

A Clinical Study of Mastalgia

¹Dr. Srinwanti Bhattacharyya, ²Dr. Debaleena Goswami, ³Dr. Fleming Nagarajan, ⁴Dr. Roy Lalliantluanga Thangluah, ⁵Dr. Th. Sudhir Chandra Singh, ⁶Dr. S. Ranita Devi, ⁷Dr. Rahul Das, ⁸Dr. Nityanand

^{1, 2, 3, 4, 7, 8}Postgraduate Trainee, ^{5, 6}Professor

Department of General Surgery, Regional Institute of Medical Sciences, Manipur, India

***Corresponding Author:**

Dr. Debaleena Goswami

Postgraduate Trainee, Department of General Surgery, Regional Institute of Medical Sciences, Manipur, India

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ABSTRACT

Breast is a dynamic organ which undergoes cyclical changes throughout a woman's reproductive life. Hormones and growth factors act on the epithelial and stromal elements right from the onset of puberty till menopause. Since time immemorial women have been experiencing breast pain sometime or other in their life. Breast pain is classified as cyclical, non-cyclical, and extramammary. Cyclical breast pain makes up about two thirds and non-cyclical approximately one third of breast pain.

Objective: To access the clinicoetiological profile of mastalgia, modalities of treatment and their outcome.

Methods: Cross sectional study of 150 female patients (above 15 years of age) with breast pain attended general surgery OPD of RIMS Imphal during August 2018 to July 2020. Detailed history was taken.

Results:

1. In 5 (3.33%) patients, the pain was of extramammary origin and they were treated with NSAIDs.
2. Eighty-five (56.67%) patients did not require any treatment except for occasional tablets of Paracetamol which was prescribed SOS.
3. Fifty-six (37.33%) patients had tender breast with granular or diffuse lumpy feel. They were treated with Evening primrose oil (EPO) capsules (2 gm daily) with an NSAID as required.
4. The remaining 4 (2.67%) patients also had fibroadenosis and were excised surgically, and HPE further confirmed them to be fibroadenosis. Post-operatively EPO was continued and patients responded well in 3 months of follow-up.

Conclusion: Unilateral mastalgia were almost twice (98 patients) than bilateral mastalgia (52 patients), EPO has shown significant response in 56% patients and surgery was required in only 4 cases.

Keywords: Cyclical, clinicoetiological, extramammary, fibroadenosis, mastalgia, menopause

INTRODUCTION

The term mastodynia or mastalgia was first used by Billroth to describe "breast pain". It is a very common condition experienced by upto 80% of women in their lifetime during the reproductive period. It is usually benign. However, due to ignorance most women believe it to be associated with breast cancer and is a very common cause of worry to the women. If inflammatory and infective

conditions are excluded most of the cases of breast pain (mastalgia) seldom need active surgical intervention.

Breast pain is typically felt in the central part and ranges from tension to discomfort to real pain. It is also described as tightness, soreness, and a sense of tiredness on one or both breasts.

Women seek advice for breast pain that interferes with sexual or physical activity, but many women report the symptom because of fear of cancer. A variety of medications may cause breast pain, including certain types of hormonal medications, antidepressants, anti-hypertensives, antimicrobial agents and cardiac medicines. The evaluation of mastalgia should include a history to elicit the timing, frequency, severity and location of the pain with attention to recent activities or trauma that may have caused or exacerbated the pain.

Breast pain is classified as cyclical, non-cyclical, and extramammary. Cyclical breast pain makes up about two thirds and non-cyclical approximately one third of breast pain.

Cyclical breast pain: Minor cyclical breast pain that is bilateral and diffuse is normal and it begins during the late luteal phase and dissipates with onset of menses. Cyclical mastalgia is usually more severe and persistent than non-cyclical pain.⁶ If pain persists for more than 6 weeks, symptomatic treatment may be offered.

Non-cyclical breast pain: It does not follow the usual menstrual pattern. Non-cyclical breast pain can be related to trauma in approximately 10% of cases. Pain related to a previous surgery is more common in patients who have postoperative infections or haematoma or in patients in whom the surgeon cut across Langer's line of tensions. Breast implants, especially those placed in a sub pectoral location, can be associated with pain. Post-surgical pain may be due to scar pain, nerve regeneration, or focal nerve injury due to ischaemia, radiation, limb oedema or implant capsule formation.

