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Invasive Carcinoma of the Breast of the Nonspecific Type about 3 Cases

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Abstract **Case Report**

Breast cancer is the leading cancer in women worldwide, and the leading cause of cancer-related death in women. Invasive cancer accounts for over 90% of all histological types. The most common breast cancer (95%) is adenocarcinoma, which develops from the epithelial cells of the mammary gland. Infiltrating or invasive carcinoma includes the common infiltrating ductal carcinoma (IDC) (81%), IDC with a predominantly intraductal component (4%), infiltrating lobular carcinoma (10%), usually bilateral, and even rarer forms. Non-specific infiltrating carcinoma is the most common histological type of breast cancer, accounting for around 80% of all cancers, and its clinical and radiological presentation differs according to grade of differentiation. We report three cases of invasive breast carcinoma of the nonspecific type whose diagnosis was suspected by mammography and breast ultrasound and confirmed by anatomopathology of the three breast nodule biopsies and surgical specimens. All three patients were treated surgically by total mastectomy with homolateral axillary lymph node dissection and adjuvant chemotherapy and radiotherapy after a multidisciplinary coordination meeting.

Keywords: Invasive carcinoma of the breast of the nonspecific type, total mastectomy, axillary curage, chemotherapy, radiotherapy, anatomopathology, SBR grade.

INTRODUCTION

Breast cancer is the most frequently observed cancer and the leading cause of cancer-related death in women. Mammography screening reduces mortality [1, 2]. Adenocarcinoma is the most common breast cancer (95%), developing from the epithelial cells of the mammary gland. Infiltrating or invasive carcinoma is the most frequent histological type, especially infiltrating ductal carcinoma, and much rarer infiltrating lobular carcinoma. Non-specific infiltrating carcinoma is the most common histological type of breast cancer, accounting for around 80% of all breast cancers. Radical surgical treatment, i.e. total mastectomy with homolateral axillary lymph node dissection, has its place in the management of these invasive breast carcinomas.

CASE REPORTS

First Case Presentation:

88-year-old patient, hypertensive on treatment, two daughters followed for breast cancer, third daughter deceased for gastric cancer, presenting with a 6 cm-diameter nodule in the superior-internal quadrant (SIQ) of the left breast, budding with blood and pus discharge. Palpation of the axillary fossa revealed fixed homolateral axillary adenopathies. Mammography showed an irregularly contoured opacity in the SIQ of the left breast classified as ACR 5, with no microcalcifications. Mammary ultrasound showed a left breast SIQ tissue mass 5.31 cm in diameter with left axillary adenopathies, the largest of which measured 1.59x1.45 cm. Biopsy of the left breast revealed a non-specific grade 2 SBR infiltrating breast carcinoma with no peritumoral vascular emboli and no intraductal component. The extension work-up (chest X-ray and abdomino-pelvic ultrasound) found no abnormalities. Immunohistochemistry (IHC) found hormonal receptors (HR) positive, HER2 negative. Thoracic scanner showed a left breast mass with homolateral Adenopathies and no secondary distant localization. A total left mastectomy with homolateral axillary curage was performed. The operative specimen was sent for anatomopathological study, which showed a non-specific invasive carcinoma of the breast measuring 6.2 cm long, SBR grade 2 modified by Ellis and Elston, with an estimated 2%

micropapillary component, infiltrating the surrounding epidermis, presence of vascular emboli, absence of intracanal component, non-tumoral deep border located 1.4 cm from tumor, non-tumoral lateral surgical borders, tumoral nipple with epidermal infiltration and absence of Paget's disease, 2N+/10N axillary curage, pT4N1aMx.

The patient then underwent a medical oncology consultation and radiotherapy following the decision of the multidisciplinary concertation meeting (MCM).

