Mastalgia: Characteristics and Associated Factors in Thai Women

Dolrudee Songtish MD*,
Prinya Akranurakkul MD*

** Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*

Objective: *This study aimed to identify the clinical presentation, natural history, severity and associated factors in Thai women presented with mastalgia.*

Material and Method: *One hundred and five Thai women with breast pain who visited HRH Princess Maha Chakri Sirindhorn Medical Center were interviewed with breast pain. The data about socio-economic status, sign and symptoms of breast pain, associated factors, mental status and quality of life at first presentation and 6-12 months afterward were collected.*

Results: *In 105 Thai women who present with mastalgia, the pain was associated with menstrual cycle, around 70 percents. Both cyclic and non-cyclic mastalgia patients had similar characteristics as type, intensity and location. There were no differences in caffeine and high-fat food intake between mild and severe mastalgia. In twenty-seven percent of patients who had severe breast pain, the pain affected their work, sleeping and daily entertainment. Though the pain did not influence mental status, it affected some part of quality of life such as a part of bodily pain, social function and mental health. At second follow-up, 80 patients had decreased severity and intensity of pain. The mental status and quality of life evaluations were statistically significant.*

Conclusion: *The results showed that most mastalgia was associated with menstruation. Diet showed no definitive association with breast pain severity and severe mastalgia influenced patients' daily activity and quality of life.*

Keywords: *Breast pain, Mastalgia, Mastodynia, Quality of life*

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Mastalgia or mastodynia or breast pain is one of the most common breast complaints presented at breast clinic worldwide. Concerned about breast cancer prompts women to seek medical counsel. Studies reported mastalgia prevalence ranging from 47-69 percents[1,2]. However, the actual incidence of breast pain is unknown since most women do not seek medical advice[3,4]. Mastalgia is classified into cyclic and non-cyclic mastalgia according to its relation with menstruation[5]. Musculoskeletal pain at chest wall is also confused with mastalgia. Breast pain ranged from mild to severe form[6,7]. In severe mastalgia, the pain may bother a patient's normal activities and cause distress in their quality of life. Reports from international study claimed that there were many factors associated with mastalgia. Diet such as caffeine[8-10], high-fat food[11], has been revealed to cause breast pain. Moreover, significant stress and anxiety were also noted in women with breast pain[12,13]. Causes of mastalgia are uncertain so the treatments vary and depend on individuals. Treatments of breast pain mostly depend on pain severity which ranged from reassurance and medication to surgery for severe breast pain. The optimal treatment and outcome are still doubtful.

Since multiple factors associated with breast pain from international studies were influenced by different race, culture and life style. No prospective study about mastalgia in terms of characteristic, natural history and associated risk factors has yet been undertaken in Thailand. The study aimed to address these data by evaluating the characteristics, natural history, quality of life and outcomes of treatment of breast pain in Thai women. The results will help health care providers to understand and develop standard treatment of breast pain in Thai women.

Correspondence to:
Songtish D, Department of Surgery, HRH Princess Maha Chakri Sirindhorn Medical Center, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok 26120, Thailand.
Phone: +66-37-395085, Fax: +66-37-395271
E-mail: dsongtish@yahoo.com

Material and Method

The study was the descriptive study, aiming to investigate the clinical presentation, severity and associated factors of breast pain. After obtaining ethical approval from the Institutional Review Board of the Faculty of Medicine of Srinakharinwirot University, eligible patients who attended surgical and gynecological out-patient department at HRH Princess Maha Chakri Sirindhorn Medical Center were invited into study. From March 2007 to February 2009, study included 105 women aged 19-58 year olds, who had breast pain within 6 months. We excluded pregnant or lactating women and women who underwent mastectomy or hysterectomy or oophorectomy. The data were collected from medical record and interview by trained staffs. The first interview was performed at day of clinic attendance and the second was done 6-12 months later. Demographic data and breast pain associated factors were collected from medical records and interviews. Breast pain characteristics were evaluated by a breast pain questionnaire[14] developed by Department of physiology, Northwestern University. The questionnaire evaluated the pain characteristic which include intensity, duration, location, quality and associated factors. Thai GHQ-30[15] and Thai version of SF-36 (2nd version)[16] were used to evaluate mental health and quality of life. Physical examinations were done in all patients by physician. Medication and investigation including mammograms, ultrasound and tissue diagnosis were prescribed as clinically indicated. Data were analyzed by SPSS statistics for Windows version 17. Patients' demographic data and characteristic of breast pain were categorized as cyclic and non-cyclic breast pain. Breast pain severities were classified as mild and severe breast pain by visual analogue score (VAS) and patient's complaints. The relationship of breast pain to other independent variables was examined by the Chi-square test and t-test for parametric data and Wilcoxon-Sign Rank test and Mann-Whitney test for non-parametric data.

