

Etiology, Presentation, and Management of Mastalgia in Women: A Comprehensive Study

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Abstract: ***Introduction:** Mastalgia may afflict as much as seventy percent of females in their entire lifespan (1, 2). The increased awareness among the public about breast malignancy and the rightful concern that mastalgia may be indicative of a disease condition necessitates the identification of the cause and treatment of breast pain. The aim of this study is to evaluate the different causes of mastalgia and to describe the breast pathologies presenting with mastalgia and their management. **Patient and Methods:** The data of 252 women with complains of mastalgia were assessed using various epidemiological parameters. The international protocol of triple assessment was used to investigate a lump in the breast. Clinically and radiologically healthy patients were treated with reassurance, evening primrose oil and vitamins, analgesics and danazol. Immediate surgical treatment in the form of incision and drainage was advised to patients found to have a breast abscess and clinically worrisome lumps were excised and sent for histopathological analysis. Response to therapy was noted in terms of visual analogue scores of breast pain. **Results:** The mean age and standard deviation of the patients in our series is 32.56 ±11.02 years. Lump was seen in 37.30% women. Bilateral mastalgia was seen in 33.73%, unilateral mastalgia in 66.27%, cyclical breast pain in 40.48% and non - cyclical in 59.52%. Radiologically, 46.03% showed no abnormality. Out of 123 women presenting with lump/nodularity on clinical examination, 22.62% was diagnosed to be fibroadenoma on FNAC, 11.51% was fibrocystic disease, 9.13% breast abscess, 2.78% galactocele, 0.4% phyllodes tumour, 1.19% carcinoma and 1.19% simple benign cyst. Women who were treated with analgesics and reassurance showed significant improvement in the VAS scores. Evening primrose oil reduced pain in only 4 patients out of the 95 women initially started with evening primrose oil. All 49 of our patients with surgery indicated reported some pain relief with surgery, however, further data and tests are required to determine the effect of surgical intervention on mastalgia. Most patients that were offered danazol as a treatment modality refused compliance to this drug. **Conclusion:** Breast pain is mainly a clinical condition prevalent among females of reproductive age group. Lumpiness of one or both breasts is a frequently associated complaint. Non - cyclical and unilateral mastalgia is more prevalent than cyclical, bilateral mastalgia among women. In our study, majority of the cases of mastalgia were due to benign etiology. Reassurance and analgesics were beneficial to most patients. Danazol was not acceptable by most people. The efficacy of primrose oil and surgery cannot be adequately commented upon from our study.*

Keywords: Mastalgia, breast pain, etiology, presentation, management

1. Introduction

Mastalgia or breast pain may afflict as much as seventy percent of females in their entire lifespan (1, 2). The increased awareness among the public about breast malignancy and the rightful concern that mastalgia may be indicative of a disease condition attributes to this rising trend (3). Mastalgia is most commonly seen among females in the age group of thirty to fifty years (4).

The pain which is dull and aching in character may be described by many women as a heavy sensation with discomfort, or sometimes as a burning sensation engulfing the breast tissue. The pain may involve either a single or both the breasts. The upper and outer quadrant is the usual site of occurrence, but the pain occasionally spreads to the ipsilateral arm. Premenopausal and perimenopausal women experience it most frequently, but postmenopausal women can also occasionally experience it. Mastalgia may have varied presentation ranging from mild pain to severe pain, may be intermittent in occurrence or constantly aching through the entire day, proving detrimental to the women's quality of daily living (5-8). The possibility of breast malignancy and the existence of breast pain that is detrimental to the quality of life of the women are the primary concerns of the patient experiencing breast pain.

Reassurance and straightforward medications can be used to manage the majority of mastalgia patients. The primary duties of a breast specialist are to effectively manage breast pain caused by a variety of etiologies, conclusively rule out cancer, and diligently reassure the patient. Breast nodules that may or may not be tender or lumpy are frequently linked to mastalgia. However, mastalgia and breast nodularity may be seen distributed in the healthy population also (9, 10). The aim of this study is to evaluate the different causes of mastalgia and to describe the breast pathologies presenting with mastalgia and their management.

Patient and Methods

The study is a prospective observational study in 252 women presenting to surgical outpatient department of Silchar Medical College & Hospital with mastalgia from 1st June 2021 to 31st May 2022.

Inclusion Criteria: All women presenting with mastalgia to the surgery outpatient department.

Exclusion Criteria: Critically ill patients, immunocompromised patients, patients with co-morbidities, pregnancy

