

MAMMOGRAPHIC AND ULTRASOUND CHARACTERISTICS OF BREAST CANCER IN YOUNG ALGERIAN WOMEN UNDER 35 YEARS OLD

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Abstract

Breast cancer in young woman is increasing. The objective of this work was to analyze the imaging characteristics of breast cancer in young woman under 35 years, determinate the sensitivity and the specificity of each imaging means and evaluate epidemiological, clinical, pathological and therapeutic characteristics of breast cancer in this slice of age. Through a retrospective study spread over 3 years from January 2015 to December 2017 and held at the medical imaging services of Pierre and Marie Curie of Algiers, we identified 204 cases of breast cancer in patients aged under 35 years.. In mammography the distribution of cases revealed that half (53.9%) was classified BIRADS 5,35.3 % of the cases classified BIRADS 4, 7.2 % classified BIRADS 3 and a small percentage (3.6%) in BIRADS 0. The sensitivity of mammography in young women in our series was 89.4%. For the ultrasound, the distribution of cases according to the BIRADS stages reveals that more than half was closed ACR5, representing 64%, 32.7% ranked in ACR4 and 3.3% in ACR3. The sensitivity of this test was 96.7%. In pathological terms it was a carcinoma infiltrating non-specific type in 91% of cases, with predominance of SBR II and III ranks 90.6 %. 204 patients received surgery, radical in 63% and 37% conservative. 61% of patients received adjuvant chemotherapy, and 39% of patients received neoadjuvant chemotherapy. 204 had a locoregional irradiation. study joins the data in the literature advocating more advanced forms and worse prognosis of breast cancer in young patients on the one hand, and secondly to a classic radiological appearance of the breast with a mass irregular.

Keywords: Cancer, Breast, Young Woman, Mammography, Ultrasound, Biopsy.

1. INTRODUCTION

Cancer in young women is increasingly common in Algeria and around the world. It poses several problems including the diagnostic problem. Breast cancer in young women constitutes a challenge for the radiologist due to: Its low frequency at this age; the absence of screening in young women; its atypical presentation and different from that of older women; higher breast density, making lesions less easily detectable on imaging.

The objective of this work was to analyze the particularities of cancer imaging, to determine the sensitivity and specificity of each imaging method in the diagnosis of breast cancer in young women and also to study the epidemiological, clinical, pathological and therapeutic aspects of breast cancer in young women under 35 years of age.

2. MATERIALS AND METHODS

Each year, the breast cancer department of the Pierre and Marie Curie Center receives approximately 900 to 1,200 new cases of breast cancer, an incidence which has doubled in the last decade;

Breast cancer in women under 35 represents approximately 10 to 12% of all patients. Through a prospective, descriptive study spread over 3 years from January 2015 to December 2017 within the medical imaging department of the CPMC of Algiers, 204 patients were treated.

3. RESULTS

3.1. Epidemiological Characteristics of Patients

The frequency of breast cancer in young women under 35 was 10.6%. The average age was 30.9 years. 26.9% had a family history of breast cancer and 2.4% had a family history of ovarian cancer.

3.2. Clinical Characteristics of Patients

The average time between the appearance of the first clinical signs and the date of consultation was 5.15 months. Self-palpation of a nodule was predominant (87.2%), with an average clinical size of 4.2cm. Palpation of the axillary lymph node areas revealed ipsilateral lymphadenopathy in 55.3% of cases. Systematic screening at this age was exceptional, found in only 7 cases (3.4%),

3.3. Radiological Characteristics of the Lesions

A/ Mammographie

Mammography is the first-line examination for breast cancer, it was performed in all our patients (100%). The first criterion analyzed described in this examination is breast density. In young women, in our series, breast density of type "c" and "d" was found in more than 67.6% of cases. The classification of the American College of Radiology (Appendix No. 5) was applied. to all patients who have had a mammogram

Contrary to established belief, mammography often allowed the diagnosis of these tumors, finding isolated masses or associated with microcalcifications in 90.9%. On the other hand, isolated foci of microcalcifications were found in 2.9%. Microcalcifications were associated with other lesions in 52 cases, an architectural distortion was found in 3 cases in.