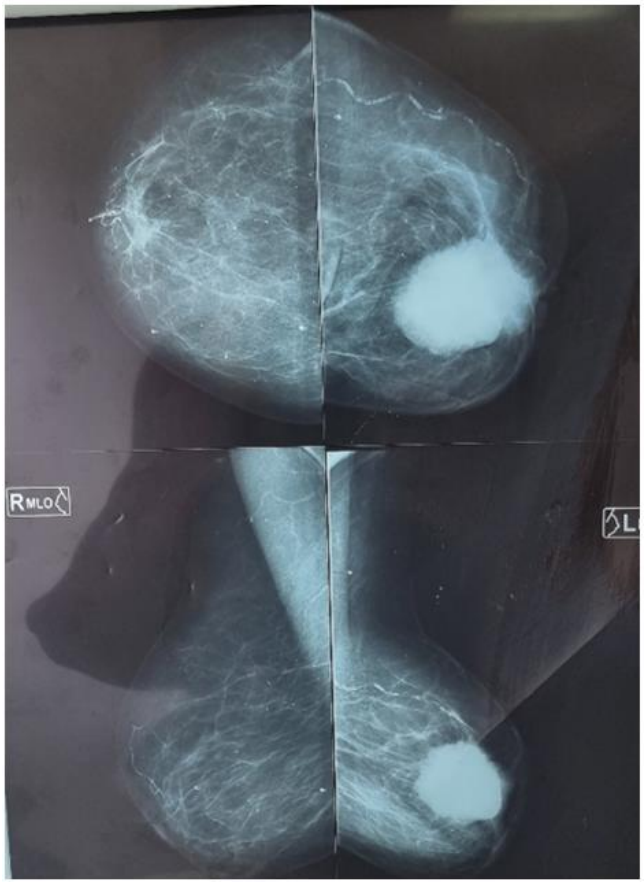

Figure 1: Mammography showing an irregularly contoured opacity in the upper-internal quadrant of the left breast graded ACR 5, no microcalcifications

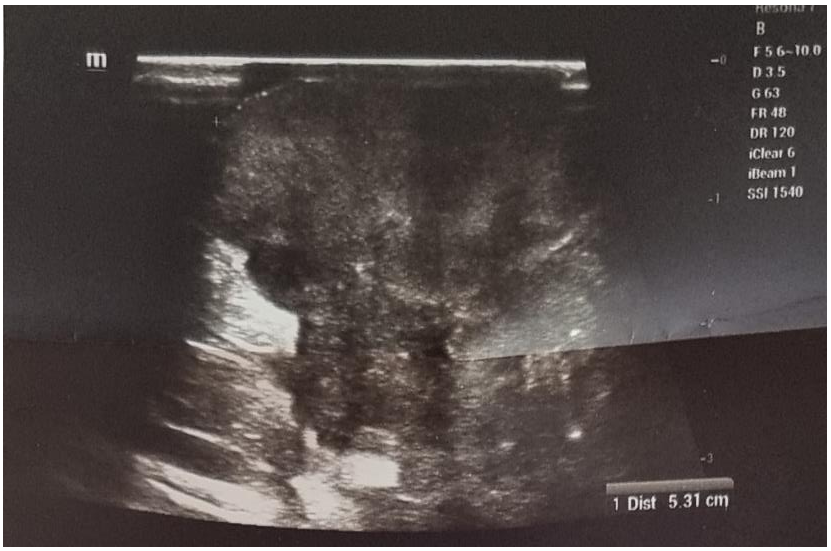

Figure 2: Breast ultrasound showing a tissue mass in the SIQ of the left breast measuring 5.31cm in diameter

Figure 3: Ultrasound scan of the left axillary fossa showing left axillary adenopathies, the largest measuring 1.59/1.45 cm.

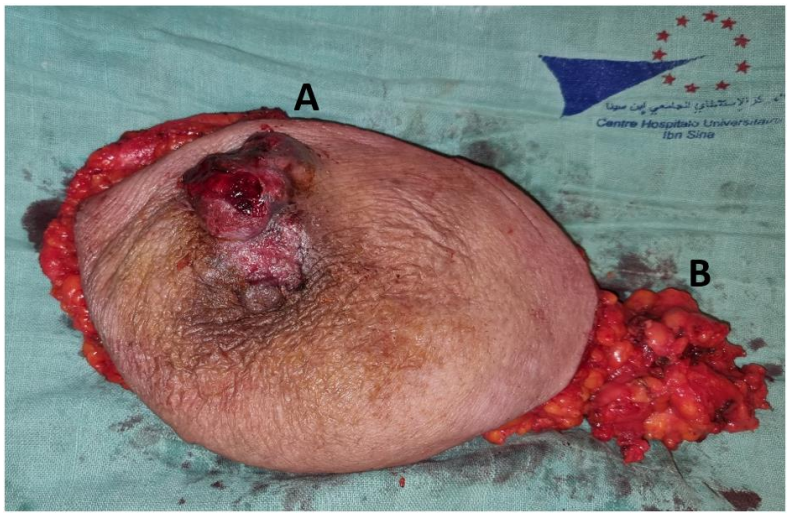

Figure 4: Left total mastectomy specimen (A) with left axillary curage (B) sent for anatomopathological study

