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Original Research Article

Mammographic Profile of Women in the Radiology Department at Douala Gyneco-Obstetric and Pediatric Hospital, Cameroon

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Abstract: ***Introduction***: Breast cancer is the most common cancer in the world, especially in Cameroon, where in the absence of a national screening program for this condition, several free campaigns are associated with individual screening, through the practice of mammograms. The aim of our study was to specify the lesional characteristics of mammograms in women at Douala Gynaeco-Obstetric and Pediatric Hospital (DGOPH). ***Methods:*** This was a retrospective and descriptive cross-sectional study in which we extracted data from mammograms performed in women between January 2019 and December 2020, at DGOPH. ***Results:*** Out of 247 records, the most represented age group was that of 50-60 years (36.84%). The most common indication for examination was collective screening (45.34%). Micro-calcifications were the most frequent lesions (23.08%), especially of the benign type. 39.27% of mammograms were reported as normal. ***Conclusion:*** Although patients aged 50 to 60 are the most represented in our study, coming for mass screening, and presenting the vast majority of normal results, it remains important to educate relatively younger women about the importance of having a mammogram, especially since it is observed in hospital studies that an increasing proportion of young women present with breast cancer in our context.
Keywords: Mammography, breast cancer, screening.

1. INTRODUCTION

Since 2020, breast cancer is considered the most common cancer in the world, and would be mainly the first or second cause of death in women from cancer in sub-Saharan Africa [1]. In Cameroon, it represents 18.5% of the common forms of cancer, according to the Global Burden of Cancer (GLOBOCAN) [2], with an annual incidence of 3,265 new cases [3]. Although rarely affecting males, male breast cancer represents less than 1% of all breast cancers in the West [4], and would be particularly important in Africa, where it would have a frequency between 3 and 5% depending on the country [5].

In order to fight against this scourge, several strategies have been developed, and a particular place has been given to mammography, which allows screening of asymptomatic subjects, as well as early diagnosis of patients presenting some symptoms, thus improving the prognosis. Mammography is therefore considered the reference examination [6], although its performance in detecting tumor lesions varies according to breast density, with a sensitivity and specificity respectively of 85% and 96.9% for fatty breasts, and 68% and 89.1% for dense breasts [7, 8]. This leads to a non-detection of 10 to 15% of cancers [9]. In addition, it is an irradiating examination, although the risk of cancer related to radiation is low [10], and has other disadvantages, such as the painful nature of the technique, as well as the risk of overdiagnosis [11].

In the context of breast cancer screening, it has been established that mammography in the 40-49 age group reduces mortality by 7-23% [12]. This screening can be performed individually or as part of an organized program, as in some developed countries such as France, where it is recommended to perform a mammogram every 2 years, between 50 and 74 years of

age, in the general female population [12]. This examination can be performed much earlier in young women in case of personal or family history of breast cancer, or obviously in case of suspicious-looking symptoms [13].

In sub-Saharan Africa, where populations do not yet benefit from a large-scale national program, free breast cancer awareness and screening campaigns are regularly organized in large hospitals, such as the Douala Gynaecological-Obstetric and Paediatric Hospital (DGOPH), which is a first class reference center.

In order to pursue this awareness, especially among relatively young women, we felt it was important to conduct this study, the objective of which was to present the results of the various mammograms performed on women over the past two years, and to specify the most frequently encountered lesions.

2. MATERIALS AND METHODS

2.1. Type of study

This is a retrospective, cross-sectional, descriptive study.

2.2. Location of the study

This monocentric study was carried out in the radiology and medical imaging department of the DGOPH, which has a recent mammography machine.

2.3. Patients

We collected mammography records from patients who came during the period January 2, 2019, through December 30, 2020. Patients were briefly interviewed by a radiology manipulator about the examination procedure, and oral informed consent for mammography was obtained.
Data were obtained via their standardized reports, using a collection form
The authors declare no conflicts of interest.

2.4. Variables

The variables were age, and indications (group and individual screening, suspected nodule, mastodynia, galactorrhea). Then the mammographic data collected were breast density, nodular opacities, spicular images, micro-calcifications, architectural distortions, adenomegaly, and the American College of Radiology (ACR) classification.