The data of women with complains of breast pain presenting to the surgical outpatient department and meeting the above criteria was collected. Informed and written consent from the patients or their guardians were taken. The patients were followed up on outpatient basis or after admission (if indicated) in the surgery ward. The study's epidemiological parameters included age of the patient, body mass index, complaints of lump in the breast tissue, laterality of breast pain, the type of mastalgia - noncyclical or cyclical, history of breastfeeding and menstrual history. These patients underwent in - depth breast examinations as well as general examination with findings being recorded. Patients were grouped by their ages, and body mass index was computed using height in meters and weight in kilograms. The breasts were palpated in response to a complaint of lumpiness in either one or both breasts. By keeping a monthly breast pain chart, the type of mastalgia was elicited, and its relationship to the menses was noted as being cyclical when it happens one or two weeks prior to the menses and non - cyclical if no pattern is noted. Lactating women who complained of mastalgia were enquired about their breastfeeding practices. Absence of a significant abnormality, a lump, a nodule, or any indications of inflammation and collection or an abscess were noted during the clinical breast examination. The international protocol of triple assessment using clinical findings, radiological investigations, and histopathological methods was used to investigate a lump in the breast. These patients were all given an ultrasound of the breast and axilla and a mammogram of both breasts to ease their fears, which are common among patients who fear they have cancer. The absence of a significant abnormality, fibroadenoma, fibrocystic changes, or abscess were noted as found in the radiological investigations. Clinically and radiologically healthy patients were treated in an ascending order, based on the patient's response, with reassurance, evening primrose oil and vitamins, analgesics and danazol. Response of the patients to the treatment was noted. Fine needle aspiration cytology (FNAC) was done for patients found to be positive for a lump in the breast or nodularity detected in the breast by clinical examination or radiological investigations or both. Immediate surgical treatment in the form of incision and drainage was advised to patients found to have a breast abscess and pus which was obtained was sent for culture and sensitivity. Postoperative antibiotics were started according to culture reports when available. Clinically worrisome lumps were excised and sent for histopathological analysis. In patients diagnosed with breast cancer, surgery was supported with neoadjuvant chemotherapy and adjuvant chemotherapy and radiotherapy. Response to therapy was noted in terms of visual analogue scores of breast pain. The data thus obtained in 252 patients as prospective observational study over a period of 1 year study duration were analysed for patterns and relations.

Daily Breast Pain Charting

The amount of breast pain experienced each day was recorded by patients by shading in each box as shown for severe, mild or no pain. For example, if the patient has severe breast pain on the fifth day of the month, then, she would shade in completely the square under 5. For premenopausal women, the day her period starts each month would be noted with the letter P.

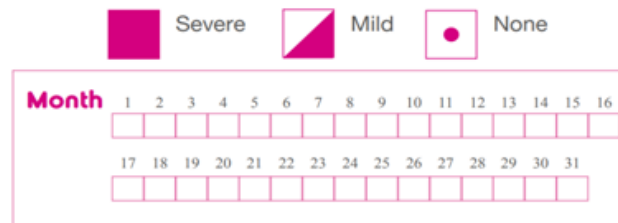


Figure 1: Daily breast pain chart

Visual Analogue Scoring

The severity of pain was noted on a visual analogue scale (VAS). VAS is usually a horizontal line, with word descriptors at each end and is around 10 cm in length. The patient records the point that they feel represents their perception of pain on the VAS. Zero indicates no pain and ten indicate very severe excruciating pain in the breast. Most mastalgia experts consider any pain of ≥3 on a VAS of 0 to 10 to be significantly severe to require therapy (16) .

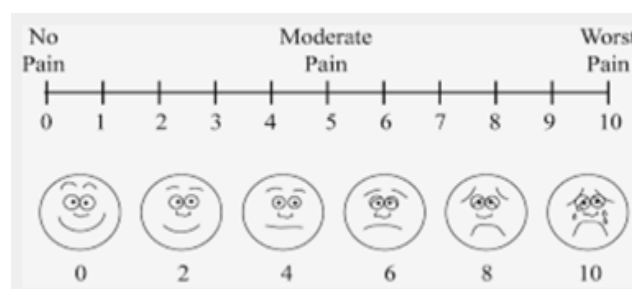


Figure 2: Visual Analogue Scoring tool

Statistical analysis were done using SPSS statistical software version 25. The mean and standard deviation (SD) were used to summarize quantitative variables. Frequency and percentages were used to represent categorical variables. Pearsons Chi - square and Fishers Exact test were used for comparing categorical variables between groups. A p value of <0.05 was considered statistically significant.

2. Results

Age Distribution: The majority of cases were in the age group 21 - 30 years, which comprised 78 (30.95%) out of 252 patients, followed by age group 31 - 40 years which comprised of 64 (25.4%) out of 252 patients. The mean age and standard deviation of the patients in our series is 32.56 ±11.02 years. The median age is 31 years. Out of all the patients presenting to SMCH outpatient department, minimum age of women presenting with mastalgia was 14 years and the maximum age was 57 years.

Body Mass Index

Table 1: Showing body mass index of patients presenting with mastalgia.

	Frequency	Percent
Below 18.5	3	1.2
18.5 - 24.9	65	25.8
25 - 29.9	137	54.4
Above 30	47	18.7
Total	252	100.0

The majority of females presenting with mastalgia had a BMI of 25 - 29.9 (54.37%), followed by a BMI of 18.5 - 24.9 (25.79%).

Breast Lump

Table 2: Showing presence of lump in women presenting with mastalgia

	Frequency	Percent
Lump absent	158	62.7
Lump present	94	37.3
Total	252	100.0

Out of 252 patients presenting with mastalgia, 94 patients presented with lump (37.30%) and 158 patients (62.70%) did not have lump associated with mastalgia.

Laterality

Table 3: Showing laterality of breast pain

	Frequency	Percent
Unilateral breast pain	167	66.3
Bilateral breast pain	85	33.7
Total	252	100.0

Out of 252 patients, 85 patients (33.73%) had bilateral mastalgia whereas 167 patients (66.27%) had unilateral mastalgia

Cyclicality

Table 4: Showing cyclicality of breast pain

	Frequency	Percent
Cyclical	102	40.5
Non - cyclical	150	59.5
Total	252	100.0

Out of 252 patients, breast pain is cyclical in 102 patients (40.48%) and non cyclical in 150 patients (59.52%).