Presentation of the Second Case:

A 47-year-old female, with no previous history, presented with a right breast nodule. Clinical examination revealed a 3x2 cm nodule in the lower external quadrant of the right breast ; mammography showed a bilobed opacity at the junction of the upper and lower quadrants of the right breast, with evenly contoured calcifications in the superior-external quadrant of the left breast. Breast ultrasound showed a hypoechogenic nodule in the lower external quadrant of the right breast, 2,7x2,4 cm in size, 1,2 cm from the skin surface, with three nodes in the right axillary fossa and two nodes in the left axillary fossa, ranging from 0,82 to 1,04 cm.Biopsy of the right breast nodule showed a non-specific infiltrating breast carcinoma of SBR grade 3 modified by Ellis and Elston, no intra-canal or intra-lobular component, no vascular emboli, HR+, HER2-, Ki67 estimated at 60%. Thoraco-abdomino-pelvic scanner (TAP) showed right intramammary masses measuring 2.7x3x3 cm and 1,2x1,7 cm, with other small nodules in the lower quadrants which are infracentimetric, associated with homolateral axillary adenopathies. There were no bone localizations on scintigraphy.

The patient underwent a right total mastectomy with homolateral axillary curage, the operative specimen was sent for anatomopathological study which showed a double focus of an invasive carcinoma of the breast of non-specific type measuring 3, 5x3 cm long axis, SBR grade 3 modified by Ellis and Elston, no intra-canal or intra-lobular component, presence of vascular emboli, non-tumoral lateral and deep surgical margins, 4N+/11N axillary curage, pT2N2aMx.

The MCM decision was to start the patient on chemotherapy (CMT) and radiotherapy (RTH).

Figure 5: Mammography showing a bilobed opacity at the junction of the upper and lower quadrants of the right breast, with evenly contoured calcifications in the superior-external quadrant of the left breast

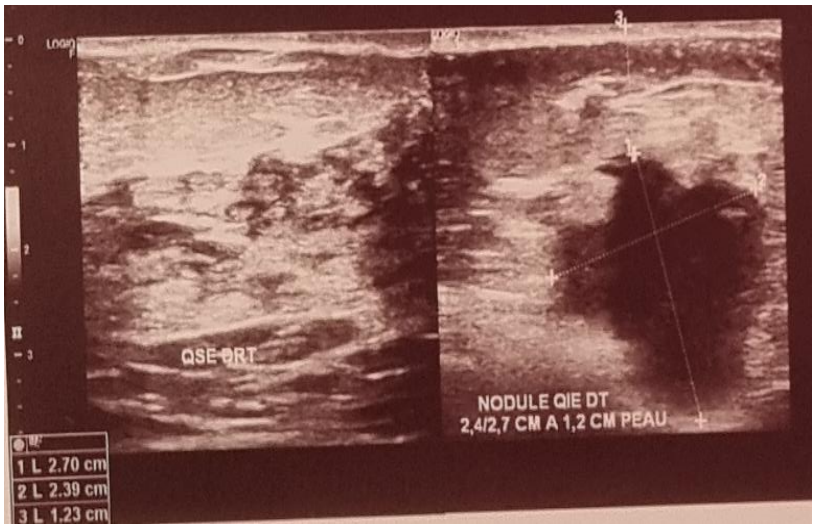

Figure 6: Breast ultrasound showing a hypoechogenic nodule in the lower external quadrant of the right breast, 2,7x2,4 cm in size, 1,2 cm from the skin surface

