Scientific Research Publishing

Advances in Breast Cancer Research, 2023, 12, 97-113
https://www.scirp.org/journal/abcr
ISSN Online: 2168-1597
ISSN Print: 2168-1589

Epidemiological, Diagnostic and Therapeutic Aspects of Breast Cancer in the Gynecology and Obstetrics Department of the CHU Gabriel Touré from 2020 to 2022

Sirama Diarra[1*], Moussa Samake[2], Amaguiré Saye[1], Brehima Dembélé[1], Birama Traoré[3], Souleymane B. Dembélé[2], Déssé Diarra[1], Yely Dianéssy[2], Abdou Guiré[2], Bakarou Kamate[4]

[1]Gynecology and Obstetrics Department of the District Hospital of Commune IV, Bamako, Mali
[2]General Surgery Department of the Commune IV District Hospital, Bamako, Mali
[3]Obstetrics Gynecology Service of the CSREF of San, Bamako, Mali
[4]Anatomo-Pathology and Cytology Department of the Point G University Hospital, Bamako, Mali
Email: *diarrasirama16@gmail.com

How to cite this paper: Diarra, S., Samake, M., Saye, A., Dembélé, B., Traoré, B., Dembélé, S.B., Diarra, D., Dianéssy, Y., Guiré, A. and Kamate, B. (2023) Epidemiological, Diagnostic and Therapeutic Aspects of Breast Cancer in the Gynecology and Obstetrics Department of the CHU Gabriel Touré from 2020 to 2022. *Advances in Breast Cancer Research*, **12**, 97-113.
https://doi.org/10.4236/abcr.2023.123008

Received: April 8, 2023
Accepted: July 8, 2023
Published: July 11, 2023

Abstract

In Mali, breast cancer remains a real health problem in the absence of an adequate and adapted health policy for their early diagnosis and their often late or even non-existent treatment. **Objectives:** This study aimed to study the epidemiological, diagnostic, and therapeutic aspects of breast cancer to write the clinical aspects of breast cancer in the gynecology-obstetrics department of the CHU Gabriel Touré from 2020 to 2022. **Methodology:** This was a retrospective and descriptive study of 219 cases of breast cancer that were diagnosed in the gynecology and obstetrics department of the CHU Gabriel Touré in Bamako, from 2020 to 2022. **Results:** The annual frequency was 77.2 cases per year, the average age 45.55 years with extremes of 16 to 85 years; housewives represented 92.7%; multiparas were reported at 57%. Considering the history, the personal history of benign breast pathology was 55.6%. Regarding the localization, the left breast was the most affected with 53.9%, and the tumor was found in the supero-external quadrant in 53.9%. The cancer was metastatic in 81.28%. The diagnosis biopsy + histology contributed to 98.6%. The histological type was invasive carcinoma of non-specific type in 95%. As for the histoprognostic grade of SBR studied, grade II was predominant at 46%, grade III at 34.95%. The therapeutic strategy was chemotherapy in 83.1%. Neoadjuvant chemotherapy followed by surgery in 10%, primary surgery in 6.4%, radiotherapy in 0.5%. **Conclusion:** The major challenges in the fight against breast cancer in Mali remain a better organization of the system for early diagnosis, the establishment of a screening program, early diagnosis in women from the age of 40 and also adequate care.

Keywords

Epidemiology, Diagnosis, Therapeutics, Breast Cancer, Bamako (Mali)

1. Introduction

Over 2.2 million cases of breast cancer were recorded in 2020, making it the most common cancer. Nearly one in 12 women will develop breast cancer in her lifetime. Breast cancer is the leading cause of cancer death in women. Around 685,000 women died of breast cancer in 2020 [1].

Most breast cancer cases and breast cancer deaths occur in low- and middle-income countries. When it comes to breast cancer, the disparities between low- and middle-income countries and high-income countries are huge.

It is in Africa and Polynesia that we observe the highest rate of mortality from breast cancer. In sub-Saharan Africa, half of the women who die of breast cancer are under the age of 50 [1].

Breast cancer treatment has seen great advances since 1980. In high-income countries, the age-specific breast cancer mortality rate fell by 40% between the 1980s and 2020s. These improvements have yet to be replicated in low- and middle-income countries.

In 2020, in Mali according to data from the cancer registry, breast cancer is the leading cancer; at the same time, there was a beginning of institutionalization of early diagnosis and management of breast cancer in Bamako by setting up a network in accordance with the health pyramid.

