

Breast Cancer In Women Presenting With Mastalgia

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ABSTRACT

Objective To assess the frequency of malignancy in female patients presenting with mastalgia without any other symptoms.

Study design Observational study.

Place & Duration of study General Surgery, Civil Hospital Karachi, from June 2018 to January 2019.

Methodology The demographic profile of study participants, type and severity as duration of pain with presence of breast lump, family and menstrual history, use of hormone replacement therapy (HRT) and comorbid conditions were evaluated. Findings on physical and radiologic examination were then reviewed to assess its relationship with the patient's characteristics. A tru-cut biopsy was performed in those having higher BIRADS lesions to confirm the diagnosis of malignancy.

Results A total of 158 patients were included. The mean age of patients was 39.8 ± 11.9 year. Majority of the patients ($n=111$ - 70.3%) were pre-menopausal. The most common symptom was mild pain reported in 73 (46.2%) patients. Eighty-two (51.9%) patients had breast imaging reporting and data system (BIRADS) I grade of radiological lesions. Statically significant relationship was identified between BIRADS classification and type of pain ($p=0.018$) and with severity of pain ($p<0.001$). Patients with higher BIRADS scores had non-cyclic and severe pain in post-menopausal period with palpable mass in breast.

Conclusion Higher BIRADS grading was found significantly more in patients with non-cyclical pain and with higher frequency of malignancy on histopathology.

Key words Mastalgia, Post-menopausal, Breast cancer, Malignancy.

INTRODUCTION:

Mastalgia or mastodynia is a term used to describe breast pain which is the most important and common presenting complaint of patients presenting to a breast clinic, experienced by most of the women at

some point in their life, especially before menopause. It is defined as discomfort and/or pain in either one or both breasts.¹⁻³ It affects day to day life and significantly increases the fear of having cancer.⁴ Although its etiology and treatment options are yet not standardized, increased breast volume, lifestyle changes, hormonal changes or use of hormone replacement therapy, ductal ectasia, and mastitis are among the commonest factors held responsible for it.^{5,6} Mastalgia has also been seen with an increase in water and salt retention during the pre-menstrual phase.¹

The character of breast pain plays a vital role in diagnosing and deciding treatment options for patients.⁷ Breast pain can be categorized either as

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cyclical or non-cyclical.⁸ Cyclical pain usually precedes menstruation two to three days in the majority of cases (never considered clinically significant) whereas non-cyclical pain has no relation with the menstrual cycle.^{9,10} The location of breast pain can be variable.¹¹ Most of the mastalgia patients have the benign nature of the disease which is either self-limited or gets treated with psychological support, placebo or medical treatment.¹² Studies are ongoing to find solutions for patients not responding to common treatment regimens and are currently referred to imaging facilities for reassurance due to the high negative predictive value.¹³ Relationship of this pain with the risk of malignancy is considered low in patients without the presence of a palpable mass.¹⁴ This study was conducted on patients with mastalgia and the risk factors were analyzed to find out their relationship.

METHODOLOGY:

An observational study was carried out from June 2018 to January 2019 at General Surgery outpatient clinic of Civil Hospital Karachi. Sample size was calculated using online OpenEpi software.¹⁵ The mean score of previous similar literature was used with anticipated % frequency of 0.80 which showed sample size of 158.¹⁶ After taking ethical approval, the study was explained to the patients and verbal consent was taken.

Inclusion criteria was patients >35 years of age presenting for the first time with breast pain. Patients on follow-up for mastalgia, with previously diagnosed malignant lesions, any previous or planned surgical interventions on breast were excluded. The age, associated lump, family history, menstrual history (menarche and menopause where menopause was considered in an otherwise healthy female having no menses for 12 consecutive months), use of HRT, nature of pain (cyclical or non-cyclical) and its severity in terms of duration, as well as comorbid conditions (diabetes mellitus, hypertension, or ischemic heart disease) were recorded. Findings at physical examination and radiological assessment were also noted. Breast imaging reporting and data system (BIRADS) classification system was used for the radiological assessment. The severity of pain was categorized according to the duration of pain. Pain lasting for two minutes or less within a week was classified as mild, pain lasting for 8-15 days was grouped as moderate, and that lasting for more than 15 days was considered severe.⁶ Ultrasonography was done in 89 patients under the age of 40 years and ultrasonography plus mammography done in the remaining women who were more than 40 years of age. A tru-cut biopsy

was performed in patients who had BIRADS 3-5 to confirm the diagnosis of breast malignancy.

Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) Statistics for Windows, version 21.0. (IBM Corp., Armonk, NY, US). Mean and standard deviations were calculated for age, while frequency and percentages were computed for all the other categorical variables. Chi-square test was employed after the stratification of data into the severity and types of pain. A value of $p < 0.05$ at a confidence interval of 95% was considered statistically significant.