2.5. Protocols and analysis of mammography images

All examinations were performed using a PLANMED Sophie Classic mammographer, commissioned in October 2016. All selected patients received 2 incidences (craniocaudal and external oblique), which were analyzed comparatively, by 3 radiologists individually, via the Evolucare Imaging system, which is a PACS (Pictures Archiving and Communication System). In case of discrepancy on a case, a result was proposed in a collegial way. Breast density was established according to the Breast Imaging Reporting and Data System (BI RARDS) visual classification, recommended by the American College of Radiology (ACR), and was based on the percentage of glandular tissue: category A (almost entirely fatty breasts: <25%), category B (breasts composed of areas of sparse fibroglandular density: 25 - 50% approximately), category C (heterogeneously dense breasts, which may mask small masses: 51-75% approximately), and category D (extremely dense breasts, decreasing mammographic sensitivity: >7 [14]. The main mammographic characteristics were the presence of opacity, nodules, architectural distortion, adenomegaly, and microcalcifications (grouped into 5 types, according to the classification of Le Gal [15]. At the end of this analysis, and according to the ACR BIRADS classification of mammographic abnormalities [16], we retained 6 stages of involvement based on the presence and characteristics of lesions: additional investigations required (ACR 0), no abnormality (ACR 1), identifiable benign abnormalities requiring neither surveillance nor additional examination (ACR 2), probably benign abnormality for which short-term surveillance is advised (ACR 3), undetermined or suspicious abnormality, which gives rise to the indication of histological verification (ACR 4), abnormality suggestive of cancer (ACR 5) and histologically proven cancer (ACR 6).

2.6. Statistical analysis

Statistical analyses were performed with Epi info.

3. RESULTS

247 patients were selected for our study, with a median age of 52 years. The most represented age group was 50-60 years (36.84%, n=91), as shown in Table I.

Table I: Demographic characteristics of the study population

Age range	Number	Percentage (%)
< 30	7	2,83
30-40	13	5,26
40-50	86	34,82
50-60	91	36,84
60-70	45	18,22
70-80	5	2,02
TOTAL	**247**	**100**

Table II shows the different indications, which were mainly dominated by group screening examinations during the campaigns (45.34%, n=112). For 27 women, the indication was not indicated on the examination request.

Table II: Distribution of patients according to mammography indications

Indications	Number (N)	Percentage (%)
Collective screening	112	45,34
Individual screening	72	29,14
No information available	27	10,93
Suspicion of a nodule	17	6,88
Mastodynes	13	5,26
Galactorrhea	4	1,62
Post opération	1	0,40
Axillary adenopathy	1	0,40
TOTAL	**247**	**100**

Regarding breast density, type B was the most frequent (72.87%, n=180). The radiological characteristics are shown in Table III, which presents the mammographic lesions, dominated by micro-calcifications (23.08%, n =57), the vast majority of which were of type 2. Additional ultrasound was requested in 40 patients (16.19%).

Table III: Distribution of patients according to radiological characteristics

| Effectif total=247		
Variables	Number	Percentage (%)
Normal exam	97	39,27
Micro-calcifications	57	23,08
Nodular opacities	46	18,62
Adénopathy	4	1,62
Spicular pictures	2	0,81
Architectural distortions	1	0,40
Complementary ultrasonography	40	16,19
TOTAL	**247**	**100**

Regarding the ACR classification, grades 4 and 5 were respectively found in 8 patients (3.24%), and 5 patients (2.02%), as shown in Table IV. In 97 patients (39.27%), mammography was normal.

Table IV: Distribution of patients according to ACR classification of main lesions

ACR	Number	Percentage (%)
0	26	10,53
1	153	61,94
2	32	12,96
3	23	9,31
4	8	3,24
5	5	2,02
TOTAL	**247**	**100**
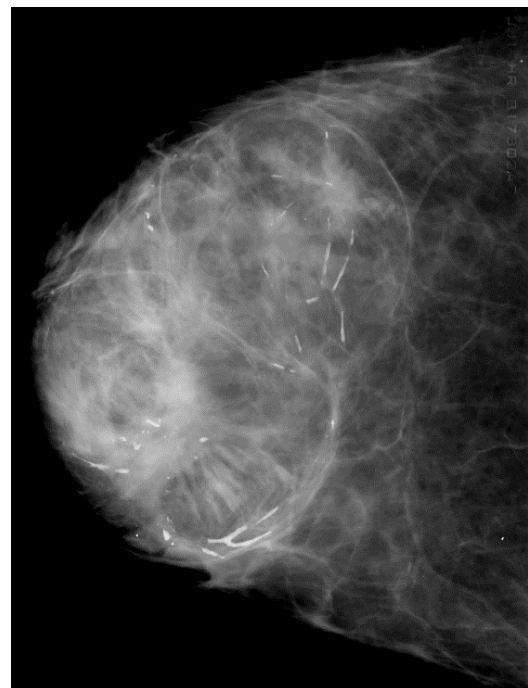
Figure 1: Mammogram of a 48 year old female patient. Cranio-caudal view. Retro-mammary architectural disorganization, seat of several opacities, with blurred spiculated contours, with adjacent fibrous trabeculae. Multiple polymorphic micro-calcifications, mostly rod-shaped, and of regional distribution are associated (grade 5 of Le Gal classification). Mammography classified as ACR 5
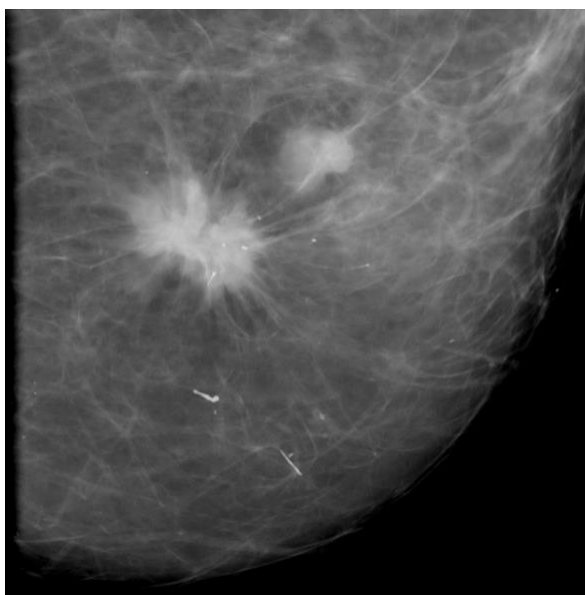
Figure 2: Mammogram of a 48 year old female patient. External oblique view. Bilobed stellate opacity with spiculated contours, seat of multiple polymorphic micro-calcifications, mostly irregular punctiform, with angular contours, without any particular systematization (grade 4 of Le Gal classification). Presence of an adjacent nodular opacity, well circumscribed. Mammography classified as ACR 5