Mammography may show duct ectasia or secondary calcification at the site of pain. Non-cyclical breast pain due to various medications is poorly understood and has various presentations. Mastitis or breast abscess can be a cause of focal pain, which may precede induration, redness, warmth and fever. Breast Pain may also be the initial presentation of Mondor's disease (thrombophlebitis, usually thoracoepigastric vein). However, in this study inflammatory and infective causes of breast pain were excluded.

Extra mammary pain: It is described as pain to the breast from outside sources. This typically includes

musculoskeletal pain like thoracic wall syndromes, costochondritis and Tietze syndrome.

Although imaging is not always needed for isolated breast pain, it is still useful for the diagnosis of specific causes such as tension cysts, giant fibroadenomas or Mondor's thrombophlebitis. Some cancers may be associated with breast pain. So we should always take breast pain seriously.

MATERIAL AND METHOD:

Study design: Cross-sectional study.

Study setting: Department of Surgery, RIMS, Imphal.

Duration of study: Between August 2018 and July 2020.

Study population: All female patients presenting with breast pain to General Surgery OPD of RIMS, Imphal during the study period.

Inclusion criteria: Female patients above 15 years of age with breast pain.

Exclusion criteria:

1. Females with breast pain because of inflammatory and infective causes.
2. Females with breast cancer.
3. Females with congenital anomalies of the breast.
4. Females who have not yet achieved menarche.
5. Patient already diagnosed to have somatoform disorder.
6. Those who refuse to participate in the study.

Sample size: 150

Sample size calculation: According to reference number 6 sample size has been calculated by using the formula

$$N = 4PQ/L \text{ square}$$

$$= 4P(100-p)/L \text{ square ,}$$

Where p is prevalence of cyclical breast pain taken as 60% from a previous study of Ader DN

L= allowable error taken as 8%

N=sample size We have $N = 4 \times 60(100-60) = 150$

Study variables:

Independent variables

1. Age of the patient at presentation
2. Age at menarche
3. Marital status
4. Parity
5. History of breast feeding
6. Side of the breast affected
7. Relation with menstrual cycle
8. Type of treatment given
9. Outcome of treatment

Operational Definition: Any female patient aged 15 years or above coming to Department of General Surgery with breast pain of non-inflammatory and non-malignant origin was taken as subject for this study.

Study tools: Breast pain chart, Pre-designed study proforma, FNAC, Mammogram, USG & MRI breast.

Procedure:

1. Every patient in this study was selected after due consideration of the Inclusion and Exclusion criteria, and registered after taking her informed consent.
2. A thorough history and clinical examination of the breast formed the basis of the study.
3. Every patient was given a “Daily Breast Pain Chart” which the she had to mark for 3 consecutive months. It helped to differentiate between cyclical and non-cyclical breast pain and to know the intensity of the pain.
4. One or more of the following investigations were done whenever necessary:
 - I. FNAC when there was a lump.
 - II. Chest x-ray
 - III. Mammography
 - IV. USG breast
 - V. MRI breast

VI. HPE if any lump was excised

5. **Treatment:** Mastalgia is mostly a benign condition but the patient is worried about cancer. Hence, assurance that the condition is benign formed the important part of treatment in this study. NSAIDs like Aceclofenac, Paracetamol were occasionally prescribed. Evening primrose oil (2gm/day) was prescribed for those patients in whom pain persisted. Hormonal manipulation with Danazol etc. was not done in this study; Surgical intervention was considered only when a conspicuous lump was present in the breast.

6. All the findings and observations for every patient was recorded in a Proforma specially designed for this study.

Statistical analysis: Data were checked for consistency and completeness. All the data recorded were analysed using SPSS version Version 21(IBM). Descriptive data have been presented using proportion for diagnosis, FNAC and mean and 33 standard deviation for continuous data. Chi-square test was used to analyse association of nominal variation like pathological findings and t-test for numerical data with regard to pathological findings and p value < 0.05 was considered significant.