This network is made up of clinical and/or radiologically suspicious breast abnormalities diagnostic unit at CSCOM and CSREF level; reference services in the management of breast cancer after histological diagnosis.

The implementation of network support for breast cancer patients in Bamako not only has the advantage of improving access to adequate care, but also of building a better database on the disease.

Given the scarcity of data at the hospital level on breast cancer in Mali, we found it useful to continue studies in the gynecological and mammary cancer screening and management unit of the gynecology and obstetrics department of the CHU Gabriel Touré. The objective of this work is to study the epidemiological, diagnostic and therapeutic aspects of breast cancer from 2020 to 2022.

2. Methodology

Our study took place at the gynecological and breast cancer management unit of the gynecology and obstetrics department of the CHU Gabriel Touré. It was a retrospective and descriptive study which took place from January 2020 as of October 31, 2022. The study population consists of patients with breast cancer diagnosed by histology during our study period.

The administrative and health authorities were informed of the survey by a request for authorization to collect data. The patients were collected according to

the socio-demographic, clinical and anatomopathological data collected on the basis of the medical files. The data were collected on a validated individual survey form, a model of which is appended. The completed tools were reviewed over time to correct errors. The forms were anonymous and the confidentiality of the information collected was guaranteed with access restricted to members of the research team.

Data entry and analysis were done on SPSS 25, Excel and Microsoft Office 2013 Word software. The statistical tests used were:

- Parametric tests: mean and standard deviation;
- Non-parametric tests: the Chi-2 test.

3. Results

Frequency (Tables 1-6 and Figures 1-5):

Table 1. Breakdown by age group.

age group	Number	percentage
Under 35 years	49	22.4
35 - 45 years	**79**	**36.1**
46 - 65 years	72	32.9
Over 65 years old	19	8.7
Total	219	100.0

The average age is 45.55 years (16 - 85 years).

Table 2. Breakdown by occupation.

Occupation	Number	**Percentage**
Housewives	**203**	**92.7**
Official	9	4.1
Others	7	3.2
Total	**219**	**100.0**

Housewives were in the majority at 92.7%.

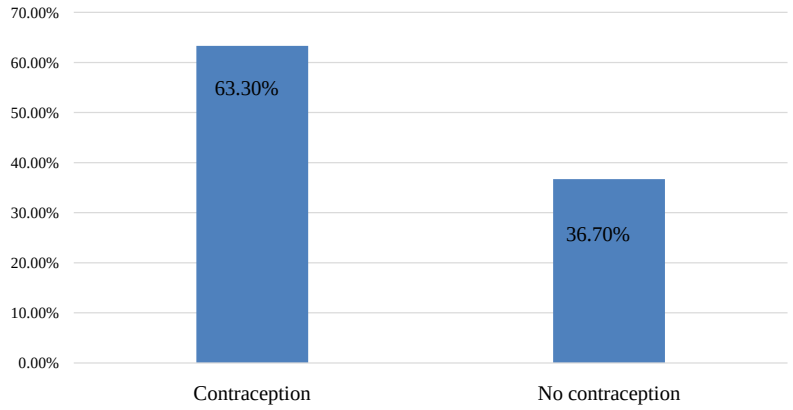

Figure 1. Breakdown by contraception. The notion of contraception was found in 63.30%.

Table 3. Distribution according to parity.

Parity	Number	**percentage**
Nulliparous	16	7.3
Primiparous	23	10.5
Pauciparous	54	24.7
Multipara	**126**	**57.5**
Total	**219**	**100.0**

57.5% were multiparous.

Table 4. The distribution according to the duration of contraception.

Duration of birth control	**Number**	**Percentage**
Less than 1 year	28	20.14
1 - 5 years	93	66.91
Over 5 years	18	12.95
Total	139	100.0

Among patients with a notion of contraception, 66.9% had a duration of contraception between 1 and 5 years.