4. DISCUSSION

This study demonstrated that many mammograms were performed during mass screening campaigns in our African context characterized by the absence of a nationwide mass screening program.

In our study, which included a sample of 247 patients, women aged between 50 and 60 years were the most numerous (36.84%). Although there was no age delineation in our series, this age range seems to coincide with the age of initiation of screening in some developed countries, such as France [17], where routine mammography is performed starting at age 50. However, this age range differs slightly from the results of Neossi *et al*., on screening mammograms in Douala, which were performed more in women aged between 40 and 50 years [18]. It is also important to note that many studies have shown the early onset and severity of breast cancer in sub-Saharan Africa, occurring in 70% of cases in women under 50 years of age [19, 20]. This is particularly the case in Cameroon, where the average age at diagnosis was around 46.08 ± 4.0 years, according to Sando et al [21], in contrast to a more advanced age in the West, such as in France, where the average age at diagnosis is 61 years [22]. This large difference is explained by some authors by the relatively young demography of the African continent, but also by the poor maintenance, or even the non-existence of national breast cancer registries in our developing countries [23], which should be remedied.

As regards the indications for our examinations, they consisted largely of screening examinations, during mass campaigns and on an individual basis. However, 27 examinations were recorded without any clinical indication, which suggests that the medical records are not kept efficiently and could be improved.

The vast majority of our patients had type B breast density, which is considered low to moderately dense and well characterized on mammography. However, it is worth remembering that the sensitivity of dense breasts is increased, when using digital mammography [24].

Regarding the parenchymal anomalies found, micro-calcifications were the most frequent (23.08%), which corroborates the results of Guegang et al who found them in 33.9% of 103 examinations [25]. In the literature, the presence of suspicious micro-calcifications may represent 30% of subclinical malignant breast lesions [15]. These micro-calcifications may also be the only radiological sign of certain cancers, such as intraductal carcinoma, according to Bassett *et al*., [26]. It is therefore an important feature of radiological diagnosis, provided mainly by mammography [27].

As for the other lesions, they were nodular opacities (18.662%), and spicular images (0.81%). In a study of 372 patients, Neossi et al found similar results for nodular lesions (18.3%), but differed from the more frequent spiculated masses (4.3%) [18]. This discrepancy can be explained by the low mobilization of women, outside the screening campaigns, which should be repeated frequently. In about 40 patients (16.19%), a complementary breast ultrasound was requested after their mammograms, which also plays an important role in breast cancer screening in our setting, as stated by Guegang *et al*., [28].

At the end of our mammography reports, 3.24% of the cases were suspected of malignancy (ACR 4), and 2.02% were strongly suggestive (ACR 5). This is similar to the results of Neossi et al who found 4.30% of suspicious images and 3.30% of images suggestive of cancer [18].

The main limitations of our study are the retrospective nature of the study, which exposes us to inefficiency in the maintenance of certain medical records.

5. CONCLUSION

Although patients aged 50 to 60 years are the most represented in our study, coming for mass screening, and presenting mostly with normal results. It remains important to educate relatively younger women about the importance of mammography, especially since it has been observed in hospital studies that an increasing proportion of younger women are presenting with breast cancer in our setting.

6. ACKNOWLEDGMENTS

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