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A PROSPECTIVE STUDY ON MASTALGIA IN SULAIMANIA, IRAQ

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Abstract

Mastalgia is one of the most common breast symptoms. The aim of this study is to describe the clinical, pathological, ultrasonographic and mammographic features of this common symptom in Sulaimania, Iraq.

A prospective study done over a period of 1 year, between 1st Sept 2007 and 30th Aug 2008, during that period, 132 cases of mastalgia were seen in a private general surgical office in Sulaimania. Data were collected about history, physical examination, ultrasonographic, mammographic, fine needle aspiration cytology and open surgical biopsy findings.

Mastalgia was divided into cyclical mastalgia and non cyclical mastalgia and their underlying causes and their response to different lines of treatment were recorded.

Out of 132 patients, 58 patients (43.94%) had cyclical mastalgia, and 74 patients (56.06%) had noncyclical mastalgia. Their age ranged 17-67 years. Duration of pain was from 7 days - 2 years. Fear of breast cancer was present in 34.09% of the patients. Normal findings were found in 58.33% of ultrasonographies and negative findings in 78.57 % of mammographies done. In the majority of patients with mastalgia (58.33%) no cause could be found and the most common finding was fibrocystic changes (19.69%). The incidence of breast cancer in our patients was low (0.75%). Most patients with mastalgia (84.69%) improved with reassurance.

Conclusion: Most of the patients with mastalgia were young and middle aged, housewives, married, multiparous and practiced breast feeding. The incidence of breast cancer was low. In the majority of them no cause could be found. Most patients improved with reassurance.

Introduction

Mastagia is one of the most common breast symptoms experienced by women[1]. It is classified into the 3 main types; cyclic mastalgia (CM) which has clear relationship with the menstrual cycle, noncyclic mastalgia (NCM) which has no relationship with the menstrual cycle, and extramammary (nonbreast) pain[1-3] which arises from various sources outside the breast and present with symptoms of breast pain[1,3].

In CM despite extensive studies the etiology is unknown, hormonal factors are considered to play a role but definitive hormonal abnormalities have not been identified[1]. In most cases of NCM the pain arises for unknown reasons (idiopathic NCM), but occasionally is secondary to some causes like: mastitis and breast abscess, duct ectasia, fibroadenoma, breast cyst, nipple eczema, nipple retraction, trauma, breast cancer and postmastectomy pain[1]. Most common causes of extramammary (nonbreast) pain are Tietze syndrome, chest wall pain, cervical root pain, shoulder pain, coronary artery disease, gastroesophageal reflux, pregnancy and psychological[1,3].

The diagnosis of mastalgia can be made by history and physical examination alone in most cases[2]. Mammography is often used to evaluate mastalgia; however the yield is low in the setting of normal findings on clinical examination[1]. In many medical centers,

ultrasonography is used alone to evaluate focal breast pain in younger women and as an adjunct to mammography in older women[4]. Laboratory studies and hormone levels are generally not useful and are unnecessary[1].

Most patients with CM and NCM with unknown cause, the first line of treatment is reassurance with success rate of 85%[5]. If no response, oil of evening primrose (OEP, gammalinolenic acid) is used with favorable response and side effects[6]. Hormonally active drugs (bromocriptine, danazole or tamoxifen) are indicated only for patients with severe, prolonged symptoms[1]. Therapy of NCM (idiopathic and secondary) is made according to the underlying pathology, if no substrate is present, treatment is the same as for CM but the response is diminished[7].

Mastalgia is a real entity that deserves both clinical and social understanding and it is largely ignored both scientifically and clinically[8]. Up to our knowledge this is the first study about mastalgia to be done in Sulaimania. The purpose of this study is to describe the clinical, pathological, ultrasonographic and mammographic features of this common breast symptom, in Sulaimania, Iraq.

Patients and methods

A prospective study was done over a period of 1 year, between 1st Sept 2007 and 30th Aug 2008. During that period, 142 cases of mastalgia were seen in a private general surgical office in Sulaimania, Iraq.

