INTRODUCTION

Inflammatory breast cancer (IBC) is a rare and aggressive form of breast cancer that is characterized by rapid progression, younger age of onset, and poor prognosis [1]. Its diagnosis is based on clinical, radiological and histological findings. One limitation to establishing the diagnosis is a poor sensitivity of a test with high negative predictive value. In this paper, we report the case of a rapid growing IBC where two imaging techniques failed at establishing the diagnosis.

Keywords : inflammatory breast cancer, kinetics, screening

CASE PRESENTATION

A 42-year-old premenopausal woman, without notable personal or family history of neoplastic disease, presented to us in April 2014 for her annual breast cancer screening. Clinical exam was normal. Bilateral breast mammogram and US demonstrated multiple well-defined, thin wall cysts without evidence of malignancy classified as BIRADS 2 (Fig. 1 & 2). Six weeks later, the patient presented for cutaneous thickening of the left breast and development of an asymptomatic axillary mass. Her clinical exam was within normal limits, with bilateral benign calcifications without any suspicious opacity, microcalcification or cutaneous abnormality.

ABSTRACT • Inflammatory breast cancer (IBC) is a rare and aggressive form of breast cancer that is characterized by rapid progression, younger age of onset, and poor prognosis [1]. Its diagnosis is based on clinical, radiological and histological findings. Clinically, IBC presents with enlarged erythematous breast lesions.

This presentation mimics a wide variety of diseases where radiological aid is fundamental. In the particular case of IBC, the growth rate of the tumor highly affects the radiological detection level of the lesion. Subsequently, the sensitivity of the imaging test is affected by the doubling time and fractions of the proliferating cells, in addition to the fraction of spontaneous cell loss [2]. In this case report, we address the limitations of mammography and breast ultrasound (US) in detecting IBC and we underline the importance of high clinical suspicion in diagnostic medicine.

RÉSUMÉ • Contexte : Le cancer du sein inflammatoire (CSI) est une forme agressive et rare du cancer du sein caractérisée par une progression rapide et un mauvais pronostic. Le diagnostic de cette entité repose sur différents éléments cliniques, radiologiques et histologiques. Une limitation à l’établissement d’un diagnostic est la faible sensibilité du test de dépistage.

Dans cet article, nous rapportons le cas d’un CSI avec une prolifération rapide où deux examens radiologiques réalisés étaient faussement rassurants.

Mots-clés : cancer du sein inflammatoire cinétique, dépistage
except for diffuse tenderness and erythema of the left breast with multiple left indurated axillary lymph nodes. The diagnosis of mastitis was retained. The patient received adequate dosage of amoxicillin-acid clavulanic but failed to improve.

A breast MRI showed asymmetrical left breast enlargement with intense diffuse enhancement after contrast administration associated with skin thickening and enlarged axillary lymph nodes (Fig. 3). This lesion was classified as BIRADS V. A complementary FDG-PET CT Scan showed two moderately hyperactive lesions in the left breast and hyperactive nodules in the left axillary and subpectoral regions. Biopsy of the left breast lesions revealed high-grade ductal carcinoma.

**Figure 2.** Breast ultrasonography showing multiple bilateral simple cysts with largest cyst measuring 1.6 cm in the left breast without any suspicion for malignancy.

**Figure 3.** Breast MRI (A) (B) (C) & (D)* showing asymmetrical left breast enlargement with irregular mass [Arrow in (B) and (C)] and enhancement of its background associated with skin thickening [Arrow in (A)] as well as enlarged axillary lymph nodes [Arrow in (D)].

* (A): Axial T2-weighted MR image    (B): Axial contrast enhanced fat-saturated T1-weighted MR image    (C) & (D): Axial T2-weighted short inversion-recovery MR image
DISCUSSION

Patients with IBC usually present with diffuse erythema and dermal edema of the affected breast. Almost all IBC patients have nodal involvement and one third have distant metastases. Subsequently, clinical exam provides crucial information for staging and prognosis of the disease since the majority of patients present with palpable axillary or supraclavicular node metastases [1,3,4]. Bacterial mastitis is a possible differential diagnosis due to the fast growing aspect of the disease and its local aggressiveness. However, it is essential to note that IBC is not a true inflammatory process and systemic signs and symptoms such as fever, pain or leukocytosis are not present [5,6].

As a diagnostic modality, mammography has failed to establish its place as an integral part in the diagnostic paradigm of IBC, and clinical practice guidelines do not define any specific criteria for the confirmation of diagnosis. Possible indicators of IBC on mammography include the detection of a mass, architectural thickening, global skin distortion and calcifications [7]. Breast US is a possible alternative for diagnosing IBC and more specifically nodal involvement. Common abnormalities detected by US are heterogeneous infiltration of breast parenchyma or edematous skin to an underlying breast mass. US is superior to mammography in detecting skin abnormalities, nodal involvement, and consequently diagnosis of IBC [7,8]. The combination of mammography to US seems to be highly sensitive in detecting primary IBC and nodal metastases. Unfortunately for our patient, the results of both mammography and US were falsely reassuring.

This false negative result is highly associated to the minimal detection level of the diagnostic test. For mammography, the lowest detection level is 2.1 mm [6]. Moreover, the doubling time for breast cancer centers appeared to be around 180 days [9]. Consequently, breast cancer requires eight years of proliferation in order to be detected on mammograms. In general, breast, prostate, and colon present a doubling time of months to years, as opposed to testicular carcinomas, pediatric tumors and mesenchymal cell, for which the doubling time is in the order of days [9]. In the particular case of IBC, authors usually omitted this fast-growing tumor from data analysis and their doubling time is not studied. But, as experienced in our patient, IBC may have a short doubling time in the order of days that affects the sensitivity of imaging tests in screening.

CONCLUSION

Our patient was diagnosed with fulminant IBC based on clinical and radiological evidence of extensive disease associated with nodal involvement only six weeks after normal clinical exam and screening for breast cancer with mammography and US. In this case report, we underline the importance of a good clinical exam and the necessity of a high suspicion for breast cancer in patients with enlarged erythematous breast lesions.

REFERENCES