Given that the contour is the most discriminating criterion in the differentiation between benign and malignant, the distribution of masses according to their contour on mammography shows that the majority of masses had an indistinct contour in 41.8%, Masked in 22.2%, microlobulated in 17.5%% spiculated in 6.3% and 12.2% had a circumscribed outline (figure1).

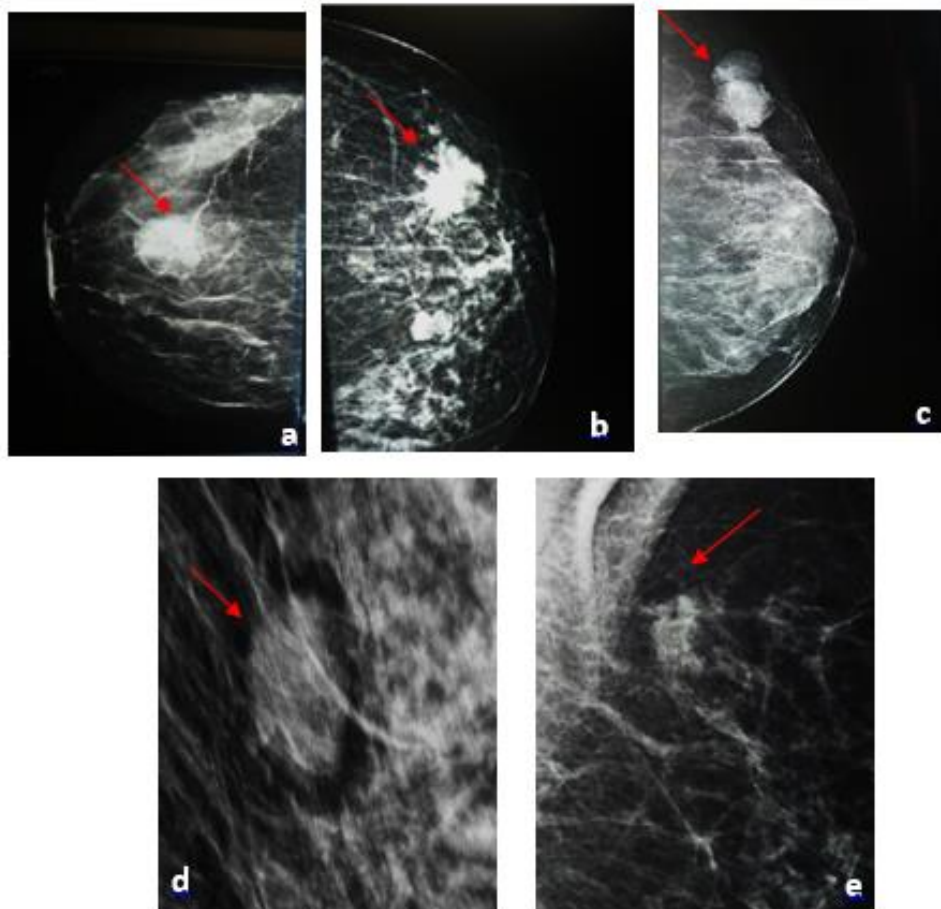


Figure 1: Contours Of The Masses. A: Masked Contour, B: Spiculated Contour, C: Circumscribed Contour, D: Micro-Lobulated Contour, E: Indistinct Contour

The distribution of the number of masses discovered on mammography shows that the majority of masses were single, 92.1%, two masses in 6.4% and 3 masses in 1.5% (figure 2).

