

# Mammography, Ultrasound and Histological Profiles of Female Breast Cancer in Abidjan

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## Abstract

**Background:** To identify mammo-echographic lesions suggestive of woman breast neoplasia and to specify histopathological profile. **Subjects and Methods:** A 4-month retrospective study conducted at the new senology unit of the Treichville University Hospital. This study included 68 patients with breast cancer, diagnosed with mammography, breast ultrasound and echo-guided mammary biopsy and histological evidence. **Results:** The mean age was 45.92 years. The discovery circumstance was a palpable nodule (75%). Lesions were located on the left (57.3%), in the superior external quadrant (34%) and in the middle 1/3 (57.3%). The mammography showed a b-type density (54.4%), a dense mass (92.6%) without micro calcification (59%) of large size (42 mm), an irregular shape (81%), with unconfined shapes (89%). On ultrasound, lesions were hypo-echogenic (95.6%), heterogeneous (77%), non-parallel to the dermal plane (80%), with posterior attenuation (69%). All these lesions were associated with dermal changes (89.5%), edema (63.1%) and group I (97.4%) adenoma (56%). The lesions were classified as BI RADS 5 (63.2%). Non-specific infiltrating carcinoma predominated (83.8%) in Elston Ellis II histo-prognostic grade (52%). **Conclusion:** In Abidjan, women's breast cancer is characterized by pejorative prognostic radiopathological factors, associating in young patients, large masses of infiltrating carcinoma, with a high rate of carcinomatous mastitis. Promoting mass breast cancer screening policy in our country should be imperative.

**Keywords:** Breast, Cancer, Mammography, Ultrasound, Micro Biopsy

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## Introduction

Breast cancer is a public health problem in Côte d'Ivoire. In 2012, 2,248 new cases were identified with a mortality rate of 18.5 per 100,000 inhabitants.<sup>[1]</sup>

These epidemiological characteristics justified the establishment in September 2015 of a senology unit at social cost at the Treichville University Hospital (CHU of Treichville). This center, equipped with state-of-the-art equipment (digital mammography, ultrasound with elastography, and micro-biopsy equipment) aimed to help improve the management of breast cancer in terms of early diagnosis.

Key sources of information, the imagery of female breast cancer is characterized by polymorphic aspects.<sup>[2-5]</sup> These aspects have been insufficiently reported in the African series in general and the Ivorian in particular,<sup>[6]</sup> unlike those from the West.

The aim of this preliminary work was to identify the different mammo-echographic characteristics of lesions suggestive of breast neoplasia and to specify their histopathological profile.

## Subjects and Methods

We have done a retrospective and descriptive review of the breast pathologies files diagnosed between October 2015 and January 2016 (4 months) at the senology unit of the Treichville University Hospital.

We included patients with a strong suspicion of breast cancer.

Their mammo-ultrasound results should have been archived in a database allowing re-reading. All of the patients had an echo-guided breast micro-biopsy with histological examination of the samples.

The mammography unit was of the Lilyum type XM12 brand and the Mindray model DC brand. Each patient had a frontal and an oblique external incidence for each breast

and the ultrasound examination was bilateral in B mode with exploration of the axillary cavities. The examinations were interpreted based on the BI-RADS (Breast Imaging Reporting and Database System) 2013 of the American College of Radiology (ACR) descriptive lexicon,<sup>[7]</sup> by senior radiologists with expertise in senological imaging.

As for the echo-guided micro-biopsies, they were performed under local anesthesia by a senior radiologist using an automatic pistol, a 14G-caliber needle and 20 millimeters of travel with minimum 03 samples per patient. The samples were fixed in formalin diluted to 10% and treated according to conventional rules in anatomopathology.

The judgment criteria were as follows: general characteristics of our patients, mammo-echographic aspects as well as the histological profile (histological type and histo-prognostic grade according to Elston Ellis).<sup>[8]</sup> The determination of the HER2 onco-receptor for hormone receptors and of Ki67 subsequently carried out was not taken into account in our work.

## Results

### General characteristics of the patients:

During the study period, 68 patients out of the 219 files collected met the inclusion criteria.

The mean age was 45.92 years ( $\pm 11.4$  years) with extremes of 27 and 71 years.

The palpable nodule was the main discovery circumstance (75%).

The lesions were located mainly in the left breast (57.3%), with a predominance in the upper-outer quadrant (34%) and the middle third (57.3%).

### Mammo-echographic aspects:

The breast density was type b (54.4%).

