Breast Pain

BBSG – Brazilian Breast Study Group

Breast pain or mastalgia is a frequent complaint among women and may interfere directly with the emotional, social, and professional life. It brings anguish and anxiety because women frequently related it to breast cancer.

Epidemiology

Breast cancer is poorly associated with mastalgia (0.8% to 2% of cases), usually appearing as an acyclic and persistent and focal pain in the breast. Epidemiological data show that approximately 65–70% of women will present mastalgia at some stage of life, being more common in early adolescence and during menacme, with subsequent premenopausal attenuation and disappearance during gestations and postmenopausal period. It can be divided into cyclic, when related to the menstrual cycle, or acyclic, when attributed to a non-hormonal causes.

Anamnesis should assess the onset; duration; location; intensity; triggering, relieving, aggravating, or associated factors; and, especially, relation to the menstrual cycle. The psychological condition of the patient must also be perceived in order to exclude any association with psychosomatic origin.

During the physical examination, the chest wall should be carefully examined in order to exclude extramammary causes (Table 1). The palpation of the costal arches, as well as joints, are fundamental for the diagnosis of osteochondritis.

BBSG – Brazilian Breast Study Group (✉)
BBSC, Sao Paulo, SP, Brazil

G. Novita et al. (eds.), *Breast Diseases*,
https://doi.org/10.1007/978-3-030-13636-9_13

Table 1 Causes of extramammary pain

Muscular pain
Costochondritis (Tietze syndrome)
Intercostal neuritis
Scapular bursitis
Cervical radiculopathy
Chest wall trauma/rib fracture
Herpes zoster
Pericarditis
Gastroesophageal reflux
Peptic ulcer
Coronary diseases

Pathophysiology of Cyclic Mastalgia

The pathophysiology is not completely understood, but it may be related to an imbalance in the E/P ratio at the end of the second phase of the menstrual cycle. This imbalance occurs at the central level (dopaminergic system) and it may lead to increased prolactin release. Also, excessive stress, which releases endogenous opioids (serotonin) reducing dopamine, facilitates the release of prolactin, which may justify the consequent increase in breast tissue sensitivity.

Clinical Presentation of Cyclic Mastalgia

Women with cyclic mastalgia will have pain often associated with pre-menstrual or periovulatory breast swelling with remission of symptoms after menstruation. In more severe cases, pain may persist throughout the menstrual cycle. It affects both breasts, being more common in the superolateral quadrant, usually in stabbing and of acute manifestation.

Etiology of Cyclic Mastalgia

There are several causes of cyclic mastalgia, as listed below in Table 2.

Clinical Presentation of Non-cyclic Mastalgia

Non-cyclic mastalgia presents discomfort usually located at one point of the breast, but it can radiate to the armpit, the arm, the shoulder, and the hand. The primary factor is nonconformity with the menstrual cycle.

Table 2 Causes of cyclic mastalgia

Breast hypertrophy
Macrocysts
Thrombophlebitis (Mondor syndrome)
Previous breast surgery
Ductal ectasia
Mastitis
Trauma
Pregnancy
Large nodules
Medication
Cancer

Propedeutics

Clinical evaluation is usually sufficient to elucidate the condition. Breast Image present limited value and should be restricted to patients requiring screening or suspected focal lesions, but exclusion of breast neoplasm is essential in the investigation of breast pain. In cases of suspected extramammary pain, specific examinations may be required to evaluate other organs or regions of the body.

Treatment

After excluding the presence of neoplasia, the main treatment is reassurance. Simple information about the self-limiting nature of the symptom and also about the lack of relation with breast cancer is enough to reassure 85% to 90% of the women. There are behavioral measures that are not proven but are reported as beneficial and harmless: the use of sports bra, fat-free diet, and physical exercise are the most notable ones. Other drugs have efficacy in the treatment of pain but are not specific for mastalgia, such as anti-inflammatories and analgesics in general, but prolonged use is at risk of side effects. Topical anti-inflammatory drugs in gel form have satisfactory results and fewer side effects and may be an alternative to musculoskeletal pain. Anxiolytic medications or antidepressants have a global effect on pain relief and treat cases that may exacerbate it. Unfortunately, there are no randomized trials evaluating mastalgia response to these medications (Table 3).