After explanation and acceptance of patients enrollment in the study, history has been taken and the following data were recorded: age, marital state, occupation, residency (living in the urban or the rural area), the presenting complaint and its duration, side of the pain (unilateral left or right breast or bilateral), site of the pain (different quadrants of the breast, nipple areola complex or the whole breast), severity of the pain (using numerical rating scale, 0: means no pain, 10: excruciating pain), the pain was classified into 3 grades; mild for scale 1-3, moderate for scale 4-6, sever for scale 7-10[9], (to fulfill the research criteria for mastalgia published in the British literatures, we included only those patients with pain severity equal to or > 4, for 7 days or more per month and for at least 2 menstrual cycles[10]), relation of the pain to the menstrual cycle (and according to this relation we divided mastalgia into 2 types CM when the pain is related to the menstrual cycle and NCM when the pain is not related to the menstrual cycle, we did not find difficulty in revealing this relation during interrogation with our patients, so we found that pain chart[3] was not necessary) and any other associated symptoms of lumpiness and nipple discharge (patients complaining of and feeling a breast mass in addition to breast pain were not included in the study), lactation in nursing patients, fear of breast cancer (by asking the patient in a proper way so that no anxiety is induced to the patient), past history of premenstrual syndrome, past history of operations on the breast, drug history (patients on contraceptive pills and infertility drugs were not included in the study), family history of mastalgia, family history of breast cancer, number of children, breast feeding and smoking and alcohol intake were recorded.

Physical examination was performed, breast asymmetry, tenderness, nodularity, any mass not noticed by the patient, nipple retraction, nipple eczema and examination of the axilla for enlarged axillary lymph nodes, accessory breasts or other axillary masses were recorded. All patients were sent for ultrasonography and the following data were recorded: the presence or absence of solid masses, cysts, duct ectasia, fibrocystic change, cysts, enlarged axillary lymph nodes, accessory breasts

or other axillary masses. Mammography was performed for all patients equal to and above the age of 35 years[1,11] and the following data were recorded: negative, benign finding, probably benign finding, suspicious abnormality, highly suspicious of malignancy[12]. Fine needle aspiration cytology (FNAC) were performed when a mass or a suspicious lesions were detected, when FNAC were not informative or yield suspicious results open surgical biopsy were performed[13].

To restrict our study on true mastalgia, women with premenstrual pain that did not fulfill the research criteria for CM[10], women with extramammary pain, women on medications associated with mastalgia (like antifertility drugs, oral contraceptive pills and estrogen replacement therapy etc) were excluded form the study.

Both CM and NCM with unknown causes including those patients with FCC, were generally treated on the same lines and their response to treatment were recorded.

We started treatment with reassurance, verbal explanation of the benign and nonneoplastic nature of the symptom, with general advices like wearing proper and fit bra, low salt diet, low fat diet and caffeine reduction or elimination[1,8,14], also we told our patients if they are bothered about the pain to take nonsteroidal antiinflamatory drugs (like diclofenac tablet 25mg 3 times daily to relieve the pain)[15]. The patients were seen after 3 month and if there were no response, oil of evening primerose (OEP) is started, 1000 mg 3 times daily and continued for a period of 3 months[1,6]. If no response to OEP, bromocreptin were given in dose of 1.25 mg daily and increasing the dose over the period of 2 weeks into 2.5 mg twice daily for a period of 3 months[1]. If there were no response to bromocreptine, tamoxifen tab 10 mg daily were given, and continued for a period of 3 months[1,17]. NCM due secondary to breast disease were treated according to the underlying pathology[7].

All patients were followed up in the private surgical office after 3 months, 6 months, 9 months and 1 year after the starting of the treatment. During the follow period, the response to different lines of treatment were assessed. Improvement was achieved when there was reduction of pain score a decrease of at least one grade (3 numbers) in the pain classification[9]. In case of recurrence of the pain after a period of initial response and pain relieve, another 3 month coarse treatment was started again[1].

From the total no of 142 patients, 10 patients (7.04%) were unable to complete the follow up period and they were excluded from the study, and we continued the study on the remaining 132 patients.