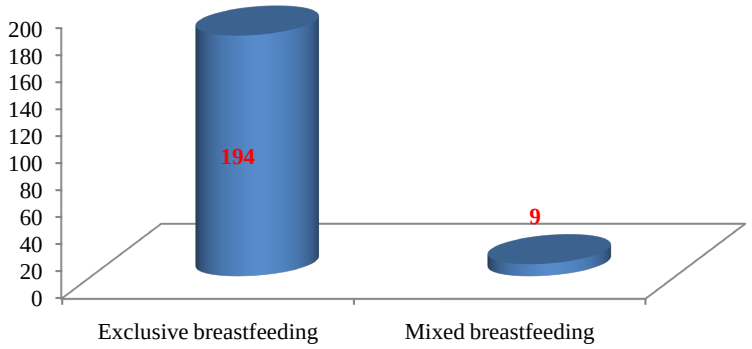

Figure 2. Breakdown by mode of breastfeeding. 88.58% had practiced exclusive breastfeeding.

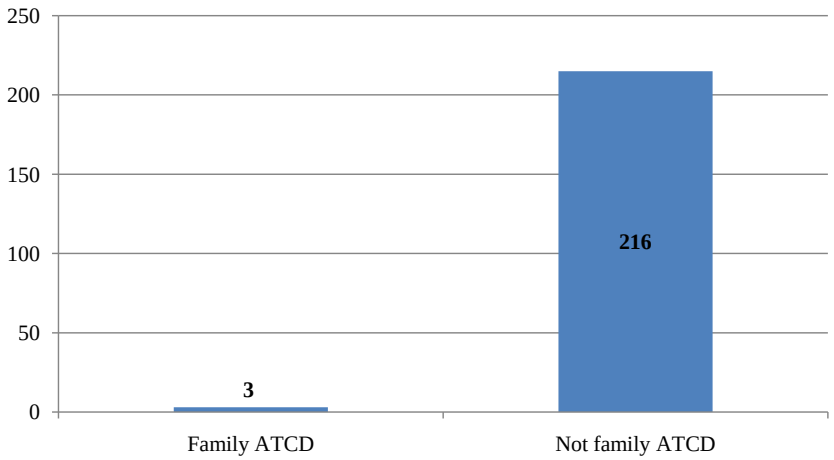

Figure 3. Breakdown by family history of breast cancer. 98.6% had no family history of breast cancer.

Table 5. Breakdown by breastfeeding duration.

Breastfeeding duration	Number	Percentage
less than 1 year	61	35.9
1 - 2 years	103	60.6
more than 2 years	6	3.5
Total	**170**	**100.0**

60.6% had a duration of breastfeeding between 1 and 2 years.

Table 6. Distribution according to personal history of benign breast pathology.

Breast Pathology Personal ATCD	Number	Percentage
Adenofibroma	18	17
Mastitis	59	55.6
Fibrocystic disease	2	1.9
Others	27	25.5
Total	**106**	**100.0**

Mastitis was found in 55.6% of patients with a personal history of benign breast disease.

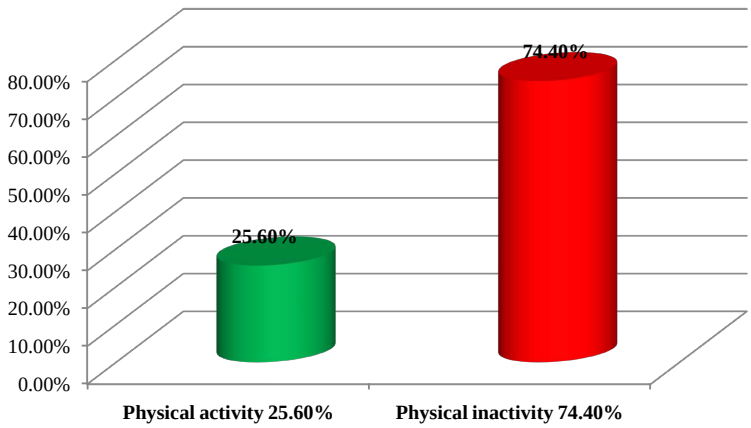

Figure 4. Breakdown by physical activity status. Physical inactivity was present in 74.40% of patients.