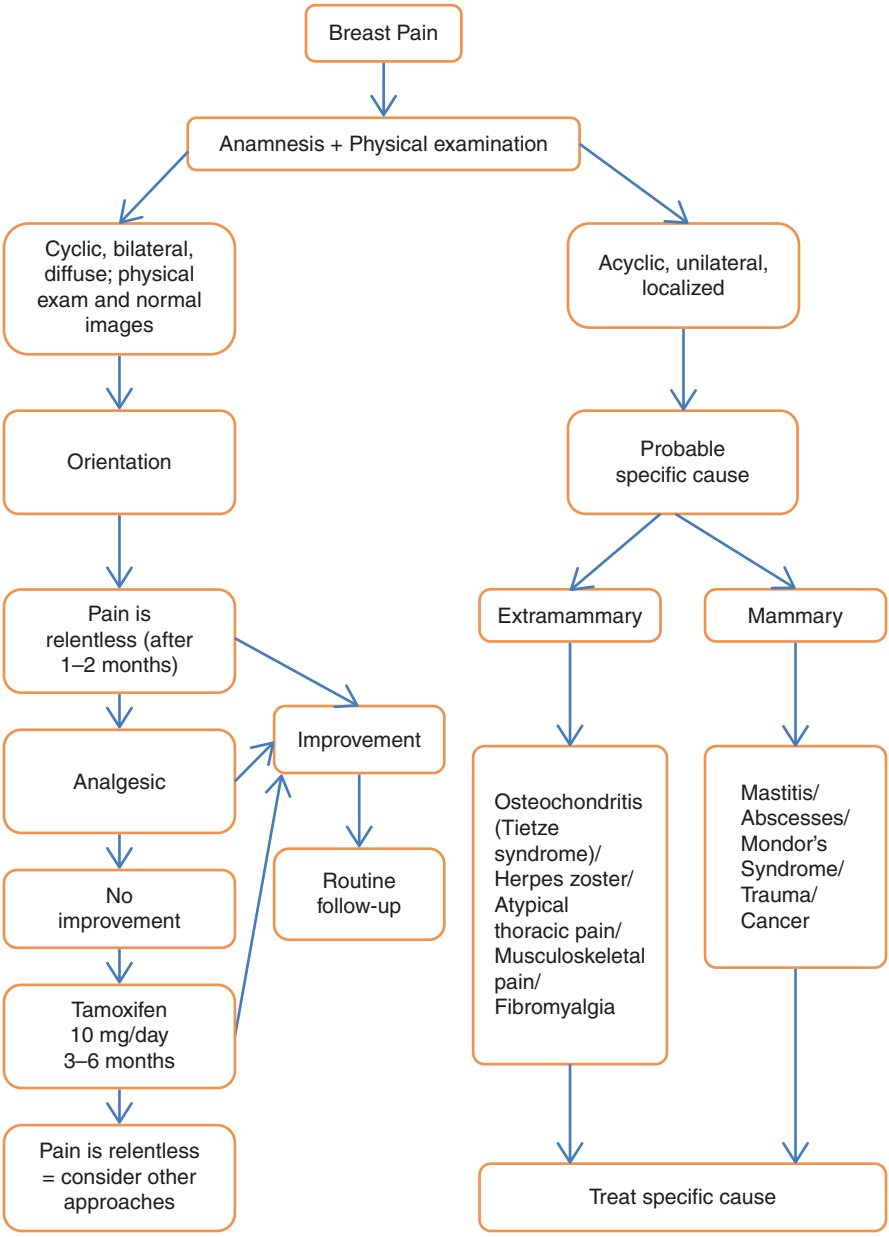
As patients have high response to reassurance, any drug, even placebo, appears to have high success rates. Unfortunately, these drugs are widely used in clinical practice, leading to unnecessary cost and risk, and they include diuretics, a diet free of xanthine and progestogens. The pharmacological treatment of choice for cyclic mastalgia is hormonal blockade. Inhibitors of estrogen and prolactin act in the improvement of the condition, even in the absence of elevated levels of these hormones. Srivastava et al. performed a meta-analysis with the four drugs most commonly used

Table 3 Drugs that can potentially cause non-cyclic mastalgia

Hormone medications (estrogen, progesterone, clomiphene, cyproterone)
Antidepressants, anxiolytics, antipsychotics (sertraline, venlafaxine, amitriptyline, haloperidol)
Antihypertensive/cardiac (spironolactone, methyldopa, digoxin)
Antimicrobials (ketoconazole, metronidazole)
Miscellaneous (cimetidine, domperidone, cyclosporine)

in the treatment of breast pain: tamoxifen, danazol, bromocriptine, and primrose oil derivatives (herbal medicines with high gamma-oleic acid concentration), and although there were no studies using a good methodology, some conclusions were obtained: the results indicated that primrose oil, vitamins, or gamma-linoleic acid did not demonstrate efficacy in the treatment of mastalgia, whereas hormonal drugs presented positive results in relief of symptoms, with tamoxifen being the one with the least side effects at a dose of 10 mg per day, orally, for 3 to 6 months.

Flow Chart



Flowchart 1 Approach of patient with mastalgia

Recommended Reading

1. Gong C, et al. A double-blind randomized controlled trial of toremifen therapy for Mastalgia. Arch Surg. 2006;141:43–7. *Toremifen citrate has been shown to be effective in relieving the moderate and severe symptoms of cyclic mastalgia, in addition to improving non-cyclic breast pain. Its highest favorable point, relative to tamoxifen, is the lowest rate of side effects*
2. Goyal A, Mansel RE. A randomized multicenter study of gamolenic acid (Efamast) with and without antioxidant vitamins and minerals in the management of mastalgia. Breast J. 2005;11(1):41–7. *555 women with moderate to severe symptoms of cyclic mastalgia were randomized into four treatment groups: gamma-Linolenic acid and antioxidants, fatty acids and antioxidants, gamma-Linolenic acid and placebo, fatty acids and placebo. There was similar reduction of symptoms in the four groups. This study observed that the use of gamma-Linolenic acid did not differ in efficacy when compared to the use of placebos.*
3. Mansel R, Goyal A, Le Nestour E, Marsini-Etévé V, O'Connell K, Afimoxifene (4-OHT) Breast Pain Research Group. A phase II trial of Afimoxifene (4-hydroxytamoxifen gel) for cyclical mastalgia in premenopausal women. Breast Cancer Res Treat. 2007;106(3):389–97. *Afimoxifene is a new antiestrogenic agent with a unique metabolic effect, and with a significant reduction of the mammary symptomatology. An attractive characteristic it presents is decrease of the side effects in relation to tamoxifen, since it does not undergo metabolism of the first hepatic passage.*
4. Srivastava A, Mansel RE, Arvind N, Prasad K, Dhar A, Chabra A. Evidence-based management of Mastalgia: a meta-analysis of randomised trials. Breast. 2007;16:503–12. *Danazol, bromocriptine and tamoxifen are drugs that offer relative relief from the symptoms of mastalgia. No study compared the efficacy of the drugs to each other, but tamoxifen in small doses is the drug of choice. The use of gamma-Linolenic acid derivatives still lacks reliable studies.*