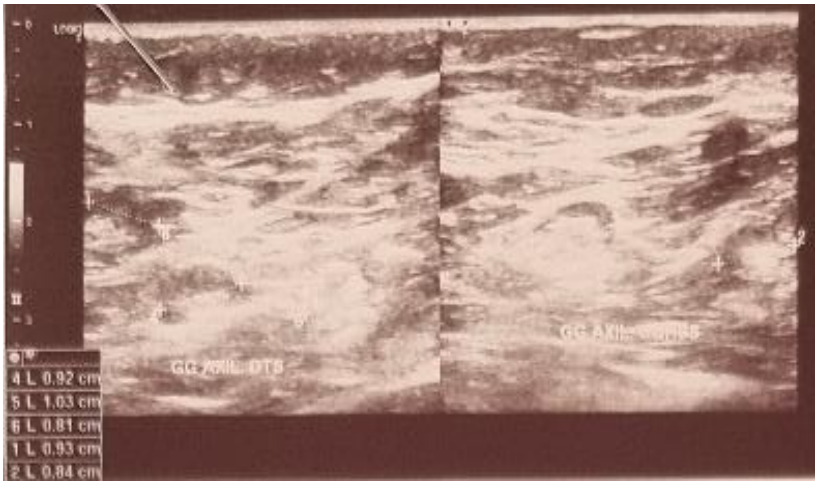

Figure 7: Ultrasound showing three nodes in the right axillary fossa, and two nodes in the left axillary fossa, ranging from 0,82 to 1,04 cm.