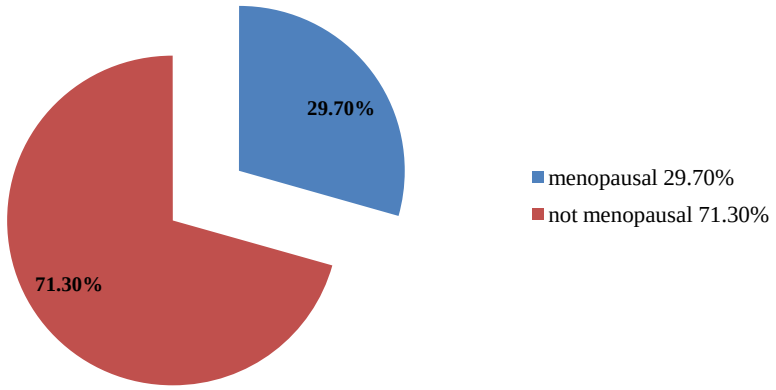

Figure 5. Breakdown by menopausal status. Women in period of genital activity represented 71.30% of patients.

Physical examination (Tables 7-22 and Figures 6-9)

Table 7. Breakdown by reason for consultation.

Reason for consultation	Number	Percentage
Breast lump or swelling	203	92.7
Nipple discharge	4	1.8
breast pain	8	3.7
Vegetative ulceration	2	0.9
Others	2	0.9
Total	**219**	**100.0**

The dominant reason for consultation was the breast lump at 92.7%.

Table 8. Distribution according to breast asymmetry.

Breast asymmetry	Number	Percentage
Yes	**143**	**65.3**
No	76	34.7
Total	219	100.0

Breast asymmetry was observed in 65.3%.

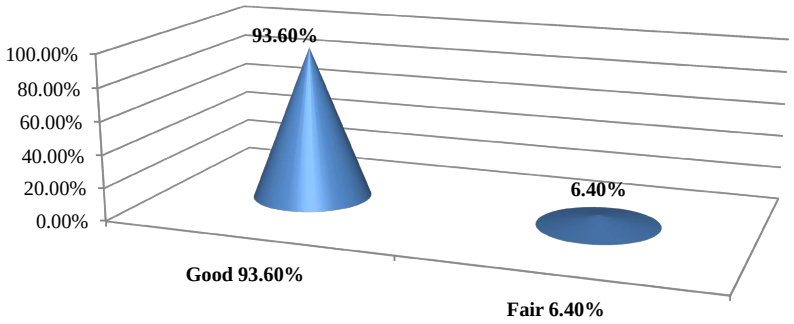

Figure 6. Breakdown by general condition. The general condition was mostly good at 93.60%.

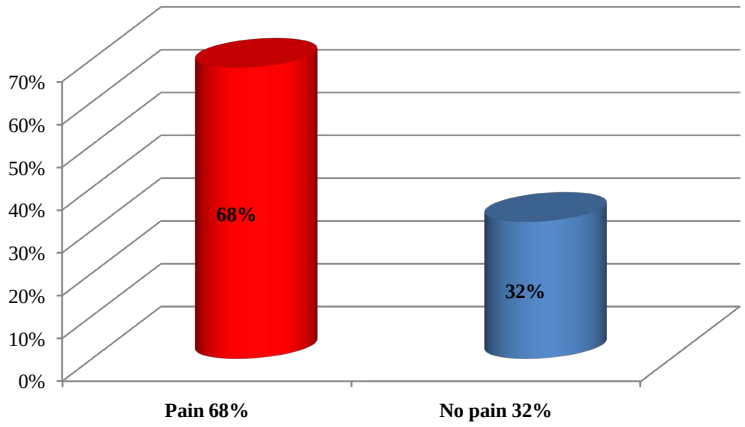

Figure 7. Distribution according to the presence of pain. Pain was present in 68%.

Table 9. Distribution according to contralateral breast involvement.

Contralateral breast involvement	**Number**	Percentage
YES	71	32.4
NO	**148**	**67.6**
Total	219	100.0

The contralateral breast was not affected in 67.6%.

Table 10. Distribution according to breast discharge.

Breast discharge	**Number**	Percentage
YES	**141**	**64.4**
NO	78	35.6
Total	219	100.0

Breast discharge was observed in 64.4%.

Table 11. Distribution according to Scarff-Bloom-Richardson grade and Elston-Ellis grade.

Scarff-Bloom-Richardson grade and Elston-Ellis grade	**Number**	Percentage
Grade 2	**156**	**71.2**
Grade 3	63	28.8
Total	219	100.0

Scarff-Bloom-Richardson grade 2 and Elston-Ellis grade were observed in 71.2%.

Table 12. Distribution according to evolution.