Statistical analysis was performed by using SPSS 16 (Statistcal package for the social sciences).

Results

According to relation of the pain to the menstrual cycle, we found that out of 132 patients, 58 patients (43.94%) had CM, and 74 patients (56.06%) had NCM. The age of the patients with mastalgia ranged 17-67 years (mean 34.16 years, SD 9.739), those patients with CM ranged 17-44 years (mean 28.4 years, SD 6.654), and those with NCM ranged 31-67 years (mean 40.43 years, SD 7.185). One hundred six patients (80.3%) were married, 26 patients (19.7%) were single. The occupation of the patients is shown in table I.

Table I: Occupation

	Frequency	Percent
Housewife	85	64.4
Employee	17	12.9
Teacher	15	11.4
Student	9	6.8
PMS	3	2.3
Engineer	1	0.8
Doctor	2	1.5
Total	132	100

Regarding residency we found that 89 patients (87.4%) were living in the urban area and 42 patients (31.8%) were living in the rural area of Sulaimania

The presenting complaints were pain only in 87 patients (77.27%), pain and lumpiness in 21 patients (15.91%) and pain and nipple discharge in 9 patients (15.91%). The duration of the pain ranged 7 days to 2 years (mean 3.2 months, SD 147.7 days). The pain was unilateral in 103 patients (78.03.%), it was felt in the left breast in 66 patients (50%) of the cases, in the right breast in 34 patients (25.8%), and it was found in both breasts in 32 patients (24.2%). The site of pain was upper outer quadrant in 73 patients (55.3%), in the other quadrants in 27 patients (20.46%), in the nipple-areola complex in 2 patients (1.51%) and in the whole breast in 30 patients (22.73%). The severity of the pain ranged from 4-9 (mean 6.67, SD 1.660), measured with numerical rating scale. The pain was moderate (4-7) in severity in 69 patients (52.27%) and was severe (8-10) in 63 patients (47.74%). Nipple discharge which was present in 9 patients (6.82%), was serous in 6 patients, green in 2 patient, and milky in one patient. Twelve patients (9.09%) were lactating. Fear of breast cancer was present in 45 patients (34.09%). Past history of premenstrual syndrome was present in 41 patients (31.06%). Eight patient (6.06%) had past history of operation for breast, the histopathology of 3 patients revealed FCC and 3 patients revelaed duct ectasia and one patient revelaed breast cancer. No patient had family history of mastalgia. One patient (0.75%) had family history of breast cancer. Nighty eight (74.24%) patients were multiparous and the number of children ranged from 1-12 children (mean 3.05, SD 2.062). Out of 98 patients with children, 81 patients (82.65%) practiced breast feeding, 4 patients bottle feeing and 12 patients mixed feeding. Four patients (30.30%) were smokers. None of our patient were alcoholic.

Physical examination showed that breast asymmetry were found in 4 patients (3.03%), the left breast was larger than the right breast in 3 patients and the right breast was larger than the left breast in one patient. Tenderness on palpation of the affected breast was found in 112 patients (84.84%). Breast nodularity was found in 63 patients (47.42%). Palpable mass not noticed by the patient found in 2 cases (1.51%). Cracked nipple was found in 3 patients (4.05 %). Nipple retraction was found in 1 patient (1.365). Three patients (4.05 %) had accessory axillary breasts, palpable axillary lymph nodes were found in 11 patients (8.33%).

Ultrasonography was done for all patients and the findings are shown in table II:

Table II: Ultrasound findings in mastalgia

	CM		NCM		Both CM & NCM	
Findings	**No of patients**	**%**	**No of patients**	**%**	**No of patients**	**%**
Normal	**49**	**84.48**	**28**	**37.84**	**77**	**58.33**
Fibrocystic changes	**9**	**15.52**	**17**	**22.97**	**26**	**19.69**
Mastitis/Abscess			**12**	**16.22**	**12**	**9.09**
Ductectasia			**10**	**13.52**	**10**	**7.58**
Simple breast cysts			**5**	**6.75**	**5**	**3.79**
Solid mass			**2**	**2.70**	**2**	**1.52**
Total	**58**	**100.00**	**74**	**100.00**	**132**	**100.00**

Ultrasonography of the axilla showed enlarged axillary lymph nodes in 11 patients (8.34% of all patients with mastalgia, 6 in CM and 5 in NCM) they were inflammatory in 10 patients and was malignant in one patient with NCM and proved by FNAC. It also showed accessory axillary breasts in 3 patients (2.28% of all patients with mastalgia, 1 in CM and 2 in NCM).