Results

One hundred and five participants who enrolled into study aged range from 19-58 years; median age was 41 years and body mass index was 23.35 kg/m^2. Seventy-two percents of patients were pre-menopause and 77 percents had history of premenstrual syndrome. Cyclic breast pain group which accounted for 70 percents of patients was younger than non-cyclic breast pain (Table 1). The severity of breast pain in both groups were mild which consisted of 64.5 and 76.7 percent in non-cyclic and cyclic

Table 1. Characteristic of pain in non-cyclic and cyclic mastalgia

Variable	Non-cyclic mastalgia (n = 31)		Cyclic mastalgia (n = 74)	
	n	Percent	n	Percent
Age (mean ± SD)	42.87±9.7		38.3±8.9	
Body mass index (mean ± SD)	24.18±4.31		23.0±4.1	
Duration of symptom (day) (median (min,max))	30 (3, (2,555))		90 (2, (3,650))	
Menopause status				
Pre-menopause	19	61.3	57	77.0
Peri-menopause	4	12.9	16	21.6
Post-menopause	8	25.8	1	1.4
Severity of breast pain				
Mild (annoying)	20	64.5	56	76.7
Severe	11	35.5	18	24.3
Characteristic of pain				
Constant	2	6.5	5	6.8
Interval	8	25.8	22	29.7
Sudden pain then disappear	21	67.7	47	63.5
Frequency of breast pain (per month)				
Less than once	12	38.7	23	31.1
Once	15	48.4	36	48.6
More than once	4	12.9	15	20.3
Associated with premenstrual syndrome (PMS)	17	54.8	64	86.5

mastalgia. The cyclic breast pain group had 20 percents tenderness, 17 percent sharp pain (Fig. 1) and most pain located at the lower outer (26%) and upper outer (26%) quadrant of breast (Fig. 2). Non-cyclic breast pain patients had similar characteristics since 20 and 12 percent had tenderness and arching pain (Fig. 1) and also located at upper outer (30%) and lower outer (25%) quadrant of breast (Fig. 2). Eighty-six percent of cyclic breast pain patients also experienced one of premenstrual syndrome. The severe breast pain was found in 29 patients; in 27.6 percent, pain had disturbed daily life activities significantly such as working, sleeping and enjoying entertainment. However, there was no statistical difference in psychological testing; Thai GHQ-30, between mild and severe breast pain groups. Accessing the consequence of breast pain to quality of life by Thai version of SF-36 found that severe breast pain had effected bodily pain ($p = 0.004$), social function ($p<0.001$) and mental health ($p = 0.024$) module compared to mild breast pain. BMI, caffeine and high-fat food intake showed no statistical difference between mild and severe mastalgia (Table 2).

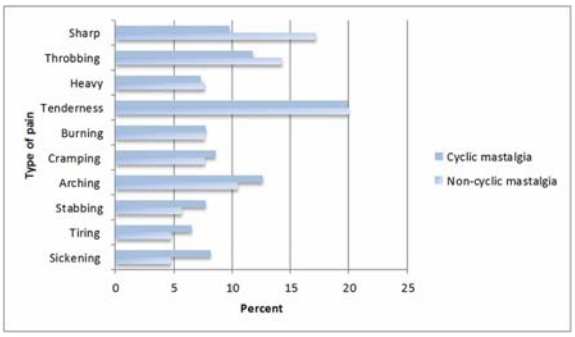

Fig. 1 Character of pain in cyclic and non-cyclic mastalgia.