RESULTS:

The study was carried out on 150 female patients of mastalgia who came to the Surgical OPD of RIMS, Imphal during the period from August 2018 to July 2020. The incidence, clinical features and different modalities of treatment were studied.

1. Age predilection: The ages of the patients ranged from 17 years to 59 years with an average of 25 years at presentation. About two-thirds of the patients were 8 years younger and 8 years older than 25 years of age. Breast pain was found to be most common in females of age-group 21-30 years. There were 88 (58.67%) cases in this group followed by the age-group 15-20 years with 36 (24%) cases. After a peak in the group 21-30 years, the frequency seems to reduce with age. There were only 3 (2%) women over 50 years of age in the study.

2. Age at menarche: The minimum age at menarche was 8 years, and by 15 years all the patients had attained menarche. The average age at menarche was found to be 10.77 years while the standard deviation was 1.6 years. However, in our study no relation was found between the age of patients at menarche and any aspect of mastalgia.

3. Marital status: The incidence was nearly equally distributed between unmarried and married women with 52.0% and 48.0% cases respectively (Table 3). However cyclical pain was more common among the unmarried women while noncyclical pain was more common among the married women.

4. Parity: In our study mastalgia was more common among nulliparous than parous women. They accounted for 99 (66%) and 51 (34%) of the cases 37 respectively. Thirty-three (22%) patients had been pregnant once, 12 (8%) had been pregnant twice while another 5 (3.33%) women was pregnant 3 times. The remaining patient (0.67%) had pregnancy four times.

5. History of breastfeeding: In this study 102 (68%) did not have history of breast feeding whereas 48 (32%) breastfed their offsprings.

6. Side of breast affected: In our study, patients suffering from unilateral mastalgia were almost twice (98 patients) those suffering from bilateral mastalgia (52 patients). Right side was slightly more affected than the left, frequencies being 35.33% 30.0% respectively. Regarding the bilateral group, no information could be obtained regarding predominant side involved.

7. Relation of pain with menstrual cycle (cyclical or non-cyclical pain): In 95 (63%) of the 150 patients, the pain was related to menstrual cycle. Among them in 73 (76.8%) it was premenstrual whereas in 22 patients (23.16%) it was post menstrual. In 53 patients (35.33%) of 150 patients in the study, it was non-cyclical pain. In 7 of the patients with non-cyclical pain, the origin of the pain was extramammary and likely due osteo-chondritis of the underlying ribs.

8. Relation between type of pain and marital status: As mentioned earlier, cyclical pain was more common among unmarried women while non-cyclical pain was more frequently seen among

married women. Their frequencies are shown in the next table.

9. Treatment:

- I. In 5 (3.33%) patients, the pain was of extramammary origin and they were treated with NSAIDs (Paracetamol and Aceclofenac combination tablets).
- II. Eighty-five (56.67%) patients did not require any treatment except for occasional tablets of Paracetamol which was prescribed SOS. They were given the assurance that the condition was benign only. They responded well to it.
- III. Fifty-six (37.33%) patients had tender breast with granular or diffuse lumpy feel. They were treated with Evening primrose oil (EPO) capsules (2 gm daily) with an NSAID as required. They responded well in 3 months and were advised to continue the treatment for at least 6 months.
- IV. The remaining 4 (2.67%) patients also had tender granular breast with one or more distinct masses. FNAC diagnosed them as fibroadenosis and EPO was started but had no effect for two months. So, the lumps were excised surgically, and HPE further confirmed them to be fibroadenosis. Post-operatively EPO was continued and patients responded well in 3 months of follow-up.

DISCUSSION:

Mastalgia is the most commonly cited complaint of patients with breast problems. It is the commonest affliction of mammary gland among ladies of the reproductive age group. Studies have shown the prevalence in working women to be approximately 66%. Breast pain (mastalgia) is the most common complaint associated with disorders of the breast, being present in 45–85% of women who present for evaluation of breast symptoms.

Our study group ranged from 17 years to 59 years with an average age of 25 years at presentation. The maximum incidence was found in females of age-group 21-30 years. There were 88 (58.67%) in this group. The second highest was from 15 to 20 age group comprising 24%, followed by 31 to 40, 41 to 50, 51 to 60 years age group that comprised 9.3%, 6%, 2% respectively. The frequency comes down

with higher age-groups with no patient above 59 years of age.

