

Male Breast Nodules in Ouagadougou (Burkina Faso): Radiological and Histopathological Aspects

Nina-Astrid Nde Ouedraogo^{1*}, Madina Napon², Bénilde Ma Kambou Tientore¹,
Boubakar Ouattara³, Abel Bamouni³, Ousséini Diallo³, Claudine Lougue Sorgho², Rabiou Cisse³

¹Service of Radiology of the Hospital of Bogodogo District, Ouagadougou, Burkina Faso

²Service of Radiology of the Pediatric Teaching Hospital Charles de Gaulle, Ouagadougou, Burkina Faso

³Service of Radiology of the Teaching Hospital Yalgado Ouédraogo, Ouagadougou, Burkina Faso

Email: *ninawed@hotmail.com

How to cite this paper: Ouedraogo, N.-A.N., Napon, M., Tientore, B.M.K., Ouattara, B., Bamouni, A., Diallo, O., Sorgho, C.L. and Cisse, R. (2018) Male Breast Nodules in Ouagadougou (Burkina Faso): Radiological and Histopathological Aspects. *Open Journal of Radiology*, 8, 274-280. <https://doi.org/10.4236/ojrad.2018.84030>

Received: September 19, 2018

Accepted: November 26, 2018

Published: November 29, 2018

Copyright © 2018 by authors and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Objective: To describe the radiological and histological aspects of breast nodules among men in our practice setting. **Methodology:** This is a descriptive and retrospective study conducted from January 2014 to October 2017. The study included male patients with breast nodules classified ACR3, 4 or 5 after a mammographic and ultrasound scan. These lesions were explored through an ultrasound-guided breast microbiopsy. The following are the variables collected: age, family history of breast cancer, medical history, ACR classification, nodule size, and anatomopathologic diagnosis. **Results:** 13 breast nodules were explored among 13 male subjects. Mammography and breast ultrasound enabled to identify one ACR3 lesion, 10 ACR4 lesions and 2 ACR5 lesions. The average age was 56.53 ± 14.63 years and the average size of the nodules 28.91 ± 13.62 mm. As for histology, there were seven malignant tumors and six benign tumors. The average age of patients with malignancy was 61.45 ± 13.62 years. The malignant nodules average size was 29.45 ± 12.54 mm. Malignant tumors exclusively consisted of invasive breast carcinomas while Benign ones consisted of dystrophic and inflammatory lesions. **Conclusion:** Most often Breast lesions among men had an indeterminate appearance on imaging and were predominantly malignant in histopathology.

Keywords

Breast Microbiopsy, Cancer, Breast, Male, Benign Nodule

1. Introduction

Breast lesions among humans are largely dominated by gynecomastia; the other

lesions are derived from the cutaneous and subcutaneous tissue of the breast [1]. Malignant lesions are rare. Breast cancer among men represents less than 1% of all breast cancers [2] [3]. These nodules are often neglected because of the lack of knowledge of mammary lesions on humans, sometimes causing diagnostic delays that hinder the prognosis of the patient in case of malignancy.

In imaging, the American College of Radiology (ACR) classification is used to predict the benign or benign nature of breast abnormalities. In case of symptomatic breast lesions in humans, the CAB recommends performing a bilateral mammogram, followed by breast ultrasonography for suspicious, indeterminate or normal mammogram lesions [4].

In Western Africa, some studies have described the epidemiological and clinical aspects of malignant breast lesions among humans [5]. In Togo, N'Timon and al [6] have described the imaging aspects of these malignant lesions.

Male breast pathology is rare in Burkina Faso [7]. Some studies have been carried out on the epidemiological, histopathological and therapeutic aspects of malignant lesions among men [7] [8] [9] [10]. However, none of them has described mammographic and ultrasonography aspects.

Our work aimed at describing the morphological aspects of these lesions through mammography and breast ultrasound, and at showing their radio-histological correlations.

2. Methodology

This was a retrospective, analytical, descriptive and cross-sectional study conducted from January 2014 to October 2017. We included all the male subjects who came for consultation for a swelling or a breast nodule during the study period. They were explored through mammography, breast ultrasound and micro-biopsy. This was performed under ultrasound guidance, with a 14-gauge automatic pistol, 10 cm long and 20 mm deflection. Three to four samples were taken according to the nodules size.

Variables were collected from patient records: age, family history of breast cancer, medical history, ACR classification, nodule size, and anatomopathologic diagnosis. The software Epi-Info 7.3 was used to analyze data. Patients' data were kept anonymous to preserve confidentiality.

3. Results

3.1. Population

The sample consisted of 13 nodules from 13 men. The average age was 56.53 ± 14.63 years. The average size of the nodules was 28.91 ± 13.62 mm. There was no family history of breast neoplasia or any personal medical history (testicular abnormality, obesity, cirrhosis). All tumors were palpable, of retro-areolar location.

The average age of patients with malignancy was estimated at 61.45 ± 13.62 years. The average size of the malignant nodules was 29.45 ± 12.54 mm. There were two cases of T4 tumors with palpable lymphadenopathy, three cases of T2

tumors and two cases of T1 tumors.