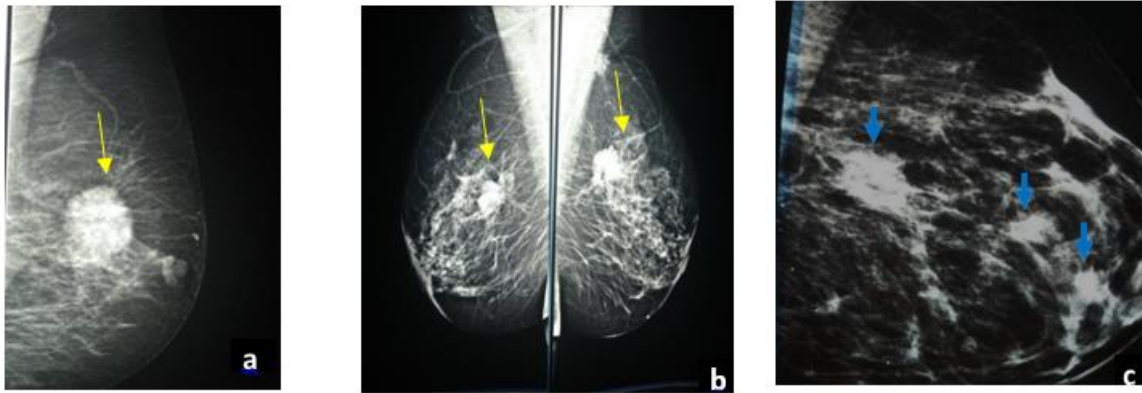


Figure 2: Number of masses discovered on mammography. a: One mass, b: Two masses, c: Three masses

The distribution of microcalcifications on mammography was in clusters in 31 cases (53.4%), segmental in 21 cases (36.2%), linear and diffuse in 3 cases (5.2%)(figure 3).

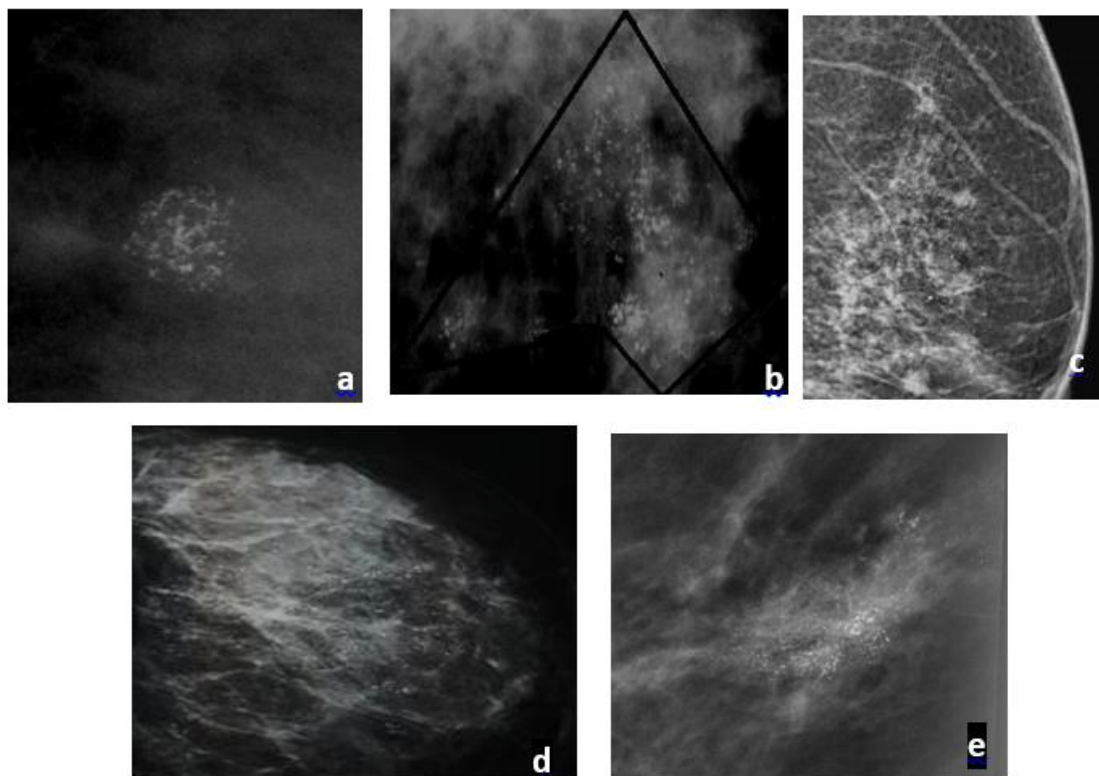


Figure 3: Distribution of microcalcifications. a: Cluster distribution, b: Segmental distribution, c: Regional distribution, d: Diffuse distribution, e: Linear distribution