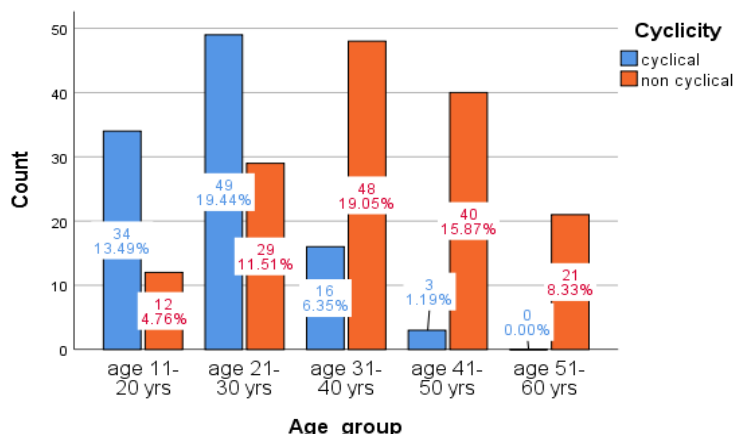


Figure 3: Showing cyclicity of breast pain in different age groups.

Cyclical mastalgia was found to be highest (19.44%) in 21 - 30 years age group followed by 13.49% in 11 - 20 years age group whereas non - cyclical mastalgia was found to be highest in 31 - 40 years (19.05%) age group followed by 41 - 50 years age group (15.87%).

Menstrual History

Table 5: Showing menstrual history of patients presenting with mastalgia.

	Frequency	Percent
Regular menstruation	185	73.4
Irregular menstruation	67	26.6
Total	252	100.0

Out of 252 patients presenting with mastalgia, 185 (73.41%) had regular menstruation whereas 67 (26.59%) had irregular menstruation.

Breast feeding

Table 6: Showing breastfeeding practices of women presenting with mastalgia

	Frequency	Percent
Breastfeed given	208	82.5
Breastfeed not given	8	3.2
Not applicable	36	14.3
Total	252	100.0

Out of 252 women, 208 women (82.54%) had practiced breastfeeding whereas 8 women (3.17%) had not practiced breastfeeding.

Clinical Findings

Table 7: Showing clinical findings of women presenting with mastalgia

	Frequency	Percent
No abnormality detected	116	46.0
Lump	71	28.2
Signs of inflammation with lump	23	9.1
Nodularity	29	11.5
Signs of inflammation without lump	13	5.2
Total	252	100.0

Out of 252 women, 116 (46.03%) showed no clinical abnormality, 71 (28.17%) presented with lump in the breast associated with mastalgia, 23 (9.13%) presented with signs of inflammation with a palpable lump, 29 (11.51%) presented with nodularity, 13 (5.16%) presented with signs of inflammation without a palpable lump.

Ultrasonography Findings

Table 8: Showing ultrasonography of breast findings of women presenting with mastalgia.

	Frequency	Percent
No abnormality detected	116	46.0
Fibroadenoma	57	22.6
Fibrocystic disease	29	11.5
Abscess	23	9.1
Cyst	10	4.0
Phyllodestumour	1	.4
Mastitis	13	5.2
Carcinoma	3	1.2
Total	252	100.0

Out of 252 women undergoing ultrasonography of bilateral breasts with axillary region, 116 (46.03%) showed no abnormality, 57 (22.62%) were diagnosed with fibroadenoma, 29 (11.51%) showed fibrocystic disease of the breast, 23 (9.13%) showed breast abscess, 10 (3.97%) showed breast cyst, 1 (0.4%) showed phyllodestumour, 13 (5.16%) mastitis and 3 (1.19%) showed BIRADS 5 lesion.

Mammography Findings

Table 9: Showing mammographic findings of breast of women presenting with mastalgia

	Frequency	Percent
No Abnormality Detected	116	46.0
Fibroadenoma	57	22.6
Fibrocystic Disease	29	11.5
Abscess	23	9.1
Cyst	10	4.0
Phyllodestumour	1	.4
Mastitis	13	5.2
Carcinoma	3	1.2
Total	252	100.0

Out of 252 women undergoing mammography of bilateral breasts, 116 (46.03%) showed no abnormality, 57 (22.62%)

were diagnosed with fibroadenoma, 29 (11.51%) showed fibrocystic disease of the breast, 23 (9.13%) showed breast abscess, 10 (3.97%) showed breast cyst, 1 (0.4%) showed phyllodestumour, 13 (5.16%) mastitis and 3 (1.19%) showed carcinomatous lesion.

FNAC Findings

Table 10: Showing FNAC reports of women with breast lump/nodularity presenting with mastalgia

	Frequency	Percent
Not applicable since no lump	129	51.2
Fibroadenoma	57	22.6
Fibrocystic disease	29	11.5
Abscess	23	9.1
Galactocele	7	2.8
Phyllodestumour	1	.4
Carcinoma	3	1.2
Benign cyst	3	1.2
Total	252	100.0

Out of 123 women presenting with lump/nodularity on clinical examination, 57 (22.62%) was diagnosed to be fibroadenoma on FNAC, 29 (11.51%) was fibrocystic disease, 23 (9.13%) breast abscess, 7 (2.78%) galactocele, 1 (0.4%) phyllodestumour, 3 (1.19%) carcinoma and 3 (1.19%) simple benign cyst.

