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Original Research Article

Prospective analysis of diagnosis of women with mastalgia

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ABSTRACT

Background: Mastalgia is a common condition in women who present to the breast clinics or to the family doctors. It is a chronic problem that affects physical and social activity, work-school activities and sexual activity, and can last years. Therefore, the present study was conducted to determine the aetiology and diagnosis of patients presenting with mastalgia.
Methods: This was a hospital based prospective observational study. Total 80 women in reproductive age group who had symptom of mastalgia alone coming to department of general surgery, were taken as study subjects. Demographic, physical and disease characteristics along with ultrasonography (USG) and mammography imaging results analyzed.
Results: In present study the average age of patients in our study was 30.93±5.44 years and the mean body mass index (BMI) was of 23.79±2.92. Among cases 20% had complains of irregular menses, 77.5% had breastfed in past and 27.5% cases had history of benign breast diseases. Among cases 57.5% cases had non-cyclical breast pain, 42.5% cyclical breast pain and 58, 72.5% had unilateral breast pain. 53.17% had mild and 10% breast pain severe pain. As per the clinical findings, 32.5% cases were diagnosed with nodularity and 6.5% abscess**.** Sonography findings were in agreement with the clinical findings.
Conclusions: Mastalgia is one of the common symptom in females presenting to breast clinic. Benign breast disorders were commonly associated with mastalgia. Thus, it is very essential to diagnose the risk factors and underlying pathology in mastalgia cases by early diagnosis and prompt treatment of cases.

Keywords: Mastalgia, Breast pain, Benign breast disorders, Women, Reproductive age

INTRODUCTION

Mastalgia is a common condition in women who undergo breast imaging and present to the breast clinics or to the family doctors. It may affect up to two-thirds of patients during their lifetime during the reproductive period.[1,2] Mastalgia is a medical term used for breast pain, one of the most common complaints among women of 15 to 40 years of age (child-bearing age).[3] it is a dull, aching pain while some women may describe it as heaviness, tightness, discomfort, or burning sensation in the breast tissue, which may be unilateral or bilateral and in the upper outer quadrant.[4] This condition is usually due to benign causes, but breast cancer should be excluded because it is the main concern in the majority of women, although it could be associated with premenstrual syndrome, anxiety disorders. Pain in extramammary sources needs to be also excluded like musculoskeletal pain, especially Tietz syndrome or referred pain.[4-7] It is a chronic problem that affects physical and social activity, work-school activities and sexual activity, and can last years.[8]

Mastalgia is classified as cyclical, non-cyclical and non-specific extra-mammary pain.[9-11] Cyclical mastalgia has clear relationship to the menstrual cycle. Non-cyclical mastalgia may not be necessarily associated with

menstrual cycle, may be constant or intermittent and often occurs after the menopause. Non-specific extra-mammary pain arises from the chest wall from other sources and is interpreted as having the cause within the breast.[12]

Patients presented with mastalgia need to be assessed fully, including complete personal and family history, breast and general examinations, and the patient may need some investigations such as breast imaging and some of the hormonal assessments.[13] 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.[14] The most important step in the management after exclusion of cancer is reassurance.

Mastalgia is variable in degrees of severity, in some patients it may cause some degree of discomfort or anxiety which mandates performing repeated investigations, and in the other group. It may be severe that disturb the lifestyle of the patients.[13]

Various treatment modalities have been tried for the effective treatment of mastalgia depending on the severity and the chronicity of this condition. Hereafter, this study was conducted to determine the aetiology and diagnosis of patients presenting with mastalgia at our institute.

METHODS

Study design

This was a hospital based prospective cross-sectional observational study conducted from April 2022 to October 2023.

Study setting

This study conducted in Department of General Surgery in SSIMS, Bhilai, Chhattisgarh.

Study subjects

Women in reproductive age group who had symptom of mastalgia unilateral/bilateral alone coming to Department of General Surgery, was taken as study subjects.

Sample size

Sample Size was calculated by using software OpenEpi, Version 3, open source calculator and with the following formula.

$$n = [DEFF \times Np(1-p)]/[(d^2/Z^2{}_{1-\alpha/2} \times (N-1) + p \times (1-p)]$$

Population size (for finite population correction factor or fpc), N=total number of mastalgia cases evaluated in outpatient clinics in previous one year i.e. from December 2018 to November 2019. P is prevalence of mastalgia i.e. 5% at 95% confidence interval at design effect of 1. Thus, the required sample size was 80.