On mammography, the distribution of cases according to BIRADS stage reveals that more than half (53.9%) were classified BIRADS 5; 35.5% of cases classified as BIRADS 4,

7.2% classified as BIRADS 3 and a small percentage (3.6%) as BIRADS 0. The sensitivity of this examination in young women in our series was 89.4%.

b/ Breast ultrasound

Breast ultrasound is designed as part of overall breast cancer care; this technique has taken a prominent place, whether it is carried out following an abnormal clinical examination, in addition to mammography. It allows better definition in young women with dense breasts. Ultrasound has the same sensitivity and specificity in both young and older women [1].

Ultrasound essentially revealed mass-type lesions and non-mass-type lesions, 6 poorly defined heterogeneous hypoechoic non-mass areas containing microcalcifications within them.

The distribution of the masses according to their contours shows that the majority of the masses presented contours of malignant appearance (angular 1.8%, microlobulated 37.2%, spiculated 2.3% and indistinct in 52.3% and the masses with contours of benign appearance represented 6.4 % of masses (figure 4).

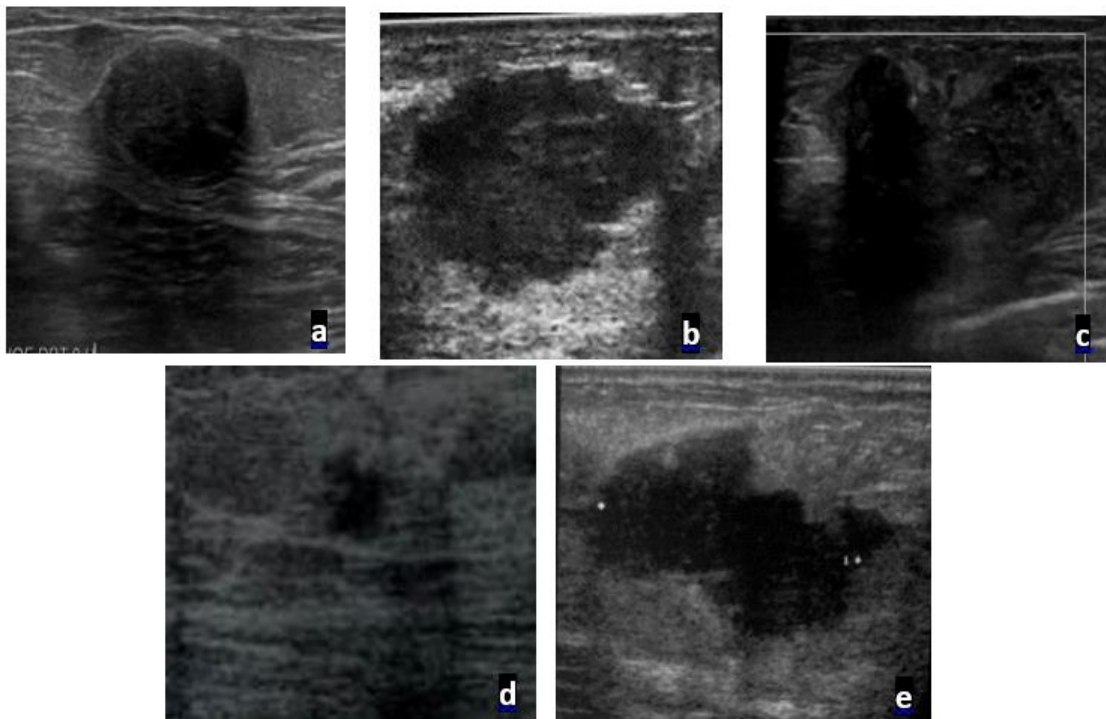


Figure 4: Distribution of masses according to their contours on ultrasound. a: Circumscribed contour, b: Microlobulated contour, c: Indistinct Contour, d: Spiculated contour, e: Angular Contour

The masses had an irregular shape 64.7% and more than a third had a benign shape (round or oval shape) (figure 5).