Treatment Response

Table 11: Showing treatment responses of women presenting with mastalgia

	Frequency	Percent
Reassurance	131	52.0
Primrose oil and vit E	4	1.6
Analgesics	64	25.4
Danazol	4	1.6
Surgery/ intervention	49	19.4
Total	252	100.0

Out of 252 women presenting with mastalgia, 131 (51.98%) showed relief of symptoms with reassurance, 4 (1.59%) with primrose oil and vitamin E, 64 (25.40%) with analgesics, 4 (1.59%) with danazol and 49 (19.44%) with surgery or ultrasoundguided interventions wherever indicated.

VAS Scoring with Reassurance and Breast Support

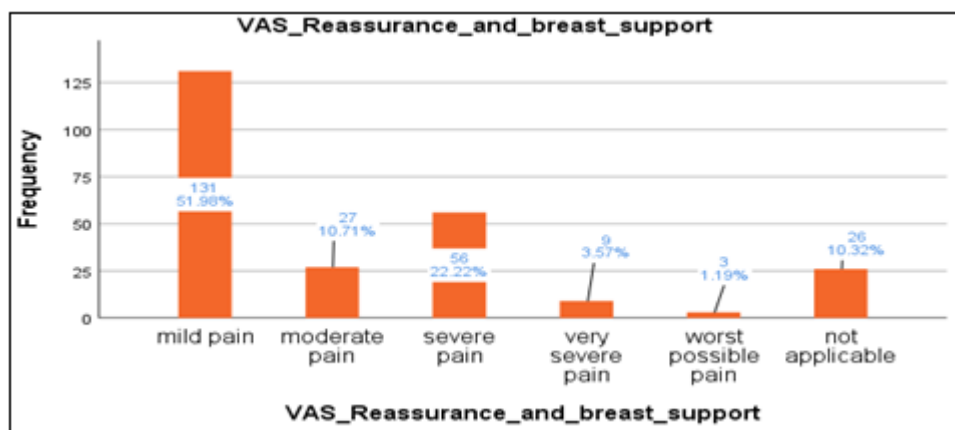


Figure 4: VAS scoring with reassurance and breast support

Out of 252 women who presented with mastalgia, 26 (10.32%) directly underwent other treatment as indicated. Out of the rest 226 patients who were started with reassurance and breast support as first line of management, 131 (51.98%) reported mild pain, 27 (10.71%) reported

moderate pain, 56 (22.22%) reported severe pain, 9 (3.57%) reported very severe pain and 3 (1.19%) reported worst possible pain scores.

VAS Scoring with Primrose Oil and Vitamin E

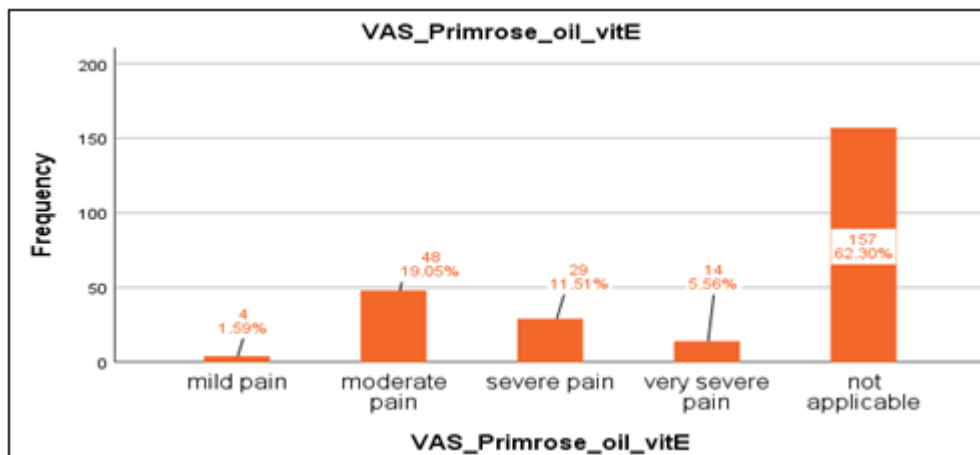


Figure 5: VAS scoring with primrose oil and vitE

Out of 252 women who presented with mastalgia, 157 (62.30%) directly underwent other treatment as indicated or already reported pain relief with reassurance. Out of the rest 95 patients who were started with evening primrose oil and vit E, 4 (1.59%) reported mild pain, 48 (19.05%) reported

moderate pain, 29 (11.51%) reported severe pain and 14 (5.56%) reported very severe pain scores.