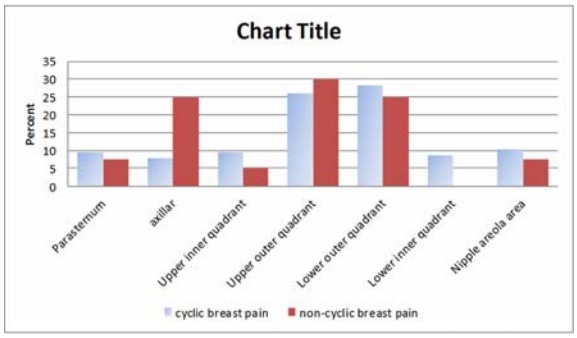

Fig. 2 Location of pain in cyclic and non-cyclic breast pain.

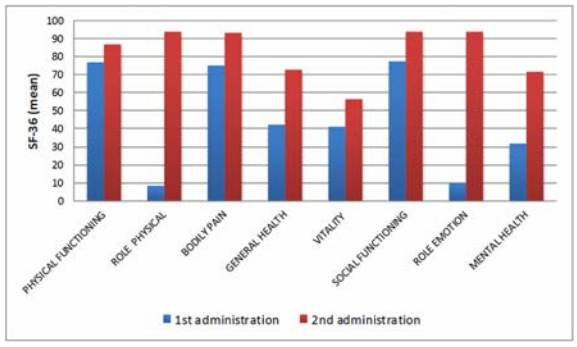

Fig. 3 Breast pain and quality of life (SF-36 version 2).

The second administration was done 6-12 month later. The respondents to the second follow-up were 80 from 105; 76 percent. The patient having breast pain improved from 22.5 percent without breast pain with only 5 percent still having severe breast pain. Moreover, 17.5 percent of patients had no recurrent breast pain (Table 3). There were also improvements in daily life activity since pain disturbed working in only 3.8 percent of the cases and disturbed sleeping in only 6.3 percent. When comparing the first and second quality of life assessments, they showed statistical improvement in all modules ($p<0.005$) (Fig. 3). All patients were advised to modify their life style, but only 41.3 percent of patients followed the instruction. Thirty-one patient of 105 needed medication such as analgesics for breast pain. Mammogram and breast ultrasound were performed in 46.7 percent of which 2 patients had suspicious lesion. Tissue diagnoses were done in fifteen patients and no malignancy was found. In the second follow-up, no patient was detected with breast cancer.

Discussion

This study aimed to identify characteristics, natural history and associated factors of mastalgia in Thai women. Median age of the patients in the study was 41 years old and 72 percent were pre-menopause. Seventy percent of patient had cyclic breast pain and mean age was 38.3 year-olds, while the non-cyclic breast pain patients were older than cyclic breast pain group. The results were comparable to reports from Scurr J, et al[17] and Carmichael AR, et al[7] which found that two-third of mastalgia patients were related to menstruation. Seventy-seven percents of patients also experienced premenstrual syndrome similar to report from Tavaf-Motamen H, et al[18]. The characters of pain in both groups were similar since the patients mostly felt breast tenderness and experienced pain once a month. Most of patients felt pain suddenly then the pain disappeared. The pain was located at the outer part of the breast.

Table 2. Relation of mastalgia to associated factors and quality of life

	Mild mastalgia (n = 76)		Severe mastalgia (n = 29)		Odd ratio (95% CI)	*p*-value
	n	Percent	n	Percent		
Age (mean)	52.78		53.59			0.903
Cyclic mastalgia						
No	20	26.3	11	37.9		0.243
Yes	56	73.7	18	62.1		
BMI (mean ± SD)	22.8±3.8		24.7±5			0.070
Caffeine (glass/week) (median (min, max))	7 (0,28)		5 (0,21)			0.526
Food component (percent/week) (median (min, max))						
Meat	15 (0,70)		10 (5,30)			0.046
Fat	10 (0,70)		10 (0,50)			0.364
Breast pain disturbance to daily life						
Work	15	19.7	17	58.6	5.761 (2.27, 14.6)	<0.001
Sleep	20	26.3	23	79.3	10.730 (3.8, 30.16)	<0.001
Sexual activity	7	9.2	7	24.1		0.570
Entertainment	13	17.1	11	37.9	2.960 (1.13, 7.7)	0.023
Thai GHQ-30						
Normal	61	80.3	19	65.5		0.113
Abnormal	15	19.7	10	34.5		
Quality of life (SF-36) (mean ± SD)						
Physical functioning	78.68±21.4		77.24±18.5			0.426
Role-physical	9.13±20		11.85±18			0.296
Bodily pain	77.63±15.3		64.10±21.4			0.004
General health	41.24±14.2		40.60±17			0.880
Vitality	41.28±21.2		43.10±18.7			0.590
Social functioning	84.50±22.2		64.60±26.5			<0.001
Role emotion	11.40±22.3		10.60±16.1			0.860
Mental health	29.80±14.5		38.70±17.6			0.024