The mammographic aspects are summarized in [Table 1] and are illustrated in [Figures 1, 2].

Sixty-three of the 68 patients had dense masses, one patient had architectural distortion and the examination was inconclusive in four patients.

The ultrasound aspects are summarized in [Table 2] and are illustrated in [Figures 3, 4]. Sixty-five of the 68 patients had a hypoechoic mass and three patients had non-mass.

The associated signs are summarized in [Table 3] and are associated with each other. The first five variables were found in all patients. Lymphadenopathy were observed in thirty-eight of the 68 patients.

The lesions were classified BI RADS 5 (63.2%).

### Histopathological aspects:

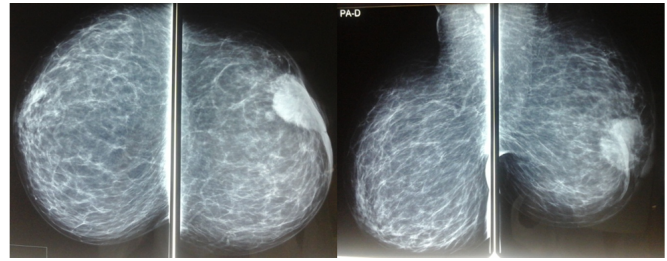


Figure 1: 37 years old. Palpable nodule. Mammography: dense oval mass left retro mammary with micro lobulated contours with retraction of the nipple.

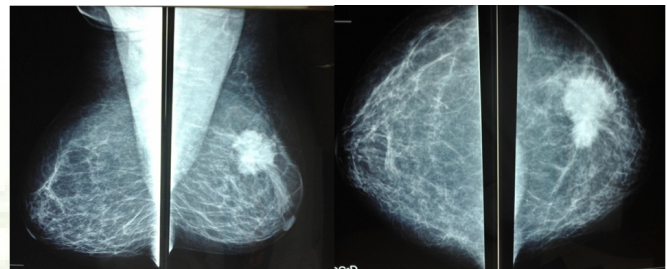


Figure 2: 61 year old. Palpable nodule. Mammography: Mass of high density of the left upper outer quadrant (QSE), of irregular shape with non-circumscribed contours spiculated with retraction and discreet skin thickening.

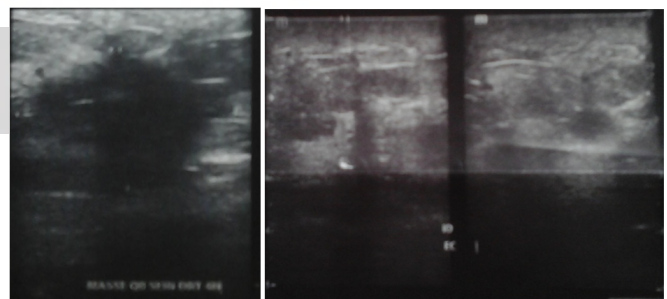


Figure 3: 37 years old. Ultrasound: hypoechoic mass of right QII of irregular shape, with indistinct contours, orientation not parallel to the skin covering, with posterior attenuation. Skin thickening and diffuse edema: carcinomatous mastitis.

The histopathological aspects are summarized in [Table 4]. Elston Ellis' histo-prognostic score and grade were specified in sixty-two of the 68 patients.

**Table 1: Mammographic abnormalities**

Characteristics	Number (N)	Percentage (%)
1. Dense mass (with/without micro-calcifications)	63 (26/37)	92.6(41/59)
Size (mm) -0-20 -21-40 -41-60 -61-80 - > 80	08 30 18 06 01	12.7 47.6 28.6 09.5 01.6
Form Regular Irregular	12 51	19 81
Contours Defined Undefined	07 56	11 89
2. Distortion Architectural	01	01.5
3. Inconclusive	04	05.9

**Table 2: Ultrasound anomalies**

Characteristics	Number (N)	Percentage (%)
1. Hypochoic mass (homogeneous/heterogeneous)	65 (15/50)	95.6 (23/77)
Skin Orientation/ covering Parallel Not parallel	13 52	20 80
Post FSU Modification Attenuation Reinforcement Absent	45 04 16	69 06 25
2. Not masse	03	04.4

**Table 3: Associated Signs**

Characteristics	Number (N)	Percentage (%)
1.Ectasia galactoph. 2.Skin alies 3.Edema 4.Breast Invasion 5.Lyse osseuse	02 34 24 08 02	05.3 89.5 63.1 23.5 05.3
6.Adenomegaly (yes/no) Groupe I Groupe II Groupe III Supra clavicular Internal Breast	38/30 37 22 03 02 01	56/44 97.4 57.9 07.9 05.3 02.6