Evolution	**Number**	**Percentage**
Remission	37	16.90
Complication	10	4.57
Lost view	53	24.20
Death	**119**	**54.33**
Total	219	100.0

Death was observed in 54.33%.

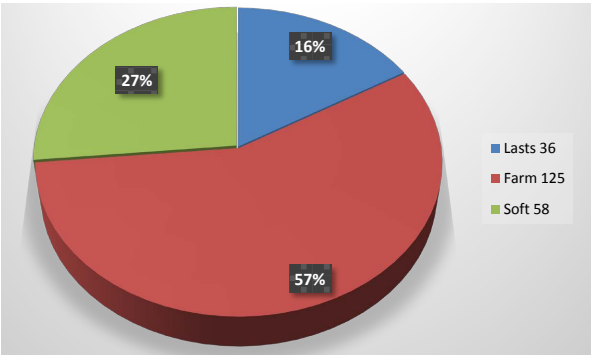

Figure 8. Distribution by tumor consistency. The firm consistency of the tumor was predominant at 57%.

Table 13. Distribution according to the location of the tumor.

Tumor location	Number	Percentage
Superior-outer quadrant	**118**	**53.9**
Superior-internal quadrant	41	18.7
Whenrant inferior-internal	13	5.9
Inferior-outer quadrant	20	9.1
Association	27	12.3
Total	219	100.0

The tumor was located in the supero-external quadrant in 53.9%.

Table 14. Breakdown according to the nature of the item sent for examination Anapath.

Nature of the part sent for examination Anapath	Number	Percentage
Biopsy	**216**	**98.6**
Mastectomy	3	1.4
Total	219	100.0

The biopsy was performed in 98.6%.

Table 15. Distribution according to the number of metastases.

Number of metastasis	Number	Percentage
0	9	4.2
1	**178**	**81.28**
2	29	13.24
3	3	1.37
Total	219	100.0

Metastasis was present in 81.2%.

Table 16. Distribution according to breast edema.

Breast edema	Number	Percentage
Yes	**116**	**53.0**
No	103	47.0
Total	219	100.0

Breast edema was observed in 53%.

Table 17. Distribution according to breast redness.

Breast redness	Number	Percentage
YES	**141**	**64.4**
No	78	35.6
Total	219	100.0

Redness of the breast has and observed in 64.4%.

Table 18. Distribution according to breasts affected.

Breast affected	Number	Percentage
right breast	96	43.8
left breast	**118**	**53.9**
1 + 2	5	2.3
Total	219	100.0

The left breast was the frequently affected at 53.9%.

Table 19. Distribution according to skin signs.

Skin signs	Number	Percentage
no signs	5	2.3
Swelling	50	22.8
Orange peel	**133**	**60.7**
Ulceration	11	5.0
Retraction	5	2.3
Others	1	0.5
Association	14	6.4
Total	219	100.0

The orange peel appearance was observed in 60.7%.

Table 20. Distribution by tumor size.

Tumor size	Number	Percentage
T0	1	.5
T2	3	1.4
T3	45	20.5
T4	**170**	**77.6**
Total	219	100.0

The tumor was class T4 in 77.6%.

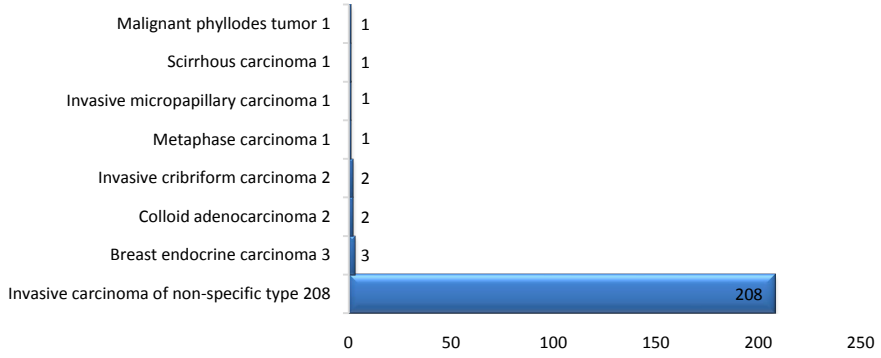

Figure 9. Distribution according to histological type. Invasive carcinoma of non-specific type was frequently observed at 94.9%.

Table 21. Breakdown by treatment.