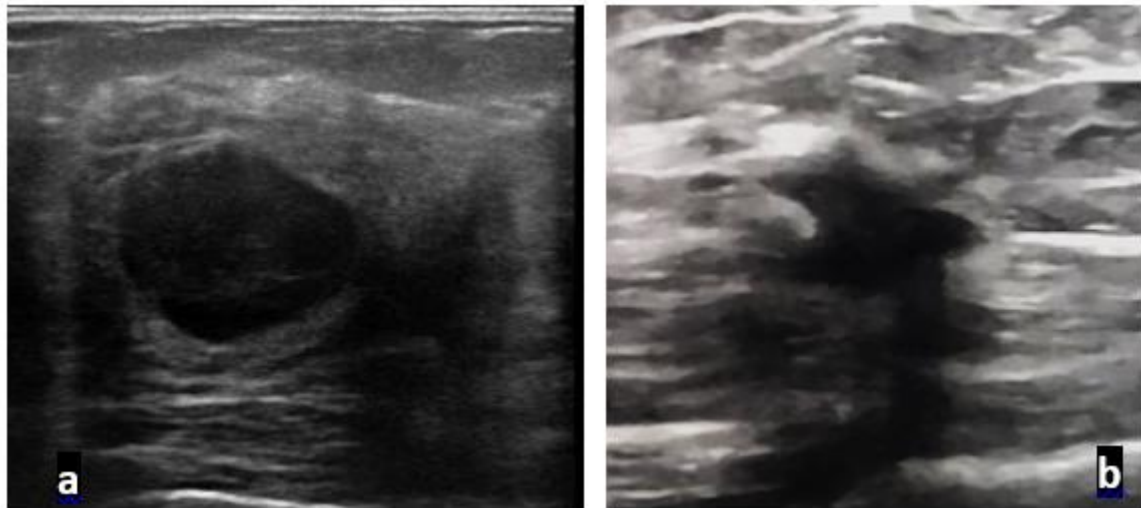


Figure 5: Shapes of masses on ultrasound. a: Oval-shaped mass, b: Round-shaped mass, c: Irregular-shaped mass

Concerning the acoustic particularities 55% of the masses presented posterior attenuation, 16% presented posterior enhancement and 27.5% had a combined appearance (figure 6).

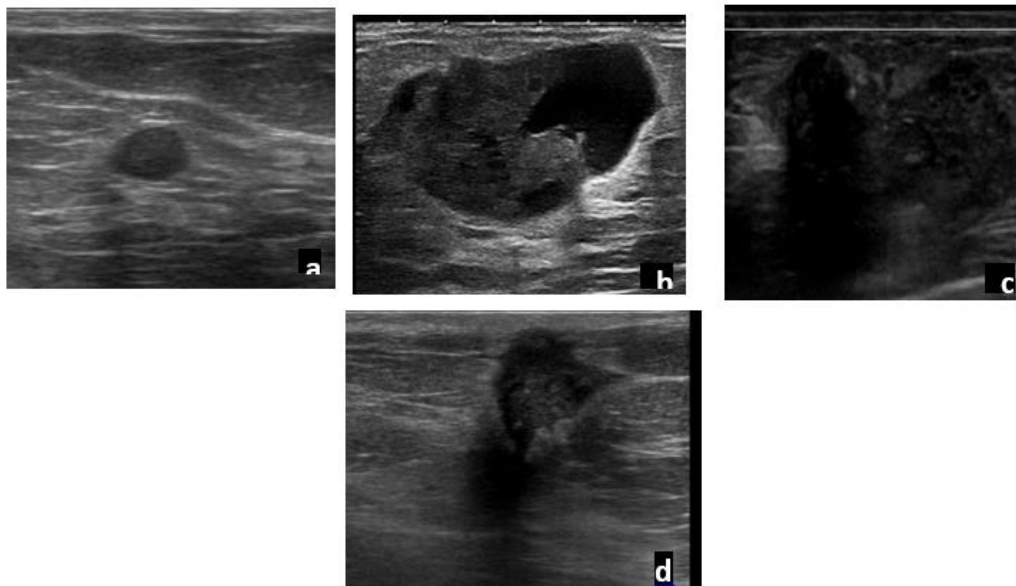


Figure 6: Types of echogenicity of masses. a: Anechoic, b: Cystic and solid complex, c: Heterogeneous, d: Hypoechoic

For the orientation of 64.2% of the masses presented a malignant type orientation (vertical or oblique) and 35.8% a benign type orientation (parallel to the skin plane). For echogenicity 93.7% of the masses were hypoechoic, one mass was anechoic. Vascularization was present in 51% of peripheral and central type (figure 7).