RESULTS:

A total of 158 patients with the mean age 39.8 ± 11.9 year were included. Most of them ($n=111 - 70.3\%$) were pre-menopausal. Nineteen (12.0%) patients reported having breast cancer in family. Seven out of these 19 patients had mild, three had moderate and nine severe pain. No statistically significant relations could be found between the severity of pain and family history of breast cancer ($p=0.19$). Eighty-three (52.5%) patients had co-morbid. Forty-one out of these 83 had mild, seventeen moderate and twenty-five severe pain. No statistically significant relations were identified between severity of pain with presence of co-morbid ($p=0.51$). Twenty-seven (17.1%) patients were currently using HRT. Out of these eleven had mild, five had moderate and 11 severe breast pain. No statistically significant relation was seen between severity of pain with use of HRT. Sixty (38%) patients had cyclic pain. All these patients with mastalgia were analyzed according to BIRADS classification and 52% had BIRADS 1, 33% BIRADS 2, 9% BIRADS 3 lesion, 2% BIRADS 4 and 4% BIRADS 5. The types of pain in relation to BIRADS category was statistically significant ($p=0.018$). Details are given in table I.

On stratification according to the severity of pain, a significant association was found between the presence of lump ($p=0.005$), age ($p=0.005$), and BIRADS classification ($p < 0.001$) (Table II) Patients with BIRADS 1 and BIRADS 2 lesions were asked for follow-up at one year and those with BIRADS 3 were followed-up at six months. A tru-cut biopsy was performed in patients with BIRADS 3-5 grades followed by surgical intervention. Seventeen (73.9%) of these were found to have invasive ductal carcinoma on biopsy.

DISCUSSION:

According to our results, most of the patients were having mild pain (46.2%) and mostly associated with BIRADS 1 (51.9%) grade of radiological lesions. Although literature search demonstrated no strong

Table I: Association of Nature of Pain With BIRADS Category

| BIRADS Classification | Nature of pain | | P-Value |
|-----------------------|-----------------|---------------------|---------|
| | Cyclical (n=60) | Non-cyclical (n=98) | |
| 1 (n=82) | 27 | 55 | 0.018* |
| 2 (n=53) | 20 | 33 | |
| 3 (n=14) | 11 | 3 | |
| 4 (n=3) | 1 | 2 | |
| 5 (n=6) | 1 | 5 | |

Table II: Association of Breast Cancer With Individual Characteristics

| Categories | Severity of Pain and Association With Malignancy | | | P-Value |
|-----------------------------------|--|---------------|-------------|---------|
| | Mild (73) | Moderate (38) | Severe (47) | |
| Lump | | | | |
| Yes (n=27) | 8 | 4 | 15 | 0.005* |
| No (n=131) | 65 | 34 | 32 | |
| Age (mean 39.8+11.9 year) | | | | |
| Pre-menopausal (n= 111) | 60 | 25 | 26 | 0.005* |
| Menopausal/Post-menopausal (n=47) | 13 | 13 | 21 | |
| Nature of Pain | | | | |
| Cyclical (n=60) | 22 | 17 | 21 | 0.17 |
| Non-Cyclical (n=98) | 51 | 21 | 26 | |
| BIRADS classification | | | | |
| 1 (n=82) | 55 | 11 | 16 | <0.001* |
| 2 (n=53) | 13 | 23 | 17 | |
| 3 (n=14) | 3 | 2 | 9 | |
| 4 (n=3) | 1 | 1 | 1 | |
| 5 (n=6) | 1 | 1 | 4 | |

association between breast pain and malignancy but the fear of a malignant breast disease is an important dilemma for the patients who insist on knowing the etiology of breast pain.¹⁷⁻¹⁹ In order to relate mastalgia with breast cancer, it is of prime importance that one should focus on the type of mastalgia and its underlying etiology. Non-cyclical mastalgia which is usually unilateral, occurs in post-menopausal women, similarly, breast cancer itself is common in old age women.²⁰ In our study most of the patients had non-cyclical mastalgia.

Cyclical mastalgia, on the other contrary, usually presents with bilateral pain, breast edema and diffuse symptoms in the luteal phase of the menstrual cycle denoting its benign nature.²¹ It is common in patients with age less than 40 years. But various

studies have shown a weak association of breast cancer with cyclical mastalgia.^{3,22} According to the literature about 33% of patients report non-cyclical which is different from the results of our study as majority of the patients had this complaint.

A study done by Preece et al found that breast pain which is unilateral and continuous differentiates it from benign pathology.²³ They also examined 7.0% of patients classified as T0 or T1 early stage of breast cancer and found that their initial presentation was only mastalgia. These findings showed the relationship between early or small sized breast cancer without any physical finding except mastalgia. In our study nine patients had lesion of grade 4 and 5 on BIRADS, and seven of them had non-cyclical pain that was continuous and moderate to severe

in intensity. These results were consistent with the studies done in the past.²¹ There is a need to assess the symptoms and investigations are advised to rule out malignancy. The major limitation of this study was small sample size and of shorter study duration.