Treatment	Number	Percentage
Chemotherapy	**182**	**83.1**
Surgery	14	6.4
Radiotherapy	1	0.5
Chemotherapy + Surgery	22	10.0
Total	219	100.0

Chemotherapy was the treatment in 83.1%.

Table 22. Distribution according to the age group by the presence of metastasis.

age range	presence of metastasis	absence of metastasis	Total
Under 35	36	9	45
35 - 45 years old	45	28	73
46 - 65 years old	38	30	68
Over 65	13	4	17
Total	**132**	**71**	**203**

Chi2 is 0.041 so significant. The presence of metastasis would probably be influenced by the age of the patient.

4. Discussion

We collected a total of 219 breast cancer cases, all female; *i.e.* an average frequency of 77.2 new cases per year. This frequency is high compared to those found by M Ranaivomanan *et al.* in Madagascar, Zaki *et al.* in Niger, which are respectively 7.75 and 64.5 cases per year [2] [3]. Regarding age, the extremes were 16 and 85 years, with an average age of 45.55 years. The 35 - 45 year old class was the most represented with 36.1% of cases. Moreover, 58.5% of women are less than or equal to 45 years old, corresponding to the period of genital activity. In Niger, Zaki *et al.* found 69.89% of breast cancers in women before the age of 50 [3], a higher value than ours. Overall in sub-Saharan Africa, cancer occurs in young women of middle age at the time of diagnosis between 42 and 53 years [4]. In our study, the decrease in breast cancer after the age of 50 may be linked on the one hand to the fact that certain habits such as breastfeeding for more than a year are respected, and on the other hand to the absence or low prevalence of certain risk factors such as hormonal treatments, as well as the low alcohol consumption observed in this population. The concept of contraception was found in 63.3% of patients with a duration of majority contraception between 1 to 5 years. Exclusive breastfeeding was practiced by 88.58% of the patients. The duration of breastfeeding was predominant at 60.6% between 1 and 2 years.

In our series, housekeepers account for 92.7%; the multiparous majority at 57.57%; this predominant tendency of multiparas was reported by M. Touré *et al.* in Côte d'Ivoire at 45% [5]. Does the occupation property of housewives lead

to unstable moods, furthermore cause an imbalance in the secretion of certain hormones and ultimately lead to their high rate of breast cancer diagnosis?

Given the background; those of personal benign breast pathology, and the absence of a family history of breast cancer were reported in the respective order of 55.6% and 98.6% in our study. Physical inactivity was observed in 74.4% of patients.

Of the 219 cases identified, the left breast was the most affected with 53.9%, followed by the right side, 43.8% and finally 2.3% bilateral involvement. In general, the involvement of the left breast was predominant compared to the right breast according to several authors [6] [7]. However, some like Darré T *et al.* And Sano D *et al.* reported a predominance of the right breast [8] [9]. In the literature, bilateral involvement is generally between 3 and 13% [10] [11]. In our study, the tumor was found at the QSE in 53.9% of cases, at the QSI in 18.7%, regardless of the side of the breast affected. These rates are higher than those reported by Togo A *et al.* who found 41.4% for the QSE, 12.2% for the QSI; however, the nipple site was present in them in 19.05% of cases [12]. Breast pain was reported in 68%, breast discharge observed in 64.4% of cases.

In varying proportions, local clinical signs were reported: breast swelling in 92.7% of cases; tumor size classified as T4 in 77.6%; breast asymmetry was observed in 65.3% of patients; breast redness in 64.4%; the appearance of orange peel in 60.7%; firm consistency of the breast in observed in 57%; breast edema in 53%.

Lymph node involvement revealed N1 in 67.12% of cases; breast cancer is very frequently metastatic with at most one metastasis in 81.28% of cases. The occurrence of metastases would probably be influenced by the age of the patients (Chi2 = 0.041 therefore significant).

The high rate of frequencies of locoregional and general signs is consistent with the late diagnosis of breast cancer in our series. This proof is supported by the review of the literature of multiple authors carried out by M. Ly *et al.* who shares the observation of the diagnosis at stage III and IV [4].

For the diagnostic evocation, we note 98.6% of biopsy + histology and mastectomy + histology in 1.4% of the cases; in Côte d'Ivoire, Touré *et al.* reported 80% fine needle aspiration + cytology and 20% microbiopsy echoguided + histology [5].

