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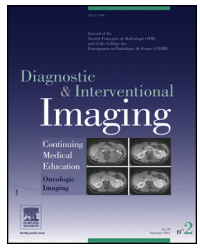

CONTINUING EDUCATION PROGRAM: FOCUS...

Breast pain and imaging

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Abstract Breast pain is a common reason for consultation and a source of anxiety for patients. Cyclical breast pain can be distinguished from non-cyclical pain and breast pain with other symptoms. Many causes, usually benign are possible and the clinical enquiry and physical examination are essential to establish predisposing factors. 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 adenofibromas or Mondor's thrombophlebitis. Ultrasound is the first line investigation before mammography, MRI or biopsy, which may be indicated for suspicious abnormalities. Some cancers may be associated with pain, which implies that radiologists and physicians should always take breast pain seriously.

Breast pain is a very common clinical symptom with many causes, usually functional, occasionally organic and most often benign. Imaging is not always required and patients should always be examined and a detailed clinical enquiry taken. The indication for radiological investigations is then based on the findings from the physical examination and enquiry. This article reviews the causes of breast pain and the role of imaging in this specific situation.

Breast pain: general details

Breast pain is a very common symptom, usually benign [1]. It is important to reassure patients, who are often concerned, although it is important not to fall into the trap of considering all breast pain harmless without at least examining patients. Practitioners should remember that breast pain may occasionally be associated with cancer.

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Boxed text 1: Non-breast causes of mastodynia.
- Costochondritis
- Tietze's syndrome
- Cervicarthrosis
- Myocardial ischemia
- Pneumonia
- Pleural irritation
- Oesophageal spasm
- Rib fracture
- Chest wall shingles

Clinical enquiry

Over 70% of women experience breast pain at least once in their lives [1]. The pain usually resolves spontaneously, but in some cases may persist and lead the patient to consult a doctor. The investigation of breast pain begins with a detailed clinical enquiry which should seek to establish firstly whether the pain parallels the menstrual cycle or is non-cyclical [2]. Predisposing medical factors such as a past history of injury, surgery or recent infections should be searched for. [3]. The clinical enquiry should not omit some medical drugs (antidepressants, methyldopa, spironolactone, for example), or smoking or excessive caffeine consumption which may cause mastodynia [1]. Non-breast causes should then finally be looked for (Boxed text 1).

The clinical enquiry should establish whether the pain is uni- or bilateral, whether it is diffuse or located in a specific region of the breast, whether it is superficial or deep and whether it irradiates to the chest wall.

It should also seek to establish whether the pain is associated with symptoms such as fever, a palpable mass, skin abnormalities or nipple retraction. Finally, patients should be asked whether their weight has changed significantly over the year (a gain or loss of over 5 kg), which also may be a cause of breast pain [1].

Clinical examination

Clinical examination should involve palpation of both breasts and axillary regions to look for palpable abnormalities, skin retraction or nipple discharge. Practitioners should be aware that the fact that a doctor has taken the breast pain seriously may already be reassuring and therapeutic for patients in some cases of stress-related mastodynia [4]. The skin on the arm and shoulder should be examined to see whether the patient has signs of an overly tight bra, or of carrying very heavy bags which may also cause mastodynia [1].

The patient should be examined for skin lesions such as shingles on the back or chest wall and for scarring.

Finally, in order to diagnose costochondritis, a common cause of breast pain, patients should be examined seated or lying down on their side, and an attempt should be made to mobilize the breast, palpating the chest wall at the same time. This diagnosis is made if pain is reproduced [5].

Imaging

Imaging investigations are usually not indicated, particularly in bilateral, cyclical asymptomatic pain. If symptoms, and particularly a palpable mass, are present, a minimum of a breast and axillary ultrasound should be performed, looking for radiological abnormalities. If the clinical examination is suspicious, mammography should be added.

Questions arise particularly in cases of persistent, unilateral, asymptomatic breast pain. Mammography is controversial as some studies show that it may reassure the patient, and others emphasize the fact that it is usually of no help [3]. In practical terms, it may nevertheless be prudent and wise to perform bilateral mammography for breast pain, even if asymptomatic, in a woman over 40 years old.

Causes

Cyclical mastodynia

Cyclical pain should be distinguished from non-cyclical pain. Cyclical mastodynia is the most common and accounts for 2/3 of cases of breast pain [6]. Typically the pain is bilateral and symmetrical, predominantly in the outer quadrants and increases during the luteal phase of the cycle. It can also be associated with stabbing feelings, heaviness or burning, which may also extend to the inner side of the arm. The pain tends to reduce after menstrual periods [6]. Cyclical pain disappears after the menopause. The cause of this pain has not been clearly established. Many patients with cyclical pain also have palpable abnormalities although there is no relationship between symptoms and any specific histology. Cyclical pain is due to hormonal changes during the menstrual cycle [1]. Women who have mastodynia do not have higher levels of hormones, but rather, are hypersensitive to hormonal changes. In addition, estrogen-progesterone imbalance causes fluid consequences in breast tissue which may worsen mastodynia.

Cyclical mastodynia is more common during a period of hormonal imbalance such as puberty, the peri-menopausal period, the first trimester of pregnancy or the days before milk arriving after childbirth [7].

Imaging investigations are of no help in typical cyclical pain in the absence of symptoms [8]; anyway, it is not always possible to reassure the patient or her general practitioner and bilateral breast ultrasound may be offered and should be normal in that case.

The treatment of cyclical mastodynia firstly involves reassuring patients, who are often particularly concerned. No treatment is usually required. If the pain is severe, lifestyle measures such as physical exercise (recognized to reduce mastodynia) or wearing an appropriate bra [7] can be recommended: some studies also recommend reducing caffeine intake or taking vitamin E supplementation [9] although this is controversial in other guidelines [7]. Oral evening primrose oil capsules or evening primrose oil massages are adjuvant therapies which have been shown to have some efficiency [4,10].

In refractory pain, endocrine treatments such as bromocriptine or tamoxifen may reduce mastodynia,