Patients with benign tumors had an average age of 45.53 ± 10.52 years and the average size of benign tumors was 23.52 ± 11.38 mm.

3.2. Mammo-Echographic Aspects

Mammography and breast ultrasound have enabled to classify lesions according to the Breast Imaging Report and Data System (BIRADS) of the American College of Radiology (ACR).

One lesion was of benign appearance. It appeared on the mammography as a nodule with circumscribed contours, without architectural distortion and without modified cutaneous planes. On the ultrasound, it was a hypoechoic nodule, with circumscribed contours, with a major axis parallel to the cutaneous planes and without posterior attenuation of the echoes. The imaging characteristics of this formation were in favor of benignity and the lesion was classified ACR 3.

Ten nodules had an indeterminate appearance on ultrasound and/or mammography and were classified as ACR4 (**Figure 1**, **Figure 2**). They were hypoechoic nodules, without posterior attenuation of the echoes, with poorly circumscribed contours.

Two lesions were probably malignant in mammography and mammography. They had irregular and speculated contours, with posterior attenuation of echoes.

3.3. Histopathological Aspects of Nodules

Histology permitted to note seven malignant tumors and six benign tumors. Malignant tumors exclusively consisted of invasive breast carcinomas while benign ones consisted of dystrophic (cystic and fibrocystic mastopathies) and inflammatory (acute and chronic mastitis) lesions.

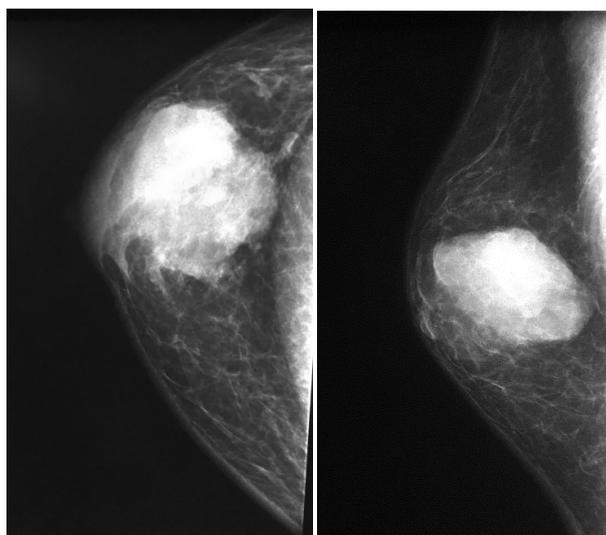


Figure 1. Right breast mammogram (frontal and oblique external incidence) showing a heterogeneous, retro-areolar mass, with partially masked, non-delineated edges.

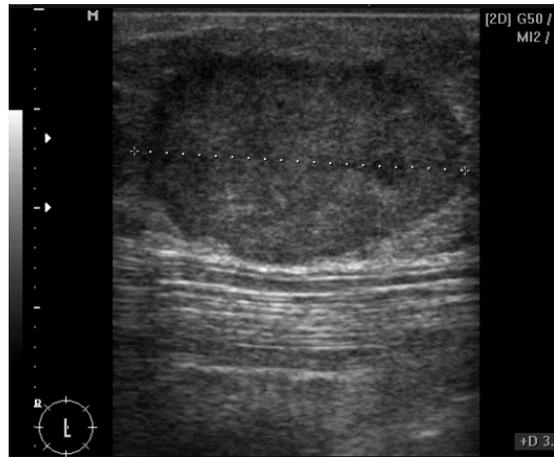


Figure 2. Ultrasound image of a hypoechoic and heterogeneous breast nodule with non-delineated edges (ACR4)

4. Discussion

This study analyzed the radiological and histological aspects of mammary tumors on 13 nodules among male subjects.

Mammography and breast ultrasonography permitted to classify breast abnormalities as per their morphological appearance into probable benign (ACR3), undetermined (ACR4) or malignant (ACR5) lesions. In our sample, the nodules were mostly undetermined or probably malignant.

Breast lesions among men are usually mild, with malignant lesions being rare unlike the case among women.

Breast cancer among men usually occurs in old age, around 71 years old [2]. Western authors found an average age of 63 - 69 years [11] [12]. In sub-Saharan Africa, N'Timon *et al.* [6] reported found an average age of 55 and Kidmas *et al.* [5] in Nigeria, an average age of 57.9 years.

The average age of our malignant tumors sample (61 years) was below western values, but in the same age range as other African writers. These data can be explained by life expectancy in our country, which is lower in developed countries.

The implied etiopathological factors suggest a change in the ratio of oestrogens by androgens. The risk of occurrence is high among patients with Klinefelter syndrome, testicular abnormality, obesity, cirrhosis [13]. There is also a family predisposition in 20% of cases [2]. In our sample, none of these risk factors were found among patients having a malignant tumor.