In our study 102 (68%) did not have history of breast feeding whereas 48 (32%) breastfed their offsprings. To comment on any relation between breastfeeding and non-inflammatory mastalgia we need study in a much larger scale.

In this study, patients suffering from unilateral mastalgia were almost twice (98 patients) those suffering from bilateral mastalgia (52 patients). Right side was slightly more affected than the left, frequencies being 35.33% 30.0% respectively.

In our study out of 150 patients, in 95 (63.33%) patients the pain was cyclical. Whereas in 53 patients (36.67%) out of 150 it was non-cyclical pain. On further analysis, of the 95 women with cyclic pain, 65 were unmarried and 30 were married. But in case of non-cyclical pain, out of 55 cases only 13 were unmarried and 42 were married. So, cyclic pain is more common among unmarried women while non-cyclic pain was more common among married women.

In our study the observations were, among the premenstrual pain group of total 73 patients the mean age was 23 years. The youngest patient was 17 years old and the oldest patient was 57 years old Among the post-menstrual pain group the mean age was 26 years, the youngest was 19 years old and the oldest of them was 50 years old. Amongst the group of non-cyclical mastalgia, the mean age of presentation was 27 years with a range from 18 to 59 years. The incidence increased from the age group of 15 to 20 years being the second largest group to highest in the age group of 21 to 30 years and thereafter declined in the subsequent age groups. Though there were slightly higher incidence of non-cyclical mastalgia (mean age of non-cyclical mastalgia being 27 years in contrast to that of cyclical mastalgia being 22 years) with increase in age but it was not consistent with the further increase in age and thus it is not significant if we relate the comparative increase in incidence of the cyclical and non-cyclical mastalgia with age.

In our study 85 patients have responded to assurance while among them some required analgesics for a few days. Once reassured many women will not desire additional treatment. However, there are

several options for management of cyclical and non-cyclical breast pain. Well-fitted and supportive inner-wears in a patient with cyclical mastalgia without concerning findings, providing reassurance and follow-up is appropriate management. In our study 85 patients have responded to assurance.

In our study 52 patients were treated with Evening primrose oil capsules (2 gram per day in divided doses) with NSAID occasionally. They responded well in 3 months and were advised to continue the treatment for 6 months.

We found that in 4 (2.67%) patients, diagnosis by FNAC showed fibroadenosis and HPE further confirmed them to be fibroadenosis .

CONCLUSION:

A cross-sectional study was conducted among 150 patients of mastalgia without complications in the Department of General Surgery, Regional Institute of Medical Sciences, Imphal, Manipur from August 2018 to July 2020.

On completion of the study, the following conclusions were made:

- Mastalgia has an average age of 25 years at presentation.
- Breast pain was found to be most common in females of age-group 21-30 years comprising of 58.67% of total number of cases.
- The percentage of unmarried patients with mastalgia was slightly higher than those of married ones. Hence there is doubt regarding relationship of mastalgia to marriage.
- In our study mastalgia was more common among nulliparous (66%) than parous (34%) women.
- In our study, patients suffering from unilateral mastalgia were almost twice (98 patients) those suffering from bilateral mastalgia (52 patients).
- In 63% patients the pain was related to menstrual cycle while in 35.33% it was non-cyclical pain.

- g. In 5 (3.33%) patients, the pain was of extramammary origin and they were treated with NSAIDs, Eighty-five (56.67%) patients responded to occasional NSAIDs and assurance that the condition was benign. EPO has shown significant response in 56% patients. Surgery was required in only 4 cases.