The histological type was specified in almost all patients. Non-specific invasive carcinoma is the most represented with 208 cases (95%). Darre *et al.* in Togo found, as in our series, the predominance of the same histological type up to (96%) [13]. The histoprognostic grade of SBR studied in this series revealed the predominance of grade II in the order of 70.2%, followed by grade III at 29.2%. This order corroborates that of Darré *et al.* in Togo but in different proportions, namely grade II (54.67%), grade III (34.95%) and I (10.38%) [13]. In Yaoundé, Essiben *et al.* finds a different trend, with in order of frequency, grades II, I and III [14]. The immunohistochemical status has been studied very little, only 1 case reported (0.45%). This proportion was low compared to the entire study

population and cannot reliably reflect reality. This is explained by the recent introduction of this type of analysis in the country's diagnostic package, access to which remains restricted for financial reasons. However, the prognostic and predictive role of hormone receptors remains essential in the management of breast cancer.

Following the multidisciplinary consultation meeting, the therapeutic strategy was chemotherapy in 83.1%; neoadjuvant chemotherapy followed by surgery in 10% of cases; primary surgery 6.4% and radiotherapy in 0.5% of cases. This order of frequency sufficiently shows the problem of late diagnosis of breast cancer in our series, it corroborates the trends revealed by a study carried out in Madagascar which were 55% diagnosis at stage III, 32% at stage IV.

The problem of late diagnosis of breast cancer in the context of Mali partly explains the poor prognosis of patients with breast cancer. This is consistent with the observations of our study with records a death rate of 54.3% during the period of our study.

5. Conclusion

Our study of 219 cases of breast cancer in the gynecology-obstetrics department of the CHU Gabriel Touré allowed the analysis of the epidemiological, diagnostic and therapeutic aspects of breast cancer. It emerges that the major challenges in the fight against breast cancer in Mali remain screening, early diagnosis and adequate care.

Conflicts of Interest

The authors declare no conflicts of interest concerning the publication of this article.

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Abbreviations/Cycles

CS COM: Community Health Center
CS Ref: Reference Health Center
CHU: University Hospital Center

Appendix

SURVEY SHEET
Q1. Survey sheet no.: _____ /
Q2. Age (years): _____/
Q3. Weight (Kg): _____/
Q4. Blood group: _____/
Q5. Gender: _____/
1 = Male 2 = Female
Q6. Occupation: _____ /
1 = Housewife 4 = Student
2 = Civil servant 5 = Other (to be specified) 3 = Trader
Q7. Ethnicity: _____/
1 = Sarakolé 5 = Bambara 9 = Dogon
2 = Malinke 6 = Minianka/Senufo 10 = Peulh
3 = Kassonké 7 = Sonrhaï 11 = Others (specify)
4 = Tuareg 8 = Bobo
Q8. Usual address: _____ /Tel
Q9. Nationality: _____/
1 = Malian 2 = Other (specify)
Q11. Marital status: _____/
1 = Married 3 = Divorced 5 = Other (specify)
2 = Single 4 = Widowed
Q12. Consultation Health Center: _____/
Q15. Reason for consultation: _____/
1 = Breast nodule or swelling 6 = Vegetative ulceration
2 = Deformation of the skin or nipple 7 = Association to be specified
3 = Nipple discharge 8 = New recurrence
4 = Breast pain 9 = Other (specify)
5 = Axillary nodule
Q13. Consultation period: _____/
Specify the number of months, weeks or days
Q14. Age of first period: _____/
Specify age
Q14. Age at first pregnancy: _____/
Q15. Parity (number of pregnancies): _____/
Q16. Birth control: _____/
1 = Yes 2 = No
Q21. If yes; Method used: _____ /