Inclusion criteria

Women who had symptom of mastalgia unilateral/bilateral alone were included in the study.

Exclusion criteria

Patients with clinically palpable lump in breast on presentation, nipple discharge, retraction on breast skin, and similar symptoms as well as those who were in their gestation or lactation period were excluded.

Data collection methodology

Eighty female patients who fulfilled the inclusion and exclusion criteria after consent were included in the study and were studied under the following parameters.

Demographic parameters such as age and body mass index (BMI). Other parameters like dietary, menstrual and breastfeeding habits, past history of benign breast diseases, cyclicity and side of mastalgia, severity of mastalgia and age of menarche and its relation with mastalgia were analysed. As per the severity of mastalgia, breast pain was divided as mild, moderate and severe.[13] Mild pain was pain lasting for about 15-20 min in a day and lasting for 1 week.[13] Moderate pain was defined as pain lasting for 1-2 hours in a day and extending up to 2 weeks whereas severe pain was described as persistent breast pain for more than 2 weeks.[13]

The physical examination findings and ultrasonography (USG) and mammography imaging results if taken, biopsy (fine needle biopsy, core needle biopsy or excision biopsy) and their diagnoses if performed were documented in the prescribed format in the patient information sheet.

Statistical analysis

The collected data were transformed into variables, coded and entered in Microsoft excel. Data were analyzed and statistically evaluated using statistical package for the social sciences (SPSS)-PC-25 version. Wherever possible percentage, Chi-square test and statistical analysis were applied. Probability value of $p<0.05$ were considered statistically significant.

Ethical clearance

The study protocol was approved by the Institutional Ethics Committee of AIIMS Raipur prior to the commencement of the study and informed consent was taken from those who were included in the study.

RESULTS

In present study during study period 80 women those fulfilled the study criteria and were included in the study.

In present study the average age of patients in our study was 30.93±5.44 years and the commonest age group was 30-35 years accounting of 31.25% cases (Table 1). BMI distribution of study subjects shows that the mean BMI was of 23.79±2.92 and no patient of morbid obesity was noted. Analysis shows that 33.75% females were of overweight. 2.5% females were obese class 1 and 2.5% females were class 2 obese (Table 1). Majority of females with mastalgia enrolled in our study were non-vegetarian (77.5%) (Table 1).

Table 1: Socio-demographic profile of study subjects.

Variables	Frequency	Percent
Age (in years)		
0-10	2	2.85
15-20	3	3.75
21-25	18	22.50
26-30	15	18.75
30-35	25	31.25
36-40	10	12.50
41-45	9	11.25
BMI		
<20	11	13.75
20-24.9	39	48.75
25-30	27	33.75
30.1-35	2	2.50
>35	2	2.50
Dietary habits		
Vegetarian	18	22.50
Non-vegetarian	62	77.50

In present study among study subjects 64 (80%) patients had regular menstruation pattern and 20% had complains of irregular menses (Table 2). Among study cases 77.5% had breastfed in past, however 3.75% cases did not give history of breastfeeding. 18.75% cases were either unmarried or did not experience lactational phase (Table 2). Whereas 22 cases (27.5%) cases had history of benign breast diseases such as fibroadenoma, galactocoele, cystic breast diseases (Table 2). The mean age of menarche was 12.51 years. Majority of patients had the onset of menstruation at 12 years (45%) (Table 2).

In the present study, 57.5% cases had non-cyclical breast pain whereas 42.5% cases had cyclical breast pain (Table 3). Majority of cases (58, 72.5%) had unilateral breast pain. Right sided pain and left sided pain were in equal proportion (Table 3). On assessing the severity of mastalgia it was found that maximum number of cases had mild breast pain (53.17%). Only 10% of breast pain were noted to be severe (Table 3).

Table 2: Patient characteristics.

Variables	Frequency	Percent
Menstrual cycle		
Regular	64	80
Irregular	16	20
Breast feeding		
Given	62	77.50
Not given	3	3.75
Not applicable	15	18.75
Previous benign breast history		
Present	22	27.50
Absent	58	72.50
Age of menarche (years)		
11	7	8.75
12	36	45
13	27	33.75
14	15	15

Table 3: Disease characteristics.