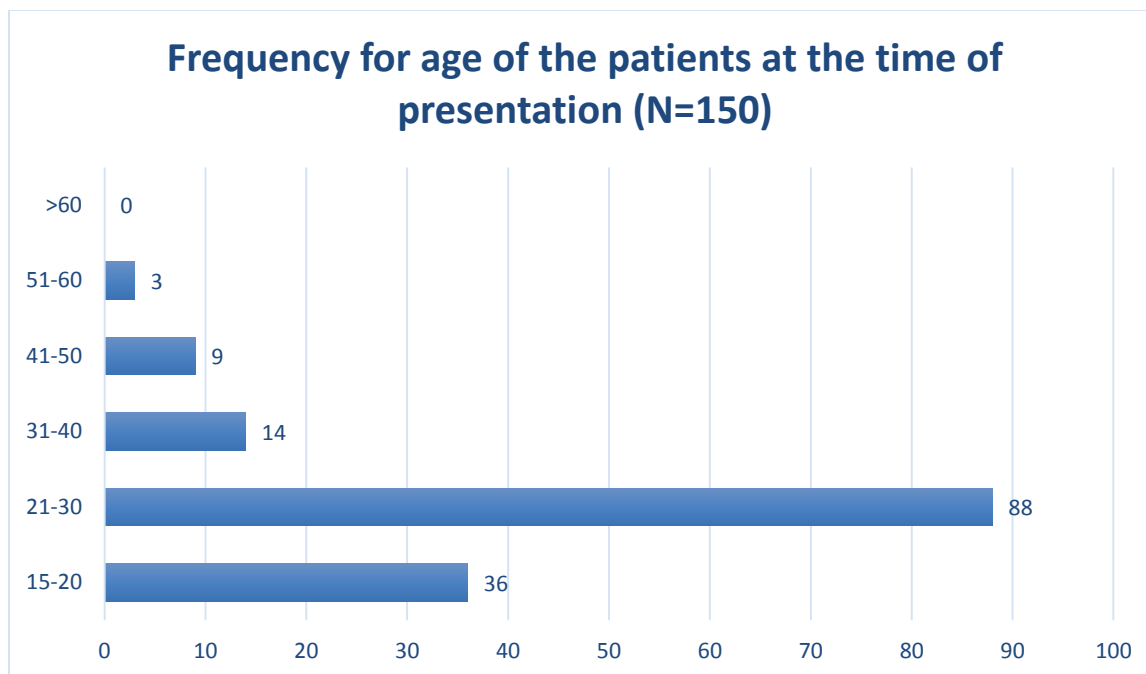
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Figure 1: Bar diagram of frequency for age of the patients at the time of presentation (N= 150)