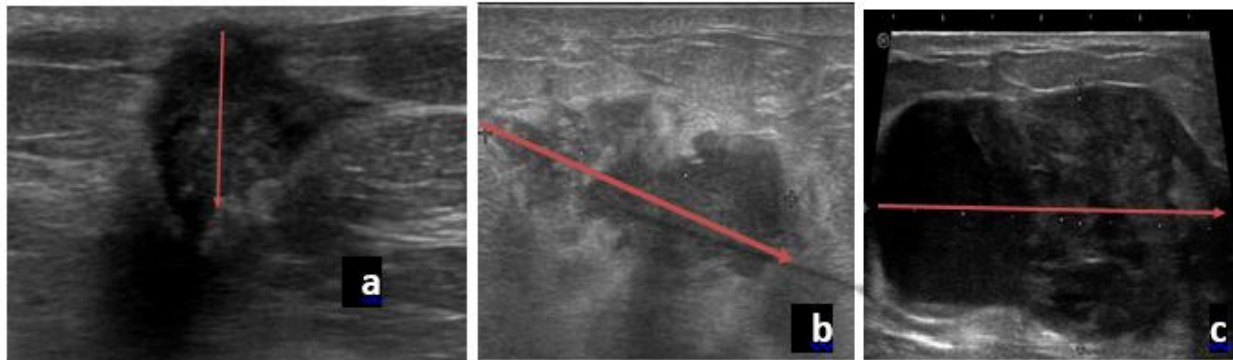


Figure 7: Orientation of masses. a: vertical orientation, b: oblique orientation, c: parallel orientation

In total, the distribution of cases according to BIRADS stages reveals that more than half were classified ACR5, which represents 63.94%, 32.68% classified in ACR4 and 3.36% in ACR3. Thus the sensitivity of characterization of malignancy of this examination was 96.7%.

3.4. Pathological Characteristics

On the anatomopathological level It was an infiltrating carcinoma of non-specific type in 91% of cases, with predominance of SBR grades II and III 90.6%. Molecular classification was established in all our patients based on data on hormonal receptors and HER2 status. Thus, the Luminal A subtype was the most frequent with a rate of 55.3%, while the so-called “triple negative” Basal subtype was 20.2 %.

3.5. Therapeutic Characteristics

All our patients (204) underwent surgery, radical in 63% and conservative in 37%, and also locoregional irradiation. 61% of patients received adjuvant chemotherapy and 39% of patients received neoadjuvant chemotherapy.

4. DISCUSSION

4.1 Epidemiological Characteristics

The frequency of breast cancer in young women varies according to the authors. In the Maghreb, this frequency is 11% according to Bouzid in Tunisia [2]., in Morocco, according to a study carried out at the Casablanca University Hospital, Boufettal estimates this frequency at 25.4% [3] . In Algeria, it is 12% according to Chaher and Guendouz [4,5].

In Algeria this frequency has remained relatively stable. This difference in frequency could be explained by the difference in age pyramids between populations and definition of young women. While adding other factors regularly cited to explain these differences. Women with breast cancer report a family history in 20 to 30% of cases [6]. rate which remains comparable to those in the literature

Breast cancer is most often discovered following self-palpation of a nodule by the patient, according to series carried out in young women [2.3.7].

Our series matches these data from the literature, since self-palpation of a nodule was the method of discovery in 87.3% of cases.

The clinical size of the tumor at the time of diagnosis varies according to the authors.

In our series, the average tumor size was greater than that of the Western series 618,603. and North Africans but joined that of the Boufettal series [3]. This result could be explained by a diagnostic delay due to the fact that a breast nodule which occurs in a young woman is most often considered as a benign lesion.