VAS scoring with Analgesics

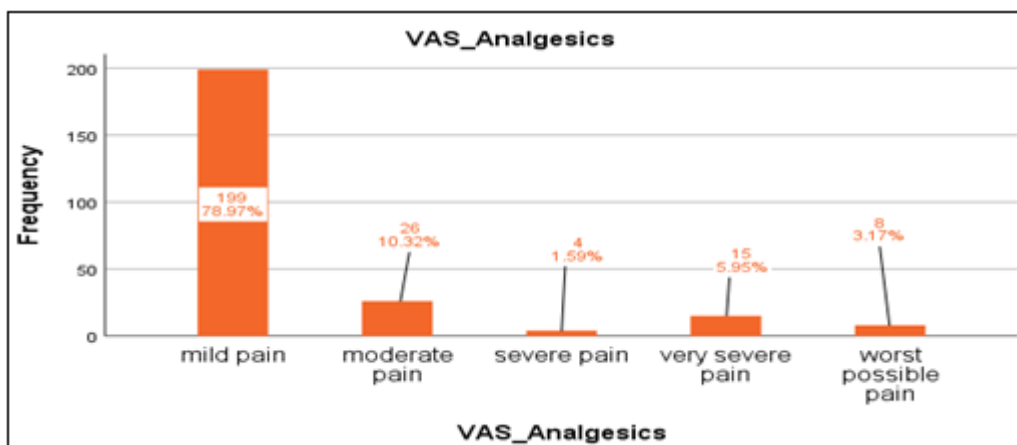


Figure 6: VAS scoring with analgesics

Out of 252 women who presented with mastalgia, all were given analgesics either as the sole treatment modality or alongwith other treatment modalities when analgesics alone failed to relieve the patients of their symptom.199 (78.97%) reported mild pain, 26 (10.32%) reported moderate pain, 4

(1.59%) reported severe pain, 15 (5.95%) reported very severe pain and 8 (3.17%) reported worst possible pain scores.

VAS scoring with danazol

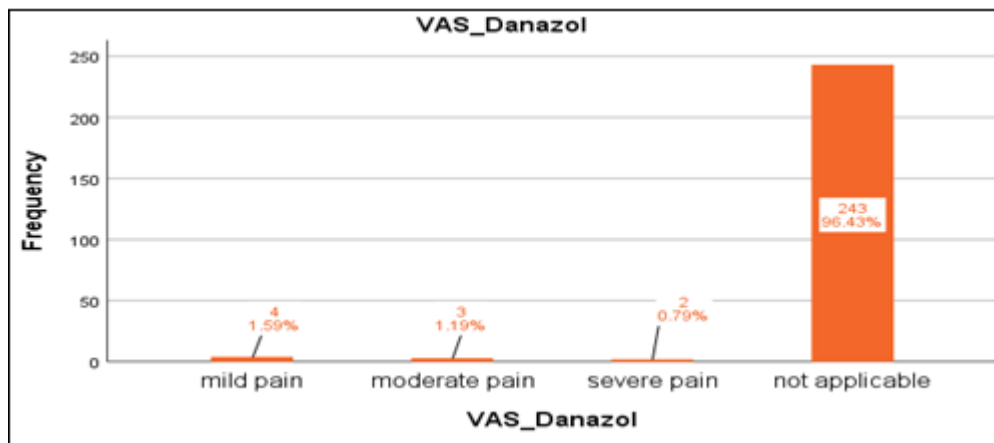


Figure 7: VAS scoring with danazol

Out of 252 women who presented with mastalgia, 243 (96.43%) directly underwent other treatment as indicated or already reported pain relief with other treatment options. Some of these patients refused to comply with the medication due to its reported side effects. Out of the rest 9 patients who actually completed treatment with danazol, 4 (1.59%) reported mild pain, 3 (1.19%) reported moderate pain and 2 (0.79%) reported severe pain scores.

VAS scoring with surgery/ intervention

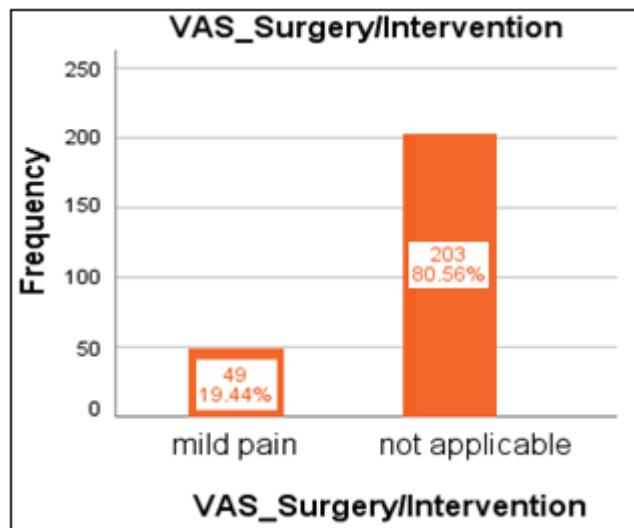


Figure 8: VAS scoring with Surgery/ Intervention

Out of 252 women who presented with mastalgia, 203 (80.56%) already reported pain relief with other treatment options or had no indications for intervention. Out of the rest 49 patients who were managed with surgery or ultrasound guided interventions, all reported mild pain scores.

Table 12: Pain with VAS scoring with different treatment modalities

	Pain with VAS scoring					P value
	Mild	Moderate	Severe	Very severe	Worst possible	
Analgesics						
Analgesics alone	64 (100)	0	0	0	0	<0.001*
Analgesics + other treatments	135 (71.8)	26 (13.8)	4 (2.1)	15 (8)	8 (4.3)	
Reassurance						
Reassurance alone	131 (100)	0	0	0	0	<0.001*
Reassurance + other treatments	0	27 (28.4)	56 (58.9)	9 (9.5)	3 (3.2)	
Evening primrose and vitamin E						
Evening primrose and vitamin E alone	4 (100)	0	0	0	-	-
Evening primrose and vitamin E + other treatments	0	48 (52.7)	29 (31.9)	14 (15.4)	-	
Surgery/intervention						
Surgery/intervention alone	49 (100)	-	-	-	-	-
Surgery/intervention + other treatments	-	-	-	-	-	
Danazol						
Danazol alone	4 (100)	0	0	-	-	0.011*
Danazol + other treatments	0	3 (60)	2 (40)	-	-	