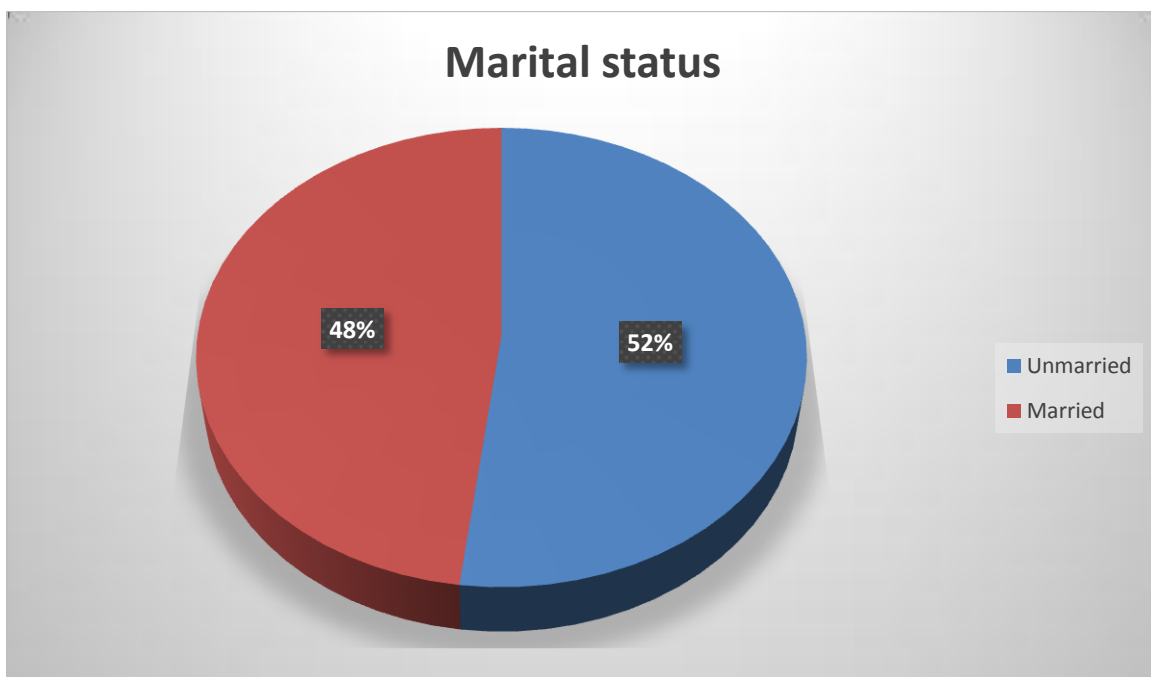


From the Bar diagram above out of 150 patients, 36 (24%) were in between 15-20 years of age, 88 patients (58.67%) were in between 21-30 years of age, 14 patients (9.33%) were in between 31-40 years of age, 9 patients (6%) were in between 41-50 years of age, 3 patients (2%) were in between 51-60 years of age.

Table 1: Showing frequencies of menarche at different ages(N=150)

Age at menarche (in years)	Frequency	Percentage (%)	Cumulative Percentage (%)
8	3	2	2
9	19	12.67	14.67
10	43	28.67	43.34
11	39	26.0	69.34
12	29	19.33	88.67
13	11	7.33	96.0
14	4	2.67	98.67
15	2	1.33	100.0
Total	150	100	

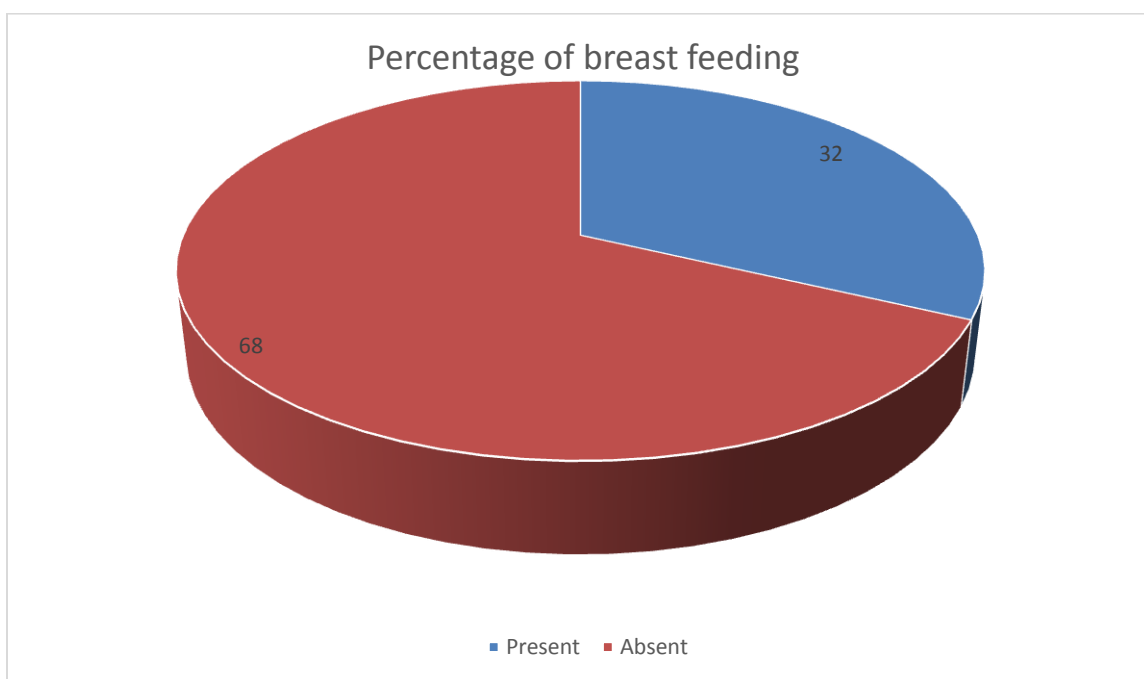
Figure 2: Pie chart Showing marital status



The incidence was nearly equally distributed between unmarried and married women with 52.0% (78 out of 150) and 48.0% (72 out of 150) cases respectively.