4.2. Radiological Characteristics

In women aged 30 to 35, the sensitivity and specificity of mammography is around 80%, whereas before this age, the sensitivity is 60% [8]. Despite these limitations in young women due to breast density, mammography remains a good means of diagnosing breast cancer. In our series, the performance of mammography in women aged less than 35 years in detecting lesions is 96.6%, mammography missed 3.4% of lesions for a breast density of type (c or d) of around 67 %.

This good performance could be explained by the relatively large size of the lesions diagnosed, with an average size of the lesions of 4 cm (while in the majority of series, the average size was 2 cm) on the one hand, and d On the other hand, technological improvements and the development of digital mammography (full field) which allowed us to detect microcalcifications isolated or associated with other lesions (27.9% of diagnosed cases).

In the majority of series [9.10] more than 80% of mammograms were classified suspicious, just like in our series where 89.4% were classified ACR4 or ACR5 and only 7.2% were classified as ACR 3. The most common mammographic lesion was a hyperdense mass of irregular shape with indistinct contours. The sensitivity of this examination in young women in our series was 96.6% with low specificity. In our series, we noted that ultrasound was able to objectify more suspicious images in comparison with mammography, thus we noted fewer BIRADS 3 increasing the specificity in comparison with mammography [11]. The most common ultrasound lesion was an attenuating hypoechoic formation, irregular in shape and with indistinct contours. Ultrasound remains a very good complement to mammography. Thus, breast ultrasound is strongly recommended in the diagnosis of breast cancer in young women, associated with the slightest doubt with a percutaneous sample.

The most frequently found radiological aspects are: irregular shape, irregular contours, heterogeneous enhancements, type 2 enhancement curves, without specificity in young women [12].

4.3. Histological Characteristics

Infiltrating ductal carcinoma is the most common histological type, both in young and older women. According to several authors [13.14] infiltrating ductal carcinoma represents more than 90% of breast carcinomas. In our series, the rate of infiltrating ductal carcinoma is 92%. In the table below our results are compared to those in the literature. the Luminal A subtype was the most common with a rate of 55%, followed by the TPN subtype at 21%, which is consistent with the results of several series [15.16].

4.4. Treatment

The treatment of breast cancer in young women is a multidisciplinary treatment. It is often based on a strategy combining several treatments, surgery, chemotherapy, radiotherapy and hormonal therapy. The indications for surgical treatments in young women do not differ from those in older women [17]. In our series 67% of patients benefited from radical surgery and 37% from conservative surgery. Adjuvant radiotherapy is an essential therapeutic weapon, but requires impeccable technique in order to reduce irradiation. healthy tissues.

5. CONCLUSION

Breast cancer is a serious disease whose incidence in young women is constantly increasing.

This work on breast cancer in young women under 35 years old allowed us to distinguish its different radiological (mammography, ultrasound), clinical, anatomopathological and even therapeutic characteristics.

Our results agree with those of the various authors, arguing in favor of more advanced forms and a more unfavorable prognosis of breast cancer in younger patients. This is explained by the diagnostic delay, a larger tumor size, frequent lymph node invasion, an often high histological grade, hormonal receptors that are often negative and a probably higher genetic predisposition.

In terms of imaging, contrary to established belief, digital type mammography (full field) often allowed the diagnosis of these tumors with a sensitivity of 96.6% because they presented in the form of either a mass or microcalcifications isolated or associated with other lesions, with an average size of 39.1mm. Most breast tumors in young women have a classic appearance of breast cancer, as in older women, with an irregularly shaped mass with irregular contours.

Breast ultrasound has made it possible to overcome the false negatives of mammography (secondary to high breast density) and therefore to improve the detection of lesions and to contribute to a better characterization of breast lesions compared to mammography

(better analysis of contours and echogenicity). However, one should not hesitate to biopsy a benign-looking lesion, especially in a young woman with a family history of breast cancer.

Early diagnosis improves the prognosis of breast cancer because early diagnosis leads to simple, non-mutilating treatment.

Conflict of Interest

The authors declare that they have no conflict of interest.

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