cancer and informed about pain management by family physicians in primary care. However, it should be kept in mind that women with only breast pain could still develop breast cancer, and patients with extra risks for breast cancer should be referred onwards immediately. Subsequently, family physicians should receive training on the management of mastalgia in primary care which would help us progress significantly on this health problem that creates a heavy inconvenience for women.

We discovered that there was no scale with which level of pain was measured in our study, and the fact that last menstrual dates, breast cancer history in family, use of hormone preparations, smoking, pain spreading in upper arm and axilla were not questioned and mastalgia was not classified (cyclical/non-cyclical) is a limiting factor. Of the patients who were required for a mammography, 10.4% and of the patients who were required for a USG, 15.2% did not complete the necessary examinations, and therefore their results remained unknown. As the data in our study were obtained retrospectively, any data not recorded in the system or not questioned could not be attained.

**Ethics Committee Approval:** Ethics committee approval was received for this study from İzmir Katip Çelebi University Ethics Committee for Non-invasive Clinical Trials with the decision number of 252.

**Informed Consent:** Written informed consent was not received due to the retrospective nature of this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - M.A., H.S.K.; Design - M.A., H.C.; Supervision - H.C., E.T.; Funding - H.C., E.T., M.A., H.S.K.; Materials - H.C., E.T.; Data Collection and/or Processing - M.A., H.S.K.; Analysis and/or Interpretation - M.A., H.S.K.; Literature Review - M.A., H.S.K.; Writing - M.A., H.S.K., H.C., E.T.; Critical Review - H.C., E.T.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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