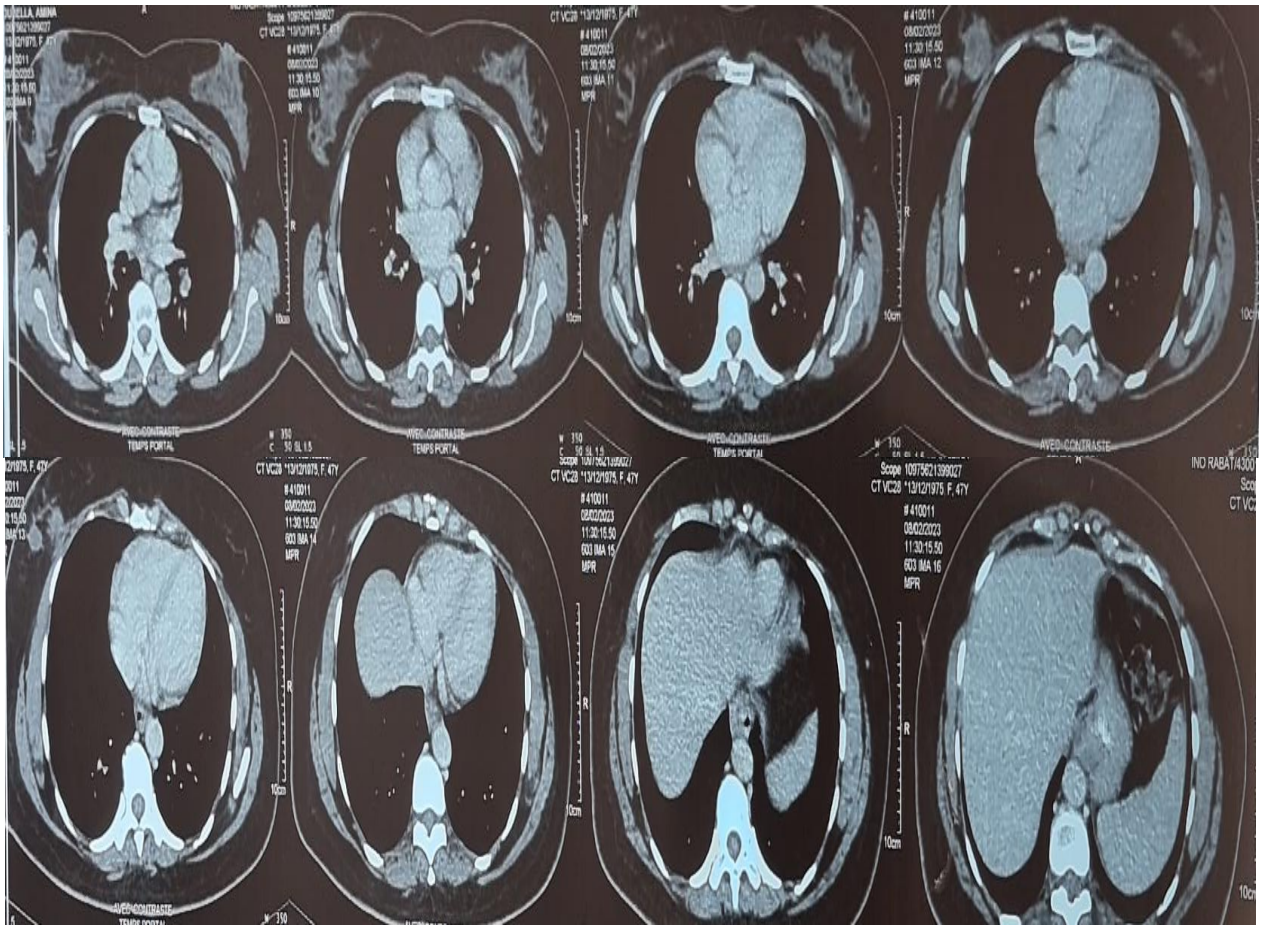

Figure 8: TAP scanner showing right intramammary masses measuring 2,7x3x3cm and 1,2x1,7cm with other small nodules in the lower quadrants which are infracentimetric, associated with homolateral axillary adenopathies.

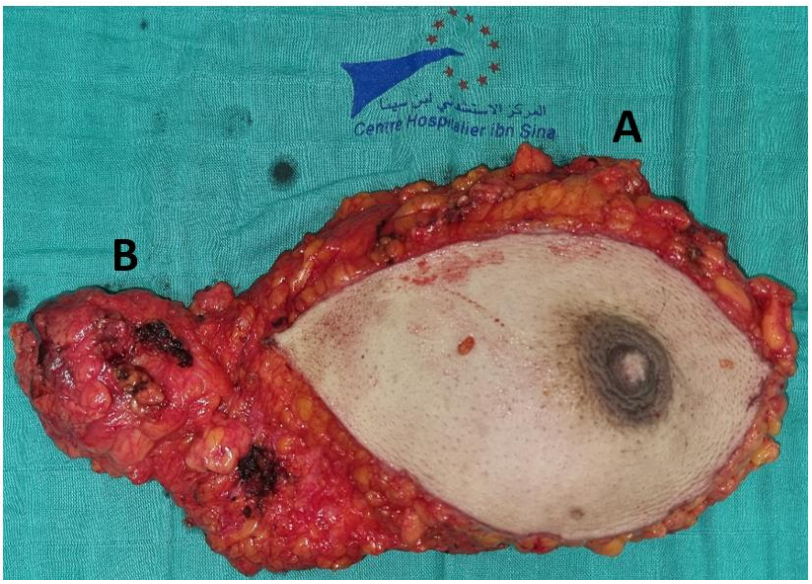

Figure 9: Right total mastectomy specimen (A) with right axillary curage (B) sent for anatomopathological study

Presentation of the Third Case:

Patient aged 57, followed for 7 years for invasive ductal carcinoma of the left breast HR+, HER2-, for which she underwent total left mastectomy with homolateral axillary curage without adjuvant CMT or RTH, tamoxifen taken for 5 years stopped one year ago. Examination of the right breast revealed a 4x3 cm retroareolar mass. Ultrasound and mammography showed a right breast retroareolar mass classified as ACR Birads 4B, with suspicious-looking right axillary

adenopathy, and no lesion opposite the left mastectomy scar. Biopsy of right breast nodule shows invasive carcinoma of non-specific SBR grade 3, IHC shows HER2+, HR-. TAP scanner showed a right breast lesional process with homolateral axillary adenopathies, multiple lytic lesions involving the entire skeleton. There were no secondary bone localizations on scintigraphy. The patient underwent neoadjuvant CMT, followed by right total mastectomy with homolateral axillary curage. The surgical specimen was sent for anatomopathological study, showing absence of tumour residue, non-atypical fibrocystic mastopathy, absence of vascular emboli, non-tumourous lateral and deep surgical margins, 10N-/10N axillary curage, post-therapy histopathological response: Sataloff: TA NA, Chevallier: grade 1, RCB-0 (pCR).

The MCM decision is to prescribe adjuvant medical treatment with HBRT for the patient.