Variables	Frequency	Percent
Type of mastalgia		
Cyclical	34	42.50
Non-cyclical	46	57.50
Side of mastalgia		
Unilateral (right-sided)	29	36.25
Unilateral (left- sided)	29	36.25
Bilateral	22	27.50
Severity of mastalgia		
Mild	43	53.75
Moderate	29	36.25
Severe	8	10

As per the clinical findings, most of the cases did not have any abnormality (61.25%). 32.5% cases were diagnosed with nodularity and 5 patients (6.25%) had abscess (Table 4). Sonography findings shows that in 61.25% cases, no abnormality was detected and it was in agreement with the clinical findings. Other findings were abscess, fibroadenoma and fibrocystic disease with 6.25%, 11.25% and 21.25% respectively (Table 4).

Mammography findings

In present study 12 out of 80 (15%) mastalgia patients above 35 years underwent mammography testing. Of which, it was found that, one case was of abscess, five cases were of fibroadenoma and six cases were of fibrocystic disease. Malignancy was not noted in any of the cases.

Pathological findings

Seven FNACs were done to confirm the radiological and clinical diagnosis. Five cases of fibroadenoma and two cases of fibrocystic disease were noted on FNAC. Core needle biopsy was performed in three patients, one was

found of fibroadenoma and two were found to have fibrocystic disease. Four cases of excision biopsy were done and the fibroadenoma was confirmed in all those cases.

Table 4: Clinical and diagnostic findings.

Variables	Frequency	Percent
Clinical diagnosis		
No abnormality detected	49	61.25
Abscess	5	6.25
Nodularity	26	32.50
Ultrasound findings		
No abnormality detected	49	61.25
Abscess	5	6.25
Fibroadenoma	9	11.25
Fibrocystic disease	17	21.25

DISCUSSION

The present study was conducted to determine the aetiology and diagnosis of patients presenting with mastalgia at our institute in Department of General Surgery in J. L. N. Hospital and Research Centre, Bhilai, Chhattisgarh.

In present study both, cyclical and non-cyclical mastalgia, the maximum incidence was in the 3rd decade (30-40 years) with 35 cases, 43.75%. Nirhale et al in a similar study also noted that the maximum cases of mastalgia were in age group of 31-40 years (52.5%).[15] In a prospective study on mastalgia in Iraq by Hamawandi, the mean age of the patients with mastalgia was 34.16 years, those patients with cyclical mastalgia 28.4 years, and those with non-cyclical mastalgia was 40.43 years.[16]

In present study according to the BMI, 33.75% of cases were overweight whereas 5% were obese, however no case of morbid obesity was noted. In a case-control study by İdiz et al it was found that patients with high BMI had significantly more mastalgia complaints than those with normal BMI ($p<0.0001$).[17] As per findings by Olfati et al, the patients with mastalgia had higher BMI (28.81 ± 3.22).[18] The fact that BMI over 30 and weight gain in the last five years are determined as risk factors was crucial regarding its demonstration that weight management can be an approach in the prevention of mastalgia.[19]

Dietary habits may play a crucial role in the aetiology of mastalgia in the present study, the non-vegetarian diet was mainly found in females with mastalgia (77.5%). This was consistent with a study by Shrinivas where majority of the patient who presented with mastalgia were those who were on non-vegetarian diet (77%).[20] However, studies with large sample size are needed to be conducted for having further conclusive results on the role of dietary habits.

Menstrual irregularity is a manifestation of sex hormone disorder which also leads to mastalgia. In present study it was noted that out of 80 mastalgia cases, 64 (80%) patients had regular menstruation pattern and 20% had complains of irregular menses. Wypych et al examined women with cyclic mastalgia concluded that irregular bleeding occurred in 16.8% of these women.[21]

In our study, 77.5% of patients had breastfed in past, however 3.75% cases did not give history of breastfeeding. These results were consistent with a study by Hamawandi where most of the mastalgia patients (82.65%) practiced breast feeding.[16] In another retrospective study in Iranian centre by Kaviani et al (n=1442), it was found that the duration of lactation breast, pain was significantly more in patients without pain.[22]