Table 2: Showing parity of the patients

No. of pregnancies	Frequency (No. of patients)	Percentage (%)	Cumulative Percentage (%)
0	99	66.0	66.0
1	33	22.0	88.0
2	12	8.0	96.0
3	5	3.33	99.33
≥ 4	1	0.67	100
Total	150	100	

Figure 3: Pie chart Showing history of breast feeding

In this study 102 (68%) did not have history of breast feeding whereas 48 (32%) breastfed their offsprings.

Table 3: Showing frequency of side of the breast involved(N=150).

Side of breast involved	Frequency	Percentage (%)	Cumulative Percentage (%)
Right	53	35.33	35.33
Left	45	30.0	65.33
Both side	52	34.67	100
Total	150	100	

Table 4: Showing frequency of mastalgia in relation to menstrual cycle(N=150)

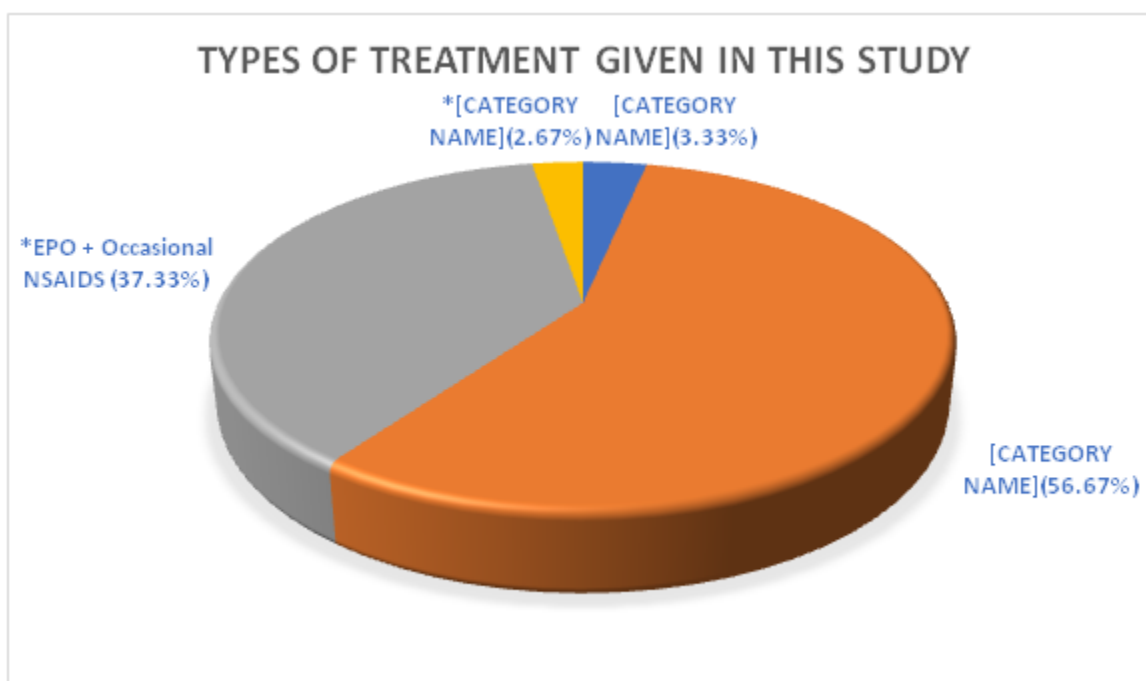
Relation of mastalgia with menstrual cycle	Frequency (No. of patients)	Percentage(%)
Pain not related to menstrual cycle	*55	36.67
Pain before menses and relieved with onset of menses (Premenstrual)	73	48.66
Pain after menses (Postmenstrual)	22	14.67
Total	150	100

*Including 5 cases of breast pain of extramammary origin

Table 5: Relation between type of pain and marital status(N=150)

Marital status	Type of Mastalgia		Total
	Cyclical	*Noncyclical	
Unmarried	65	13	78(52.0%)
Married	30	42	72(48%)
Total	95(63.33%)	55(36.67%)	150(100%)

* Including 5 cases of breast pain of extramammary origin.

Figure 4: Pie chart showing types of treatment given

*EPO= Evening Primrose oil