Figure 9: Right breast retroareolar mass, left total mastectomy scar

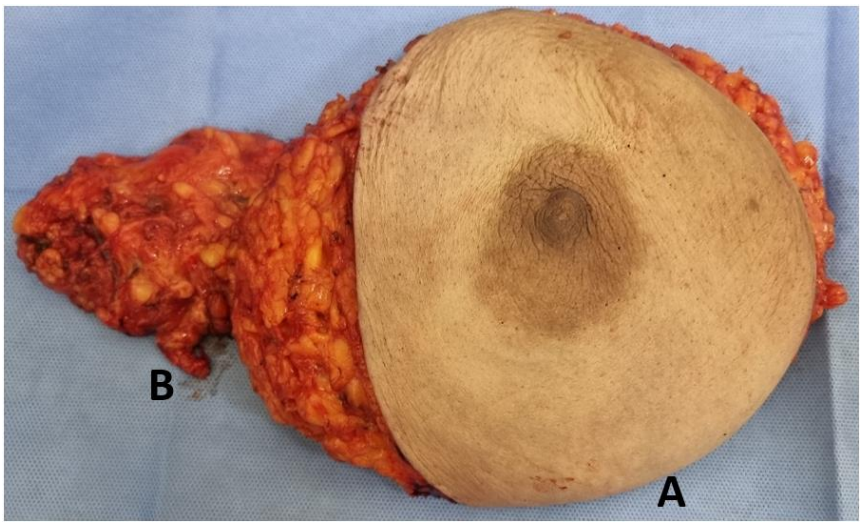

Figure 10: Right total mastectomy specimen (A) with right axillary curage (B) sent for anatomopathological study

DISCUSSION

Breast cancer is a malignant tumor that develops in the breast. There are different types of breast cancer, depending on the cells from which they develop.

Breast cancer is the most common cancer worldwide, rising from 1.7 million incident cases in 2012 to over 2.4 million diagnosed cases in 2018 [3]. Currently, breast cancer represents the leading cancer in women worldwide, dominated by invasive cancer, which accounts for more than 90% of all its histological types [4].

The most common type of breast cancer is adenocarcinoma (95%), which develops from the epithelial cells of the mammary gland, most often arising from ductal cells and more rarely from lobular cells.

Infiltrating carcinoma is to be distinguished from carcinoma in situ: when cancer cells have infiltrated the tissue surrounding the ducts and lobules, we speak of infiltrating carcinoma, which can spread to the lymph nodes or to other parts of the body (metastasis). The lymph nodes most often affected are the axillary nodes.

Infiltrating or invasive carcinoma includes the common infiltrating ductal carcinoma (IDC), which is

the most common form (81%), IDC with a predominantly intraductal component (4%), infiltrating lobular carcinoma (10%), which is usually bilateral, and special forms such as mucinous or colloid carcinoma (1%), of elderly women, medullary, tubular, cystic adenoid or cylindroma, with a good prognosis, very rare papillary, apocrine, juvenile secreting carcinoma.

Infiltrating ductal carcinoma, also known as invasive ductal carcinoma or ductal adenocarcinoma, is the most common type of Infiltrating breast cancer, originating in the breast ducts, crossing their walls and invading neighboring breast tissue.

Mammography screening for breast cancer has become an essential link in the chain of care, enabling earlier diagnosis and thus reducing the number of radical surgical treatments and adjuvant therapy used, with an increase in recurrence-free survival and overall survival.

Breast cancers are typically described as stellate, irregularly contoured, attenuating masses on ultrasound. This is because infiltrating carcinomas of the non-specific type are the most common cancers (80%), and most often appear on imaging as spiculated masses with irregular contours.

For the diagnosis of invasive carcinoma, the conclusion of the histopathological report must include at least: The histological type of invasive carcinoma according to the WHO classification of breast tumors in force, The grading of invasive carcinoma SBR modified according to Elston-Ellis, The presence or absence of an associated significant carcinoma in situ component, its nuclear grade and architecture, Presence of lympho-vascular emboli, Hormone receptor status, HER2 status (if HER2 is estimated to be 2+, HER2 gene amplification testing should be performed), Ki67 may be performed routinely or at the oncologist's request.

Invasive ductal carcinoma can be metastatic. In this case, secondary lesions are found at a distance from the initial tumour site, in other parts of the human body. The appearance of infiltrating ductal carcinoma cancer cells can take many forms. When analyzed in the pathology laboratory, IDC may be papillary, mucinous, medullary, tubular, infiltrating with no other indication or of a nonspecific type, squirrelly, or with predominantly intra-canal infiltrating.

Nonspecific infiltrating carcinoma is the most common histological type of breast cancer, accounting for around 80% of all cancers [5], and its clinical and radiological presentation differs according to grade of differentiation. Grade 3 infiltrating carcinoma can present a misleading “pseudo-benign” appearance on imaging.