In the present study, few cases (27.5%) were found to have history of benign breast diseases such as fibroadenoma, galactocoele, cystic breast. In a study by Kocaoz et al mastalgia was found to be significantly higher in women with history of benign breast diseases, than women without benign breast disease.[23] In another study by Kataria et al, similar results were found with 40% association with history of previous benign breast disease and mastalgia.[24]

In our study, we found that 57.5% cases had non-cyclical breast pain whereas 42.5% cases had breast pain. Similar results were found in a prospective observational study by Mandal et al where the pattern of pain was very commonly non-cyclical (81%).[25] Another study by Nirhale et al noticed that majority of patients 45 out of 80 (56.25%) were diagnosed with non-cyclical mastalgia.[15]

Non-cyclical pain is mostly one-sided pain. In the present study, majority of cases (58, 72.5%) had unilateral breast pain and 27.5% cases had bilateral breast pain. Similar finding was noticed by Mandal et al that the side of breast involved showed no significant difference between left (46%) and right (42%) and bilateral involvement was only seen in 12% of the cases.[25] One study by Wetzig et al reported that pain was unilateral in 38% and bilateral in 61% of patients with breast pain.[26]

In present study on evaluating the severity of mastalgia, maximum number of cases had mild breast pain (53.17%) and only 10% of breast pain were severe. Nafseer et al observed that only 2 among 58 patients (3.4%) complained of severe pain affecting their routine daily activity.[27] Sarla et al found that 56.66% patients to have mild pain, 32.22% had moderate pain and 11.11% complained to have severe pain.[28]

Ultrasound has an established role in assessing breast abnormality as an adjunct to mammography in older women and is a first line investigation in young women with mammographically dense breast.[29] In present among 61.25% cases had no abnormality detected. Abscess, fibroadenoma and fibrocystic disease was seen in 6.25%,

11.25% and 21.25% cases respectively. Arslan et al detected normal findings in 42.3% of patients, a cyst in 37.1%, duct ectasia in 9.9%, and fibroadenoma in 6.4% of patients.[29] Another study by Olcucuoglu et al showed normal findings in 49.0% of patients, a cyst in 22.5%, and fibroadenoma in 23.5%.[1]

In our study, seven FNACs were done to confirm the radiological and clinical diagnosis. Five and two cases of fibroadenoma and fibrocystic disease were noted respectively. Shashikala et al reported that FNAC constituted the major investigatory modality for benign breast diseases with a sensitivity of 98% and specificity of 87% especially in diagnosing fibroadenoma.[30]

CONCLUSION

Mastalgia is one of the common symptom in females presenting to breast clinic. The Most of the patients of mastalgia were in 21-35 years of reproductive age and majority cases had BMI within normal range. There was positive association between breast feeding, age of menarche, menstrual irregularities and incidence of mastalgia. Non-cyclical mastalgia was more common as compared to cyclical mastalgia. Clinical diagnosis was aligned with imaging and cytology findings. This concludes that benign breast disorders were commonly associated with mastalgia. Thus, it is very essential to diagnose the risk factors and underlying pathology in mastalgia cases by early diagnosis and prompt treatment of cases. Reassurance should be given to patient in order to allay the fear of breast cancer in these patients.