Mammography was done for 70 patients above the age of 35 years (9 patients with CM and 61 patients with NCM, accounting for 53.03% of the total number of the patients). The findings are shown in table III:

Table III : Mammographic findings in mastalgia

	CM		NCM		Both CM & NCM	
Findings	**No of patients**	**%**	**No of patients**	**%**	**No of patients**	**%**
Negative	**8**	**88.89**	**47**	**77.05**	**55**	**78.57**
Benign findings	**1**	**11.11**	**7**	**11.48**	**8**	**11.43**
Probably benign findings			**6**	**9.83**	**6**	**8.57**
Highly suggestive of Malignancy			**1**	**1.64**	**1**	**1.43**
Total	**9**	**100**	**61**	**100**	**70**	**100**

FNAC was done for 2 patients (1.51%) with solid breast mass, one of them showed fibroadenoma, and the other was highly suggestive of breast cancer. Open surgical biopsy done for 1 patient (0.75%) and confirmed the FNAC suspicion of carcinoma (invasive lobular carcinoma).

After evaluation of our patients with history, physical examination and investigations, no causes could be found in 77 patients (49 patients with CM, 28 patients with NCM) accounting for 58.33% of all patients with mastalgia. FCC was found in 26 patients (19.69% of all patients with mastalgia, 9 patients with CM, 17 patients with NCM).

In those 58 patients with CM, no cause could be found. In those 74 patients with NCM the following causes were found and shown in table IV:

Table IV : Causes of noncyclical mastalgia

Causes	No of patients	%
Idiopathic	40	64.07
Mastitis and breast abscess	12	16.21
Duct ectasia	10	13.51
Simple breast cysts	5	6.75
Cracked nipple	3	4.05
Nipple retraction	1	1.36
Fibroadenoma	1	1.35
Breast cancer	1	1.35
Postmastectomy pain	1	1.35
Total	74	100

Out of 132 patients with mastagia, only one patient had breast cancer, accounting for 0.75% of all cases of mastalgia. Those 58 patients with CM and 40 patients with idiopathic NCM (including those patients with FCC) were treated with reassurance and they were seen after 3 months and the results is shown in table V:

Table V: Treatment with reassurance

	CM	Idiopathic NCM	Both CM & idiopathic NCM
No of patients	58	40	98
Improved	51 (87.93%)	32 (80%)	83 (84.69%)
Not improved	7 (12.07%)	8 (20%)	15 (15.31 %)

Those 15 patients (7 patients with CM and 8 patients with NCM) who failed to improve with reassurance, were treated with oil of evening primerose 1000 mg 3 times daily for 3 months, the result of the treatment is shown in table VI:

Table VI: Treatment with Oil of evening primrose

	CM	Idiopathic NCM	Both CM & idiopathic NCM
No of patients	7	8	15
Improved	5 (71.43%)	3 (37.50%)	8 (53.33%)
Not improved	2 (28.57%)	5 (62.50%)	7 (46.67 %)

Those 7 patients (2 patients with CM and 5 patients with NCM) who failed to respond to OEP, were treated with bromocreptin tab 2.5 mg twice daily for 3 months, and the results is shown in table VII:

Table VII: Treatment with bromocreptin

	CM	Idiopathic NCM	Both CM & idiopathic NCM
No of patients	2	5	7
Improved	1 (50%)	2 (40.00%)	3 (42.85%)
Not improved	1 (50%)	3 (60.00%)	4 (57.14 %)