CONCLUSIONS:

Patients with severe non-cyclical pain warrants detailed clinical and radiological examination to rule out breast cancer. Higher BIRADS grading was noted with severe and non-cyclical mastalgia in post-menopausal patients. When higher BIRADS graded patients were evaluated on histopathology many were found to have malignancy.

REFERENCES:

- Mansel RE, Webster DJT, Sweetland HM. In Mansel & Webster's Benign Disorders and Diseases of the Breast (Third Edition). W.B. Saunders; 2009. Breast Pain and nodularity p. 107-38.
- Goyal A. Breast pain. Am Fam Physician. 2016;93:872-3.
- Eren T, Aslan A, Ozemir IA, Baysal H, Sagiroglu J, Ekinçi O, et al. Factors effecting mastalgia. Breast Care (Basel). 2016;11:188-93.
- Yılmaz EM, Çelik S, Arslan H, Deđer D. Relation between mastalgia and anxiety in a region with high frequency of posttraumatic stress disorder. J Breast Heal. 2015;11:72-5.
- Arslan M, Küçükerdem HS, Can H, Tarcan E. Retrospective analysis of women with only mastalgia. J Breast Heal. 2016;12:151-4.
- Yıldırım AC, Yıldız P, Yıldız M, Kahramanca B, Kargıç H. Mastalgia-cancer relationship: A prospective study. J Breast Heal. 2015;11:88-91.
- Salzman B, Fleegle S, Tully AS. Common breast problems. Am Fam Physician. 2012;86:343-9.
- Groen JW, Grosfeld S, Wilschut JA, Bramer WM, Ernst MF, Mullender MM. Cyclic and non-cyclic breast-pain: A systematic review on pain reduction, side effects, and quality of life for various treatments. Eur J Obstet Gynecol Reprod Biol. 2017;219:74-93.
- Ader DN, South-Paul J, Adera T, Deuster PA. Cyclical mastalgia: prevalence and associated health and behavioral factors. J Psychosom Obstet Gynaecol. 2001;22:71-6.
- Holbrook AI, Zhang J, D'amico K, Liu Y, Newell MS. The association of breast pain with malignancy. J Breast Imag. 2019;1:177-81.
- Ferris-James DM, Iuanow E, Mehta TS, Shaheen RM, Slanetz PJ. Imaging approaches to diagnosis and management of common ductal abnormalities. Radiographics. 2012;32:1009-30.
- Schorge J. Breast disease. In: Schorge J, Schaffer J, Halvorson L, Hoffmann B, Bradshaw K, Cunningham F, editors. Williams Gynecology. 1st Ed. New York, NY: McGraw-Hill Medical. 2008. pp. 269-90.
- Tumyan L, Hoyt AC, Bassett LW. Negative predictive value of sonography and mammography in patients with focal breast pain. Breast J. 2005;11:333-7.
- Chetlen AL, Kapoor MM, Watts MR. Mastalgia: Imaging work-up appropriateness. Acad Radiol. 2017;24:345-9.
- Sullivan KM, Dean A, Soe MM. OpenEpi: a web-based epidemiologic and statistical calculator for public health. Public Health Rep. 2009;124:471-4.
- Mohammed AA. Evaluation of mastalgia in patients presented to the breast clinic in Duhok city, Iraq: Cross sectional study. Ann Med Surg. 2020;52:31-5.
- Leddy R, Irshad A, Zerwas E, Mayes N, Armeson K, Abid M, et al. Role of breast ultrasound and mammography in evaluating patients presenting with focal breast pain in the absence of a palpable lump. Breast J. 2013;19:582-9.
- Cho MW, Grimm LJ, Johnson KS. Focal breast pain: does breast density affect the need for ultrasound? Acad Radiol. 2017;24:53-9.

19. Kushwaha AC, Shin K, Kalambo M, Legha R, Gerlach KE, Kapoor MM, et al. Overutilization of health care resources for breast pain. *AJR Am J Roentgenol.* 2018;211:217-23.
20. Kataria K, Dhar A, Srivastava A, Kumar S, Goyal A. A systematic review of current understanding and management of mastalgia. *Indian J Surg.* 2014;76:217-22.
21. Smith RL, Pruthi S, Fitzpatrick LA. Evaluation and management of breast pain. *Mayo Clin Proc.* 2004;79:353-72.
22. Shobeiri F, Oshvandi K, Nazari M. Cyclical mastalgia: Prevalence and associated determinants in Hamadan City, Iran. *Asian Pac J Trop Biomed.* 2016;6:275-8.
23. Preece PE, Baum M, Mansel RE, Webster DJ, Fortt RW, Gravelle IH, et al. Importance of mastalgia in operable breast cancer. *Br Med J (Clin Res Ed).* 1982;284 (6325):1299-300.
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