1 = Oral 2 = Injectable 3 = others (specify)
Q22. Duration of intake: _____/
Specify the number of times
Q23. Contraceptive name: _____/
Q24. Menopause: _____/
1 = Yes 2 = No
Q25. Age at menopause: _____
Q26. Breastfeeding method: _____/
1 = Maternal 2 = Mixed 3 = Artificial
Q27. Duration of breastfeeding: _____/
0 = Not breastfeeding 2 = 1 - 2 years
1 = less than 1 year 3 = greater than 2 years
Q28. Personal history of cancer: _____/
1 = Breast 2 = Other (specify) 3 = None
Q29. Family history of breast cancer: _____/
1 = Grandparents 3 = Sisters 5 = Others (specify)
2 = Mother 4 = Aunt 6 = None
Q30. Family history of other cancers: _____/
1 = Grandparents 3 = Sisters 5 = Others (specify)
2 = Mother 4 = Aunt 6 = None
Q31. General signs: A. General condition: _____/
1 = Good 3 = Fair
2 = Altered
B. Conjunctivae: _____/
1 = Colored 2 = Jaundice 3 = Pale
C. Temperature (˚C): _____/
Q32. Skin signs: _____/
1 = No signs 4 = Ulceration 7 = Association (to be specified)
2 = Swelling 5 = Retraction
3 = Orange peel skin 6 = Other (specify)
Q33. Affected breasts: _____/
1 = Left breast
2 = Right breast 3 = 1 + 2
Q34. Tumor location: _____/
1 = Upper-outer quadrant 4 = Lower -outer quadrant
2 = Superior-internal quadrant 5 = Others (to be specified)
3 = Infero-internal quadrant 6 = Associations (to be specified)
Q35. anapath exam requested by: _____/
1 = The patient herself 3 = Surgeon 5 = Others (specify)
2 = General practitioner 4 = Gynecologist
Q36. Tumor size: _____/
1 = T0 (no palpable tumour) 4 = T3 (tumor larger than 5 cm in diameter)
2 = T1 (tumor less than 2 cm in diameter) 5 = T4 (tumor with wall extension)
3 = T2 (2 cm to 5 cm and/or skin) and or to the skin)

Q37. Tumor consistency: _____/
1 = Hard 3 = Soft
2 = Farm 4 = Other (specify)
. Muscle adhesion: _____/
1 = Yes 2 = No
Q39. Adhesion to the rib grill: _____/
1 = Yes 2 = No
Q40. Lymph node involvement: _____/
1 = N0 (no palpable lymph nodes 3 = N2 (Fixed axillary adenopathy
2 = N1 (Mobile homolateral axillary lymph node) 4 = N4 (ADP supraclavicular or arm edema)
Q41. Breast pain: _____/
1 = Yes 2 = No
Q42. Breast discharge: _____/
1 = Yes 2 = No
Q43. Contralateral breast involvement: _____/
1 = Yes 2 = No
Q44. Personal history of mastopathies: _____/
1 = Adenofibroma
2 = Mastitis 5 = Other to be specified
3 = Fibrocystic disease
4 = Cyst 6 = No ATCD
Q45. Other History: _____/
Q46. Mammogram: _____/
1 = Aspect suspicious of cancer 3 = Normal
2 = Benign tumor 4 = Other (specify)
Q47. Ultrasound: _____/
1 = Aspect suspicious of cancer 3 = Normal
2 = Benign tumor 4 = Other (specify)
Q48. Cytopunction: _____/
1 = Cancer 3 = Normal
2 = Benign tumor 4 = Other (specify)
Q49. Date of collection: _____/
Q50. Nature of the document sent for the anapath examination: _____/
1 = Breast biopsy 3 = Mastectomy 5 = 3 + 4
2 = Lumpectomy 4 = Lymph node dissection
Q51. Histological type: _____/
1 = ductal carcinoma in situ 11 = infiltrating micropapillary carcinoma
2 = metaphase carcinoma 12 = mucinous carcinoma
3 = lobular carcinoma in situ 13 = malignant phyllodes tumor
4 = apocrine carcinoma 14 = invasive cribriform carcinoma
5 = infiltrating ductal carcinoma 15 = scirrhous carcinoma
6 = adenoid cystic carcinoma 16 = breast endocrine carcinoma
7 = invasive lobular carcinoma 17 = colloidal adenocarcinoma

8 = mucoepidermoid carcinoma 18 = tubular carcinoma
9 = secreting carcinoma
10 = bone marrow carcinoma
Q52. Lymph node histology: _____/
1 = Not done 2 = Invasion 3 = No invasion
Q53. SBR Rating: _____/
1 = Grade I 2 = Grade II 3 = Grade III
Q54. Treatment: _____/
Q55. Immunohistochemistry
Yes ……. No ……
1 = Chemotherapy 4 = Hormone therapy 7 = 2 + 3
2 = surgery 5 = 1 + 2
3 = Radiotherapy 6 = 1 + 2 + 3
Q56. Evolution: _____/
1 = remission 2 =complications 3 = Lost to follow-up 4 = Death