Those 4 patients (1 patients with CM and 3 patients with NCM) who failed to respond to bromocreptin tablets were treated with tamoxifen tab 10 mg daily for 3 months, and all the 4 patients were improved as shown in table VIII:

Table VIII : Treatment with tamoxifen

	CM	Idiopathic NCM	Both CM & idiopathic NCM

No of patients	1	3	4
Improved	1 (100%)	3 (100%)	4
Not improved	0 (0%)	0 (0%)	0 (0%)

No side effects of OEP appeared in the 11 patients treated with OEP. Side effects of bromocreptin appeared in 2 patients (50%) in the form of nausea, vomiting, headache and constipation, they were tolerated by the patients after explanation and reassurance. No side effect of tamoxifen was observed.

Those 34 patient with NCM secondary to obvious breast causes, treatment was directed to the causes accordingly, e.g. patients with mastitis and breast abscesses were treated initially with antibiotic cloxacillin 500 mg vial IV every 6 hours, if no improvement drainage of the abscess was done under general anesthesia.

Discussion

We found that the mean age of the patients with mastalgia was 34.16 years, those patients with CM 28.4 years, and those with NCM 40.43 years, and the majority of them were married (80.3%) and multiparous (74.24%), these results are similar to other studies done by Wetzig[18] and Ader and Shriver[10]. Most of our patients (82.65%) practiced breast feeding, this is unlike the results obtained by Wetzig[18] who reported that 62% had either not breast fed or had done so for less than 2 months, this is explained by the fact that breast feeding is practiced widely in our society. Most of our patients were housewife (64.4%), this is similar to other studies done by Wetzig[18] which showed 63% perform home duties.

We also found that most of our patients had NCM (74 patients, 56.1%), and 58 patients, 43.9% had CM, this is going with the results of results of Safarpour and Aghajanzadeh[19] who showed that only 1% of their patients had CM, this can be explained by the results of Ader and Shriver[20] who showed that women with breast changes before onset of menstrual cycle most commonly (71.8%) consulted gynecologists. The pain in most of our patients was unilateral (78.03%) and located in the UOQ in more than half of them (55.3%), this is explained by the fact that most of our patients had NCM which tends to be unilateral[1]. We also found that the pain was felt in the left breast in half of them (50%), this is going with the results of Safarpour Safarpour and Aghajanzadeh[19] who found that the left breast is affected in 48% of patients, in reviewing the literature we could not find a satisfactory explanation why the left breast is more affected. The most common symptom associated with mastalgia was lumpiness (15.91%), this is comparable to results obtained by Ader and Shriver[20] who reported 24% incidence of associated lumpiness and tenderness. Past history of premenstrual syndrome was found in 31.06% of our patients, this is comparable with Ader, Shriver and Brown[21] who showed mastalgia was not significantly associated with PMS: 82 % of women with clinical cyclical mastalgia did not have PMS. Fear of breast cancer was found in 34.09% of our patients, this is going with the results of Wetzig[18], who found that fear of cancer was a major concern and was found in 41% of his patients.

Palpable mass not noticed by the patient was found in 2 patients, this is important because in our locality self breast examination is still not practiced by most women and not neglecting breast pain and consultation of doctor may results in detection of breast masses not noticed by the patient. One of these masses was shown to be breast carcinoma and the other fibroadenoma.

Normal ultrasonography was found in 77 patients (49 patients with CM and 28 patients with NCM) accounting for more than half (58.33%) of the cases of

mastalgia. The most common ultrasonographic finding in mastalgia was FCC, it was found in 26 patients (9 patients with CM and 17 patients with NCM) accounting for 19.69% of the total number of patients with mastalgia. Normal mammography was found in 55 patients (8 patients with CM and 47 patients with NCM) accounting for 41.66% of the cases of mastalgia, and the most common mammographic finding in mastalgia was FCC, it was found in 8 patients (1 patients with CM and 7 patients with NCM) accounting for 6.06% of the total number of patients with mastalgia. These results are comparable with the results obtained by Duijm et al[22], who reported the finding of breast imaging in painful breasts to be normal in 86.55 % of the cases and benign (mainly cysts and mastopathy) in 8.6% of the patients, and also the results of Ohene-Yeboah 23 who showed FCC accounted for 19% of cases of breast pain. FNAC and open surgical biopsy were not used frequently in our study.