*statistically significant

Women who were treated with analgesics showed significant improvement in the VAS scores. Similarly, reassurance was effective in reducing anxiety of the women presenting with mastalgia and they reported lower pain scores on follow -

up. Evening primrose oil reduced pain in only 4 patients out of the 95 women initially started with evening primrose oil. Hence, the efficacy of primrose oil cannot be adequately commented upon in our study as only 4 women received it solely without the need for additional treatment. The rest 91 received combination treatments during follow - up due to unbearable breast pain. Surgery was indicated in 49 women for their breast conditions presenting with mastalgia and these patients directly underwent surgical procedures (e. g. incision and drainage, excision) without any other treatment. Though all 49 of our patients reported some pain relief with surgery, further data and tests are required to determine the effect of surgical intervention on mastalgia. Most patients that were offered danazol as a treatment modality refused compliance to this drug. This might be due to the various side effects associated with this drug. Hence although danazol showed significant reduction of breast pain in our study, it was only in the 4 patients that showed compliance to the drug and hence this needs further research.

3. Discussion

The average age of the patients in our series is 32.56 ± 11.02 years. The median age is 31 years. Out of all the patients presenting to SMCH outpatient department, minimum age of women presenting with mastalgia was 14 years and the maximum age was 57 years. The majority of cases were in the age group 21 - 30 years, which comprised 78 (30.95%) out of 252 patients, followed by age group 31 - 40 years which comprised of 64 (25.4%) out of 252 patients.

The series published in Cardiff breast clinic highlights the fact that mastalgia is more a disease of women of reproductive age. The median age of their data was 36 years and their study population which included 212 women of age ranging between 12 and 63 years. (17)

Table 13: Age distribution in different studies

Age (in years)	Our study (n=252)	Cardiff clinic (n=100)
Median	31	36
Range	14 - 57	12 - 63

Though mastalgia as a clinical condition is more prevalent than lump in the breast, it is the lump that is more worrisome in patient's mind. It draws attention to the previously prevalent breast pain and make them to seek medical advice. Fear of cancer among women is more widespread and recent efforts to create awareness and screening programmes in this field also has given some fruitful results in terms of increase in number of women who present with early stages of breast cancer which contributes to a favourable prognosis for these patients. In a clinical study published in clinical obstetrics and gynaecology by Kelley et al breast lump is not one of a frequent association with breast pain in 350 patients and lumpiness as complained by the patients are mostly not of carcinomatous aetiology (18). In our study, out of 252 patients presenting with mastalgia, 94 patients presented with lump (37.30%) and 158 patients (62.70%) did not have lump associated with mastalgia.

Table 14: Presence of lump in different studies

Lump in breast	Our study (n=252)	Kelley et al (n=350)
Present	37.3%	29%
Absent	62.7%	71%
Malignant	1.19%	0%

In a study by Srivastav et al conducted in AIIMS non - cyclical mastalgia is slightly more prevalent than cyclical mastalgia in north Indian women (19). In another study by H. Bolat et al (15), 30.2% women had cyclical mastalgia whereas 69.8% women had non - cyclical mastalgia. In our study too, this trend in favour of non - cyclical breast pain is observed. Out of 252 patients, breast pain is cyclical in 102 patients (40.48%) and non - cyclical in 150 patients (59.52%). Cyclical mastalgia was found to be highest (19.44%) in 21 - 30 years age group followed by 13.49% in 11 - 20 years age group whereas non - cyclical mastalgia was found to be highest in 31 - 40 years (19.05%) age group followed by 41 - 50 years age group (15.87%).

Table 15: Cyclicity of breast pain in different studies

Cyclicity of breast pain	Our study (n=252)	Bolat et al (n=415)
Cyclical	40.48%	30.2%
Non - cyclical	59.52%	69.8%

It is popularly believed that when breast pain is due to altered hormonal status in women causing engorgement and ductal dilatation, it is logical that uterine function in relation to this hormonal disarray should also be altered which manifests as irregular menstrual cycles. But this is not supported by evidence as in our study most of the patients have regular menstrual cycles. Out of 252 patients presenting with mastalgia, 185 (73.41%) had regular menstruation whereas 67 (26.59%) had irregular menstruation. In the study by Eren et al. (20), similar results were observed. There is also no strong evidence in literature that menstrual habits has any correlation to breast cancer when regularity is taken into account though the total number of cycles in a female's life is positively related to the disease risk. The regular cycles that is the feature in most of the females with breast pain is preceded by the pain in cases of cyclical mastalgia whereas it is difficult to establish this connection in patients with irregular cycle.

Table 16: Menstrual history in different studies

Menstrual cycles	Our study (n=252)	Eren et al (n=500)
Regular	73.41%	73.4%
Irregular	26.59%	26.6%

Breastfeeding is claimed to be one of the protective factor against breast cancer in women and hence our interest to look for any protection that it can offer against breast pain. In an epidemiological study from Srivastav et al. from AIIMS they say that there is no significant relation between breastfeeding and breast pain (19). In our study, 208 women (82.54%) had practiced breastfeeding whereas only 8 women (3.17%) had not practiced breastfeeding. There is no firm evidence to make a recommendation of breastfeeding as a protective factor for breast pain but it need not be withheld in these patients since there is equally lack of evidence that it may increase the pain.