The characteristics and location of breast pain in our study differed from other studies[7,17,19]. Evidences of dietary intervention for mastalgia relief were established. Lower dietary fat intake showed less breast pain were reported from Goodwin PJ, et al[20] and Prentice R, et al[21]. Nevertheless, the evidence was still insufficient and inconclusive[22]. Minton JP, et al[8] firstly proposed association between benign breast disease such as pain and nodularity with caffeine intake. However, subsequent clinical trials failed to point out this association. Ernster E, et al[10] conducted the trial comparing two dietary groups with or without methylxanthines. Although breast nodularity was less in the free-methylxanthine group, it was statistically significant; there was no clinically significant change. Results from a factorial trial by Parazzini F, et al[23] also supported the notion that abstention from methylxanthines had not reduced signs and/or symptoms from fibrocystic change of the breast. The presented results were also relevant to outcomes from international studies. There were no associations with BMI, caffeine or high-fat food intake when comparing mild and severe mastalgia, but severe mastalgia revealed a percent of meat in daily intakes more than in mild mastalgia. Since caffeine and high-fat diet were not normally included in Thai food, they may have a minimal effect on breast pain in Thai women.

The study also found that severe mastalgia had disturbed daily activity such as working, sleeping and entertaining but had minimal effect on sexual

Table 3. Breast pain and quality of life in first and second visit

Administration	First (n = 80) (percent)	Second (n = 80) (percent)	*p*-value
Breast pain			
No	0	18 (22.50)	
Mild	60 (75.00)	58 (72.50)	
Severe	20 (25.00)	4 (5.00)	
Frequency of breast pain (per month)			
No	0	14 (17.50)	
Once	28 (35.00)	30 (37.50)	
More than once	52 (65.00)	36 (45.00)	
Life style modification		33 (41.30)	
Breast pain disturbance to daily life			
Work	24 (30.00)	3 (3.80)	
Sleep	31 (38.80)	5 (6.30)	
Sexual activity	12 (15.00)	2 (2.50)	
Entertainment	19 (23.80)	5 (6.30)	
Thai GHQ-30			
Normal	62 (77.50)	80 (100)	
Abnormal	18 (22.50)	0	
Quality of life (SF-36) (mean $\pm$ SD)			
Physical functioning	77.22 (20.73)	87.01 (22.55)	0.005
Role-physical	8.59 (15.15)	93.82 (20.31)	<0.001
Bodily pain	75.00 (17.50)	93.18 (12.42)	<0.001
General health	42.55 (20.41)	73.03 (19.79)	<0.001
Vitality	41.17 (15.29)	56.44 (14.63)	<0.001
Social functioning	77.34 (25.32)	93.90 (10.89)	<0.001
Role emotion	10.21 (16.61)	93.85 (17.67)	<0.001
Mental health	31.75 (15.61)	71.68 (14.94)	<0.001

activity. Regarding to mental health status and quality of life in patient with breast pain, the present study found that mental health was no different between mild and sever mastalgia and was in the normal range. In contrast, severe mastalgia affected patients' quality of life in bodily pain, social function and mental health modules different results from our study, Scurr J, et al[17] and Carmichael AR, et al[7] found that breast pain effected mostly sexual activity 41 and 30 percents, respectively. However, different culture and lifestyle from westerners may limit discussion and data about sexual activity among Thais.

At the second visit, breast pain improved in 22.5 percent of patients and 17.5 percent had no recurrent breast pain. Influences of breast pain on daily activities also lessened compared to first visits. Both mental health and quality of life were improved. Davies EL, et al[24] also reported that pain resolved in 43% and 20% in cyclic and non-cyclic mastalgia. Since only 29 percent of patients required medication, this may suggest spontaneous breast pain resolution in majority of patients.