After evaluation of our patients with history, physical examination and investigations, no cause found in most patients with mastalgia (98 patients, 58 patients with CM, 40 patients with NCM), accounting for 74.24% of all patients with mastalgia, this result goes with the Smith et al 1 that the cause of mastalgia is unkown in most cases. We also found that the most common finding in mastalgia (both CN and NCM) was FCC, 26 patients had FCC (9 patients with CM, 17 patients with NCM) accounting for 19.69% of all patients with mastalgia, but the association between breast pain and FCC has been inconsistent[1]and it is now accepted that fibrocystic changes are associated with normal breast involution[24], and they are not manifestation of disease[25].

We also found that the most common cause in NCM was mastitis and breast abscess, this goes with the results of Ohene-Yeboah[23] who showed that the third most common findings in patients with breast pain was mastitis and breast abscess accounting for 13.3% of cases. The next most common cause in NCM was duct ectasia which was found in 13.51% of our patients with NCM this goes with the results obtained by Peters et al[26] who showed for the first time that duct ectasia is a major factor in determining the severity of mastalgia.

Out of 132 patients with mastagia, only one patient had breast cancer, accounting for 0.75% of all cases of mastalgia. This makes the incidence of breast cancer in mastalgia in our study 0.75%, which is going with Klimberg[27] that the risk of breast cancer among patients presenting with pain as a sole symptom is about 0.8% to 2%.

We also found that most patients with mastalgia showed good response to reassurance (85.71%), with CM responding better (87.93%) than NCM (78.94%), this is similar to the results of Barros et al[5] who reported 70.2% success rate with reassurance.

Those patients who failed to respond to reassurance, were treated with OEP, of these 54.54% showed good response, with CM responding better (71.43%) than NCM (25%), This is going with the results of Gateley et al[6] who reported that 44% to 58% of cyclical breast pain patients and 27% to 38% of noncyclical breast pain patients responded to treatment with primrose oil and also the results of Hanif et al[28] that found almost all patients with CM were cured by evening primrose oil.

Those patients who failed to respond to OEP, were treated with bromocreptine tablet, of them 40%, with CM responding better (40%) than NCM (33.33%), this goes with the results of Gateley et al[6] who reported 54% clinically useful response with CM and 38% clinically useful respone with NCM.

Those few patients not responding to bromocreptin tablets, were treated with tamoxifen and all of them (100%)

improved (both CM and NCM). We hvent used tamoxifen frequently in our study, because studies using tamoxifen in the treatment of mastalgia are limited but results are encouraging[2]. Fentman et al[17] who showed that the majority of woman (90%) with severe mastalgia achieved pain relief using tamoxifen 10 mg daily, given for a 3-month course. Srivastava et al[29] also showed that because tamoxifen is associated with least side effects, it should be the drug of first choice. Concern over tamoxifen has been expressed[14], in view of the known association with endometrial cancer following five-year administration in breast cancer patients, however, so far, no increased risk has been demonstrated with short-term treatments (<6 months)[30]. Operation was not required except for those patients with breast abscesses, fibroadenoma and breast cancer, this goes with the general agreement among authers that surgery has an extremely limited role in the treatment of breast pain[1].

This paper presents a private surgical clinic data on mastalgia in Sulaimania. Further studies are required with larger number of patients, over a longer period of time, for revealing more data about this common condition.

In conclusion, we found that most patients with mastalgia in our study were young and middle age, housewife, married, multiparous, practiced breast feeding, nonsmoker and nonalcoholic. In the majority of the cases no cause was found and the commonest finding was FCC. Although mastalgia fear of breast cancer was found in a significant number of our patients, the incidence of carcinoma was low (0.75%). Most patients with mastalgia responded well to reassurance, those patients not responding to reassurance were treated OEP, bromocreptin or tamoxifen. Surgery had little role in treatment of our patients with mastalgia.

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