The Scarff Bloom and Richardson (SBR) histoprognostic grade establishes tumor prognostic criteria based on three types of parameters: the degree of tubulo-glandular dedifferentiation, nuclear irregularity and mitotic activity, enabling grading of the tumor into three grades from 1 to 3, classifying the patient from low metastatic risk (grade 1) to increased risk (grade 3).

Infiltrating lobular carcinoma (ILC) of the breast accounts for 5-15% of all breast cancers [4, 6], and is the second most common histological type after non-specific infiltrating carcinoma. Its incidence is rising sharply [7]. This increase seems to be linked to the frequent use of hormone replacement therapy after the menopause, which may multiply the risk of developing this condition by a factor of 2 to 3, and to a much greater extent than for non-specific infiltrating carcinoma [8]. Oral contraception and alcohol consumption may also increase the risk of lobular cancer [9, 10]. ILC is often associated with multifocal, bilateral breast involvement. It metastasizes preferentially to serous tissue, particularly the peritoneum. Patients are generally in a relatively advanced stage at the time of diagnosis. Therapeutic management and prognosis, however, are virtually identical to those of non-specific infiltrating carcinoma. Given the frequency of hormone receptors in the tumor mass, hormonotherapy is an essential part of the therapeutic arsenal.

Treatment of non-specific invasive carcinoma of the breast includes conservative or radical surgery with total mastectomy, axillary lymph node surgery (including sentinel lymph node surgery or homolateral axillary node curage), CMT, RTH and hormonotherapy, depending on the case.

The treatment of breast cancer, which used to be radical, is becoming increasingly conservative, in order to ensure the best aesthetic and functional results, while remaining satisfactory from a carcinological point of view: to achieve this, a precise assessment of locoregional extension is necessary. This assessment is classically based on the clinical-mammography-ultrasound triplet, which is systematically implemented.

Assessing the size of the lesion has a dual impact: firstly, its size determines the type of surgical treatment [11]: conservative treatment for tumours of less than 3 cm or even more, depending on the size of the breast, and mastectomy beyond that, possibly preceded by neoadjuvant chemotherapy; secondly, assessing the exact limits of the lesion helps to ensure the presence of healthy margins, and to avoid surgical revision that would be detrimental to the patient.

In a dense breast, the size of the lesion is more difficult to assess on mammography, especially if it is an architectural distortion. Ultrasound will sometimes not find the lesion, and MRI will assess its exact size.

Several studies have shown that the size of infiltrating lobular carcinomas is underestimated on

mammography due to a weak or absent stroma-reaction. Takehara showed that revision surgery for margin damage occurred more frequently in the case of infiltrating lobular carcinoma [12]. A study correlating histological size with that assessed by mammography, ultrasound and MRI showed a clear superiority of MRI [13].

In the absence of microcalcifications, the intracanal component is difficult to detect on conventional imaging, and MRI can show this extension, sometimes at a distance from the infiltrating lesion. This intracanal extension is reflected on MRI by linear or segmental contrast.

Studies comparing the performance of mammography and MRI in carcinomas with an intracanal component have shown that, while mammography has a specificity of 100% in determining the intracanal component, its sensitivity is lower than that of MRI, which provides a better assessment of intracanal extension, helping to avoid repeat surgery for unhealthy recuts [14, 15].

The decision to undergo mastectomy should not be made on the basis of MRI data alone, but after biopsy investigation of additional lesions discovered on MRI [16].

In our three patients, the diagnosis of non-specific invasive carcinoma was confirmed by biopsy, with two cases of grade 3 SBR and one case of grade 2, with no distant metastases. All three patients underwent total mastectomy with homolateral axillary node curage and adjuvant treatment with CMT and RTH.

CONCLUSION

Breast cancer remains a public health problem worldwide, especially in developing countries. Screening is based on mammography. Diagnosis is based on clinical and complementary examinations, and confirmed by anatomopathological study. Invasive carcinoma is most often ductal, more rarely lobular. Non-specific invasive breast carcinoma is the most frequent histological type. Treatment depends on how early the diagnosis is made. Total mastectomy with homolateral axillary lymph node dissection is an appropriate surgical treatment for these invasive cancers, especially in cases of SBR grade 2 or 3, as described in our three patients, with neo-adjuvant and/or adjuvant treatment as appropriate.

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