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REFERENCES

1. Olcucuoglu E, Yılmaz G. Mastodynia: is imaging necessary in young patients? Turk J Surg. 2013;29(1):17.
2. Akbulut H, Sağlam K, Bilgin MG, Sarı O, Bilgin S, Tufan T, Aydoğan Ü, Doğaner YÇ. Breast cancer frequency among patients who applied to our outpatient department for breast pain. Turk J Fam Pract. 2010;14(1):8-12.
3. Yıldırım AC, Yıldız P, Yıldız M, Kahramanca Ş, Kargıcı H. Mastalgia-cancer relationship: a prospective study. J Breast Health. 2015;11(2):88.
4. Olawaiye A, Withiam-Leitch M, Danakas G, Kahn K. Mastalgia: a review of management. J Reprod Med. 2005;50(12):933-9.
5. Gateley CA, Miers M, Mansel RE, Hughes LE. Drug treatments for mastalgia: 17 years experience in the Cardiff Mastalgia Clinic. J R Soc Med. 1992;85(1):12-5.
6. Ader DN, South-Paul J, Adera T, Deuster PA. Cyclical mastalgia: prevalence and associated health and behavioral factors. J Psychosom Obstet Gynaecol. 2001;22(2):71-6.
7. Yıldırım AC, Yıldız P, Yıldız M, Kahramanca Ş, Kargıcı H. Mastalgia-Cancer Relationship: A Prospective Study. J Breast Health. 2015;11(2):88-91.
8. Baykal A. Fibrokistik Değişiklikler ve Mastalji. In: Sayek, İ, Özmen. MM, editors. Temel Cerrahi El Kitabı. Ankara: Güneş Tıp. 2009;314-7.
9. Grullon S, Bechmann S. Mastodynia. StatPearls. StatPearls Publishing; Treasure Island (FL). 2022.
10. Mohammed AA. Evaluation of mastalgia in patients presented to the breast clinic in Duhok city, Iraq: Cross sectional study. Ann Med Surg (Lond). 2020;52:31-5.
11. Smith RL, Pruthi S, Fitzpatrick LA. Evaluation and management of breast pain. Mayo Clin Proc. 2004;79(3):353-72.
12. Thakur N, Zargar B, Nazeer N, Parray F, Wani R. Mastalgia – Use Of Evening Primrose Oil In Treatment Of Mastalgia. Int J Surg. 2010;24(2):1-6.
13. Gumm R, Cunnick G, Mokbel K. Evidence for the management of mastalgia. Curr Med Res Opin. 2004;20(5):681-4.
14. Yüksekkaya R, Çelikyay F, Voyvoda N, Gökdemir-Yazar Ö. Breast ultrasound findings in patients with mastalgia under the age of fourty. J Breast Health. 2012;8:19-22.
15. Nirhale DS, Dhende M, Shingade P, Chavan S, Sonawane T, Kulkarni G. A study on clinical profile and management of mastalgia. Int Surg J. 2018;5:1889-93.
16. Hamawandi NM. A prospective study on mastalgia in sulaimania, iraq. Basrah J Surg. 2010;16(2):46-54.
17. İdiz C, Çakır C, Ulusoy Aİ, İdiz UO. The Role of Nutrition in Women with Benign Cyclic Mastalgia: A Case-Control Study. Eur J Breast Health. 2018;14:156-9.
18. Olfati F, Kazemi Jaliseh H, Farhad M. Survey the relationship between BMI and Cyclic Mastalgia. J Guilan Univ Med Sci. 2009;17(68):50-6.
19. Koçoğlu D, Kurşun S, Akın B, Altuntug K. Mastalgia and associated factors: a cross-sectional study. Agri. 2017;29(3):100-8.
20. Sangma MB, Panda K, Dasiah S. A clinico-pathological study on benign breast diseases. J Clin Diagn Res. 2013;7(3):503-6.
21. Wypych K, Spiewankiewicz B, Sawicki W. Evaluation of endometrial changes in women with cyclical mastalgia. Ginekologia polska. 1995;66(8):451-6.
22. Kaviani A, Majidzadeh K, Vahdaninia MS. Mastalgia in females attending the Iranian Center for breast cancer. Payesh (Health Monitor). 2002;1(1):25-32.
23. Kocaoz S, Parlak O. Fearful experience of women: mastalgia. Ankara Med J. 2020;20(2):348-59.
24. 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(3):217-22.
25. Mandal A, Jana P, Bakshi S, Mandal RK. A comparative clinicopathological study between ultrasonography, mammography, fine needle aspiration cytology and core needle biopsy of breast lump. Int Surg J. 2020;7(7):2325-31.
26. Wetzig NR. Mastalgia: a 3 year Australian study. Aust N Z J Surg. 1994;64:329-31.
27. Moideen Nafseer TA, Sunil Krishna M, Shenoy KR. Clinical Profile of Cyclincal and Noncyclical Mastalgia. N Indian J Surg. 2018;9(6):764-70.
28. Sarla GS. Mastalgia: Etiopathogenesis and Management: A 2 Year Experience. J Complement Med Alt Healthcare. 2019;10(3):555790.
29. Arslan M, Küçükerdem HS, Can H, Tarcan E. Retrospective analysis of women with only mastalgia. J Breast Health. 2016;12(4):151.
30. Bagale P, NV Dravid, Bagale S. Clinicopathological study of benign breast diseases. Int J Health Sci Res. 2013;3(2):47-54.

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