Because this study was descriptive study, the study had insufficient data to interpret the clinical course and outcome of treatment for mastalgia patient over lifetime. The study aimed to identify the characteristic and associated factors in breast pain patients which could be identified from descriptive data. Moreover, as the populations in our study were mastalgia patients, the associated factors could be compared between mild and severe mastalgia patients. More study was necessary to identify the risk factors between normal and mastalgia patients.

Conclusion

Our study demonstrated the characteristic of breast pain and associated factors in Thai women. Severe breast pain disturbed patients' daily activities and quality of life compared with mild mastalgia. However, the symptoms and quality of life had

improved within 6-12 months. The results are generalizable to other Southeast-Asian countries which share similar cultural norms, and lifestyles to those examined in our study. Furthermore, our findings make a clear understanding for clinicians in treatment of breast pain in Thai patients.

What is already known on this topic ?

The previous results about mastalgia mostly performed on westerners since the etiology of disease possessed multi-factors and related to culture, lifestyle and race which differed with Thais.

What this study adds ?

The presented study reported the characteristics, natural history and associated factors about mastalgia in Thai women. The results will provide more understanding and information in caring of mastalgia patient in Thailand.

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Potential conflicts of interest

None.

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อาการเจ็บเต้านม: ลักษณะและปัจจัยที่เกี่ยวข้องในสตรีไทย

ดลฤดี สองทิศ, ปริญญา อัครานุรักษ์กุล

วัตถุประสงค์: *ศึกษาลักษณะอาการทางคลินิก การดำเนินโรคความรุนแรงและปัจจัยที่เกี่ยวข้องในสตรีไทยที่มีอาการเจ็บเต้านม*

วัสดุและวิธีการ: *การเก็บข้อมูลโดยใช้การสัมภาษณ์สตรีไทยที่ได้รับการวินิจฉัยว่ามีอาการเจ็บเต้านมจำนวน 105 คน และมารับการตรวจ ณ โรงพยาบาลศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี โดยเก็บข้อมูลส่วนตัวด้านสังคมและเศรษฐานะ อาการและอาการแสดงของการเจ็บเต้านม ปัจจัยที่เกี่ยวข้อง และข้อมูลการประเมินสุขภาพจิต และการประเมินคุณภาพชีวิต เมื่อเริ่มแรกและเมื่อติดตามอาการเป็นเวลา 6-12 เดือน*

ผลการศึกษา: *สตรีไทย 105 คน ที่มารับการตรวจด้วยอาการเจ็บเต้านมร้อยละ 70 มีอาการเจ็บที่สัมพันธ์กับประจำเดือน อาการเจ็บเต้านมที่สัมพันธ์และไม่สัมพันธ์กับประจำเดือนมีลักษณะอาการเจ็บ ความรุนแรงและตำแหน่งที่คล้ายกัน ไม่พบความแตกต่างทางสถิติในการกินอาหารที่มีคาเฟอีนและไขมันสูงในผู้ป่วยที่มีอาการเจ็บเต้านมเล็กน้อยและรุนแรง ผู้ป่วยที่มีอาการเจ็บเต้านมรุนแรงคิดเป็นร้อยละ 27.6 ในผู้ป่วยกลุ่มนี้ อาการเจ็บมีผลกระทบต่อการทำงาน การนอน การหาความบันเทิงในชีวิตประจำวัน ถึงแม้ว่าอาการเจ็บเต้านมไม่มีความสัมพันธ์กับความสัมพันธ์กับสุขภาพจิตแต่มีผลต่อคุณภาพชีวิตด้านร่างกาย สังคมและความมีชีวิตชีวา ผู้ป่วย 80 คนที่มาติดตามอาการที่ระยะเวลา 6-12 เดือน พบว่าอาการเจ็บเต้านมลดลงทั้งความรุนแรงและความถี่ โดยคุณภาพชีวิตและสุขภาพจิต ระหว่างสองช่วงเวลาดีขึ้นอย่างมีนัยสำคัญทางสถิติ*

สรุป: *ผลการศึกษาพบว่าสตรีไทยที่มีอาการเจ็บเต้านมส่วนใหญ่มีอาการสัมพันธ์กับประจำเดือน ปัจจัยด้านอาหารมีผลไม่ชัดเจนต่อรุนแรงของอาการเจ็บเต้านมและอาการเจ็บเต้านมที่รุนแรงมีผลต่อการใช้ชีวิตประจำวันและคุณภาพชีวิต*