**Table 4: Histological data**

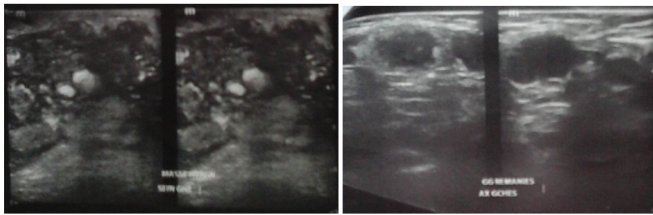
Characteristics	Number (N)	Percentage (%)
Histological types		
CINS Mucinous CI Lobular CI CINS recurrence CINS double cpste intra ductal not infil and infil Mixed NS and lobular CI CI + epidermis metaplasia Apocrine CI	57 02 02 01 02 02 01 01	83.8 03 02.9 01.5 02.9 02.9 01.5 01.5
Total	68	100
Histo-prognostic Score 4 5 6 7 9 Not established Cramped lesion Technical artefact	03 26 28 04 01 03 03	04.4 38.2 41.1 06 01.5 04.4 04.4
Total	68	100
Elston Ellis Grade(N=62) I : 3, 4, 5 II : 6 or 7 III : 8 or 9	29 32 01	47 52 01
Total	62	100

## Discussion

The relatively large average size of mammographic lesions in our study as in that of other North African series testified to the locally advanced nature of our patients.<sup>[9,10]</sup> These characteristics differ from those observed in the Western series.<sup>[11,12]</sup> In fact, in these countries the higher number of

subclinical mammographic lesions is a reflection of the early detection systems put in place.

Most of the masses in our series had an irregular shape and uncut contours characteristic of malignancy. The micro-lobulations were linked to a micro invasion of the stroma. As for the spicules, they were induced by a major retractile reaction stroma corresponding to the progressive attraction of



**Figure 4: 39 years old. Ultrasound: large heterogeneous mass, irregular in shape, with angular contours, occupying the entire left breast with combined posterior effect. Associated axillary adenomegaly.**

the peri-tumoral breast tissue.<sup>[13]</sup>

According to Moifo et al,<sup>[14]</sup> the ultrasound signs observed in our study are linked to tumor development along the axis of the lactiferous canals in terms of non-parallel orientation. An important fibrous contingent with strong desmoplastic reaction would explain the posterior attenuation; the posterior reinforcement or the absence of posterior signs, would be in connection with a hyper cellularity, a strong inflammatory component and a weak desmoplastic reaction.<sup>[15]</sup>

The presence of skin abnormalities and edema underlie a relatively high rate of inflammatory cancer. Indeed these are associated in 96% of cases of carcinomatous mastitis according to Günhan-Bilgen.<sup>[16]</sup> Skin involvement also reflects the embolization of tumor cells in the lymphatic system under the dermis (carcinomatous lymphangitis under the dermis).<sup>[17]</sup> The overall increase in the echogenicity of the breast parenchyma with thickening of Cooper's ligaments reflects the presence of edema.

It is a therapeutic emergency in breast oncology and therefore an unfavorable prognosis. Unlike western countries (02 to 05% in the United States, 03 and 10% in France),<sup>[17,18]</sup> this aspect is frequent in Africa south of the Sahara as evidenced by Nkoua-Mbon's work (40% of cases) and Konan (46% of cases) respectively in Congo and Côte d'Ivoire.<sup>[6,19]</sup> This pathological entity requires increased awareness and early detection.

The high frequency of lymphadenopathy indicates a strong presumption of metastatic lymph node involvement and must consequently be the subject of histological confirmation.<sup>[20]</sup> This confirmation is essential in the therapeutic strategy; metastatic lymph node extension constituting an independent prognostic factor correlated with poor survival.

Histologically, non-specific invasive carcinoma (CINS) was also found in other African series.<sup>[6,21,22]</sup> These infiltrative forms associated with other prognostic factors (histo-prognostic grade II and III of Elston Ellis) reflected the late nature of the diagnosis in our daily practice.

## Conclusion

In Abidjan, breast cancer in women is characterized by radio-histopathological factors linked to a poor prognosis. In young patients, it combines bulky carcinoma-like masses infiltrating with a high rate of carcinomatous mastitis. All this data requires a real mass breast cancer screening policy in our country.

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