Out of 252 patients, 85 patients (33.73%) had bilateral mastalgia whereas 167 patients (66.27%) had unilateral mastalgia. Similar finding were found in the study by Bolat et al (15) , where 36.1% women experienced bilateral mastalgia and 63.9% experienced unilateral mastalgia.

Table 17: Showing laterality of breast pain in different studies

Laterality	Our study (n=252)	Bolat et al (n=415)
Unilateral mastalgia	66.27%	63.9%
Bilateral mastalgia	33.73%	36.1%

The majority of females presenting with mastalgia had a BMI of 25 - 29.9 (54.37%), followed by a BMI of 18.5 - 24.9 (25.79%). Although statistically difference was not detected in terms of breast pain scores, increased body mass index may be cause for increased pain scores (21) . The normal BMI is a range of 18.5 - 24.9. The majority of females presenting with mastalgia had a BMI of 25 - 29.9 (54.37%) in our study, followed by a BMI of 18.5 - 24.9 (25.79%). This is slightly higher than the recommended norms and is classified as overweight but whether this reflects the overall increase in overweight women among the community rather than the women with mastalgia is not ascertained.

Clinical Examination

Any patient presenting with mastalgia must undergo a thorough clinical examination and in case of a lump associated with mastalgia, triple assessment of the breast lump is essential. In our study, out of 252 women, 116 (46.03%) showed no clinical abnormality, 71 (28.17%) presented with lump in the breast associated with mastalgia, 23 (9.13%) presented with signs of inflammation with a palpable lump, 29 (11.51%) presented with nodularity, 13 (5.16%) presented with signs if inflammation without a palpable lump. In a study published by Nirhale et al. (22) , absence of clinically detectable abnormalities was in highest number (61.25%), which is a similar finding as in our study.

Table 18: Clinical finding in different studies

Clinical finding	Our study (n=252)	Nirhale et al. (n=80)
No abnormality detected	46.03%	61.25%
Abscess (lump+inflammation)	9.13%	-
Lump	28.17%	35%
Nodularity	11.51%	-
Inflammation without lump	5.16%	-
Discharge	-	3.75%

4. Investigations

All patients with mastalgia were subjected to ultrasound and mammographic examinations and those patients who had associated lump or nodularity were subjected to fine needle aspiration cytology. Most of the patients with clinically normal breasts were also without any detectable abnormalities in ultrasound. Ultrasound is highly sensitive in diagnosing fibroadenoma, abscess and fibrocystic disease. Out of 252 women undergoing ultrasonography of bilateral breasts with axillary region and mammography of bilateral breasts, 116 (46.03%) showed no abnormality, 57 (22.62%) were diagnosed with fibroadenoma, 29 (11.51%) showed

fibrocystic disease of the breast, 23 (9.13%) showed breast abscess, 10 (3.97%) showed breast cyst, 1 (0.4%) showed phyllodestumour, 13 (5.16%) mastitis and 3 (1.19%) showed BIRADS 5 lesion. These findings correspond to the cytological diagnosis in almost all the patients. These results are similar as in the series presented by Arslan et al. (23) and Nirhale et al. (22)

Table 19: Ultrasonography/Mammography findings in different studies

Ultrasound/ Mammography	Our study (n=252)	Arslan et al. (n=789)	Nirhale et al (n=80)
No abnormality detected	46.03%	49.4%	25%
Fibroadenoma	22.62%	6.1%	12.50%
Fibrocystic disease	11.51%	32.3%	46.25%
Abscess	9.13%	0.3%	7.5%
Cyst	3.97%	25.6%	-
Phyllodes tumour	0.40%	-	-
Mastitis	5.16%	0.6%	2.5%
Carcinoma	1.19%	0.2%	2.5%

Out of 123 women presenting with lump/nodularity on clinical examination, 57 (22.62%) was diagnosed to be fibroadenoma on FNAC, 29 (11.51%) was fibrocystic disease, 23 (9.13%) breast abscess, 7 (2.78%) galactocele, 1 (0.4%) phyllodes tumour, 3 (1.19%) carcinoma and 3 (1.19%) simple benign cyst. Triple assessment of all breast lumps is a must and although it is uncommon to find cancer as a cause of breast lump with mastalgia, it cannot entirely be ruled out as is seen in our study. In a study by Nirhale et al. in Maharashtra, India, 2.50% cases presenting with mastalgia was due to breast carcinoma (22) . In 2006, Rosolowich V et al. observed mastalgia as a presenting symptom of breast cancer in 5 – 18 % cases of breast cancer (11) . Similar findings were found in another study by Webster et al (24) where it was found that 15% of cases of operable breast cancer have pain as one of their presenting complaints, and 7% complain of mastalgia alone.

Table 20: FNAC findings in different studies

FNAC	Our study (n=252)	Nirhale et al (n=80)
Not applicable since no lump	51.19%	25%
Fibroadenoma	22.62%	12.50%
Fibrocystic disease	11.51%	46.25%
Abscess	9.13%	7.5%
Benign Cyst	1.19%	-
Phyllodestumour	0.40%	-
Galactocele	2.78%	2.5%
Carcinoma	1.19%	2.5%

5. Treatment

Out of 252 women presenting with mastalgia, 131 (51.98%) showed relief of symptoms with reassurance, 4 (1.59%) with primrose oil and vitamin E, 64 (25.40%) with analgesics, 4 (1.59%) with danazol and 49 (19.44%) with surgery or ultrasound guided interventions wherever indicated.

Most of the patients with normal findings after clinical assessments and investigations were treated by simple reassurance that it is not cancer and it will resolve spontaneously and most patients reported good resolution in pain scores. Out of 252 women who presented with

mastalgia, 26 (10.32%) directly underwent other treatment as indicated. Out of the rest 226 patients who were started with reassurance and breast support as first line of management, 131 (51.98%) reported mild pain, 27 (10.71%) reported moderate pain, 56 (22.22%) reported severe pain, 9 (3.57%) reported very severe pain and 3 (1.19%) reported worst possible pain scores. Hughes et al. (12) reported 85% success rate with reassurance as the first line of treatment for women with mastalgia. Hafiz et al. inferred from his study that reassurance plus bra - fitting advice provides relief for most women (25) .

In our study, 95 patients were started with evening primrose oil and vit E excluding those who needed urgent intervention and those who obtained pain relief by reassurance. Of these, 4 (1.59%) reported mild pain, 48 (19.05%) reported moderate pain, 29 (11.51%) reported severe pain and 14 (5.56%) reported very severe pain scores. Thus, primrose oil is not a very effective treatment for mastalgia. However, the efficacy of primrose oil cannot be adequately commented upon in our study as only 4 women received it solely without the need for additional treatment. The rest received combination treatments due to unbearable breast pain. Similar findings are observed in a meta - analysis by Srivastava et al in 2007 which revealed that the benefit in pain reduction with primrose oil is similar to that achieved by placebo (13) .

On evaluating all patients who were given analgesics either as the sole treatment modality or along with other treatment modalities when analgesics alone failed to relieve the patients of their symptom, it was found that 199 (78.97%) reported mild pain, 26 (10.32%) reported moderate pain, 4 (1.59%) reported severe pain, 15 (5.95%) reported very severe pain and 8 (3.17%) reported worst possible pain scores. Analgesics thus provide an efficacious method of pain relief especially in inflammatory conditions and abscesses. Nonsteroidal anti - inflammatory medications can be effective in up to 80% of women (14) . In randomized trials, diclofenac gel was more successful than placebo gel and ibuprofen gel in relieving pain when applied locally to tender breast areas (14) . In the study by Hafiz et al., it was found that addition of topical non - steroidal anti - inflammatory drugs (NSAIDs) provides relief in 70 - 92% of women (25) . Findings were alike in the study by Nirhale et al. (22) , where diclofenac gel showed the highest efficacy (76.1%).

Danazol has been shown to be effective, but with more side effects, such as nausea, headaches, depression, hirsutism and menstrual irregularity (18) . Patient's response to Danazol was 64.8% in the study by Nirhale et al (22) . However, danazol was found to be unacceptable to most patients in our study. Out of 9 patients who actually completed treatment with danazol, 4 (1.59%) reported mild pain, 3 (1.19%) reported moderate pain and 2 (0.79%) reported severe pain scores. In general patient satisfaction was not good with danazol. However, its effectiveness cannot be ascertained from our study as maximum number of patients refused to comply with the medication because of its many side effects.

Out of 252 women who presented with mastalgia, 203 (80.56%) already reported pain relief with other treatment

options or had no indications for intervention. Out of the rest 49 (19.44%) patients who were managed with surgery or ultrasound guided aspiration of pus, all reported mild pain scores. Patients with fibroadenoma with clinically worrisome lumps underwent surgery by excision biopsy and specimen reviewed histopathologically were found to be benign and patients reported good pain scores probably due to relief of anxiety. Abscess in breasts were surgically drained and antibiotics were given postoperatively according to the culture and sensitivity reports and reported relief of pain. In patients with breast cancer, surgery was supported with neoadjuvant chemotherapy and adjuvant chemotherapy and radiotherapy. Thus, although all 49 of our patients reported some pain relief with surgery, all cases of mastalgia may not be managed by surgery. Further data and tests are required to determine the effect.

6. Conclusion

Breast pain is mainly a clinical condition prevalent among females of reproductive age group. Lumpiness of one or both breasts is a frequently associated complaint which requires detailed clinical examination and investigations. Non - cyclical mastalgia is more prevalent than cyclical mastalgia among women presenting to SMCH surgery OPD. Unilateral mastalgia is more common than bilateral mastalgia. Most of the females with breast pain have regular menstrual cycles. Breastfeeding does not seemingly protect against incidence of breast pain. Breast pain may be more common among females with a higher than normal BMI but this fact needs further studies to confirm. In our study, majority of the cases of mastalgia were due to benign etiology and only 1.19% cases were of malignant etiology. The efficacy of primrose oil cannot be adequately commented upon in our study as only 4 women received it solely without the need for additional treatment. Reassurance and analgesics were beneficial to most patients. Danazol was not acceptable by most people due to its documented side effects. Although all the patients in our study reported some pain relief with surgery, it was probably because the cases were of abscess drainage and simple excision. However, all cases of mastalgia may not be managed by surgery. Short study period and small sample size of our study make it difficult to opine regarding the long - term effect of surgery on mastalgia. Further data and tests are required to determine the effect.

Abbreviations

FNAC – Fine Needle Aspiration Cytology
VAS – Visual Analogue scale
SPSS – Statistical package for social sciences
BIRADS – Breast Imaging Reporting and Data System
NSAIDs – Non - steroidal anti - inflammatory drugs
SMCH – Silchar Medical College and Hospital
BMI – Body mass index
OPD – Out patient department

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