Malignant lesions among humans can be in the form of nodules without microcalcifications, nodules associated with microcalcifications or isolated microcalcifications; the nodules without calcifications are the most frequent forms (ref). We did not show microcalcifications in the mammography of our nodules, which corroborates literature data.

Mammographic and echographic surveys of nodules classified. The radiological aspects of breast nodules condition the further management.

ACR3 nodules have a predictive positive value of less than 3% malignancy

[14]. They are well delineated, round or oval or discreetly polycyclic nodules, without microlobulation, are non-calcified and non-fluid on ultrasound. These nodules usually require close monitoring and a microbiopsy will be performed only when the nodule will significantly increase, in case of risk factors or in case of major anxiety. There was good agreement because the ACR3 nodules in the sample were benign in histology.

ACR4 nodules are nodules whose appearances in imaging are undetermined. Their positive predictive value of malignancy varies from 3% to 97% [14]. They are nodules with contours that are not or only partially delineated. The great variability of their PPV of malignancy requires carrying out histopathological microbiopsy. Our results corroborate these figures because in this group, there were as many benign lesions as malignant lesions.

ACR5 nodules have a positive predictive value of more than 95% malignancy [14]. They are hypochoic nodules with speculated contours, or with a long axis perpendicular to the cutaneous planes. They are nodules with a high probability of malignancy. These nodules all corresponded in our sample to malignant nodules in histology; there was a good match for this class.

Benign lesions are usually preponderant among men, dominated by gynecomastia [2]. Other benign lesions are usually derived from cutaneous and subcutaneous breast tissue [3]. In our sample, benign breast lesions included dystrophic and inflammatory lesions.

Malignant tumors were exclusively represented by infiltrating ductal carcinomas according to several authors [6] [15]. The average age of onset was similar to other authors [16] [17] [18]. But, they are of worse prognosis than in the woman because of the delayed diagnosis. Most of malignancies in our sample were T2 and T4; two of which had lymph node extension.

N'Timon and al [6] in Togo showed that malignant lesions occurred among men around 55 years of age. In Nigeria, Kidmas AT *et al.* [5] showed a prevalence of 8% of breast cancers among men in their sample, with a mean age of onset of 57.9 years.

This is the first time such a study is conducted in our country even if it is limited to the urban environment. Despite the small sample, these results show that malignant tumors are as common as benign tumors. Malignant tumors are diagnosed among the elderly at an advanced stage. They were represented by infiltrating ductal carcinomas.

5. Conclusions

Breast lesions exist among male patients in our country.

Their mammography and ultrasound aspects were mostly indeterminate or probably malignant in nature, implying additional explorations through microbiopsy for histopathological confirmation, in order to optimize the treatment of these patients.

Malignant tumors were preponderant in our sample and occurred among the elderly.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Charlot, M., Béatrix, O., Chateau, F., Dubuisson, J., Golfier, F., Valette, P.J., *et al.* (2013) Pathologie du sein chez l'homme. *Journal de Radiologie Diagnostique et Interventionnelle*, **94**, 26-36. <https://doi.org/10.1016/j.jradio.2012.07.015>
- [2] Fentiman, I.S., Fourquet, A. and Hortobagyi, G.N. (2006) Male Breast Cancer. *The Lancet*, **367**, 595-604. [https://doi.org/10.1016/S0140-6736\(06\)68226-3](https://doi.org/10.1016/S0140-6736(06)68226-3)
- [3] Appelbaum, A.H., Evans, G.F., Levy, K.R., Amirkhan, R.H. and Schumpert, T.D. (1999) Mammographic Appearances of Male Breast Disease. *Radiographics*, **19**, 559-568. <https://doi.org/10.1148/radiographics.19.3.g99ma01559>
- [4] Mainiero, M.B., Lourenco, A.P., Barke, L.D., Argus, A.D., Bailey, L., Carkaci, S., *et al.* (2015) ACR Appropriateness Criteria Evaluation of the Symptomatic Male Breast. *Journal of the American College of Radiology*, **12**, 678-682. <https://doi.org/10.1016/j.jacr.2015.03.024>
- [5] Kidmas, A.T., Ugwu, B.T., Manasseh, A.N., Iya, D. and Opaluwa, A.S. (2005) Male Breast Malignancy in Jos University Teaching Hospital. *West African Journal of Medicine*, **24**, 36-40. <https://doi.org/10.4314/wajm.v24i1.28160>
- [6] N'timon, B., Darré, T., Dagbé, M., Gbandé, P., Amadou, A., Tchaou, M., *et al.* (2017) Echo-Mammographic and Anatomic-Pathological Aspects of Male Breast Cancer in Togo. *Open Journal of Radiology*, **7**, 250. <https://doi.org/10.4236/ojrad.2017.74028>
- [7] Bonane-Thieba, B., Lompo-Goumbri, O.M., Konségré, V., Sawadogo, J., Lamien-Sanou, A. and Soudré, R.B. (2010) Aspects épidémiologiques et histopathologiques des affections mammaires à Ouagadougou. *African Journal of Cancer*, **2**, 146-150. <https://doi.org/10.1007/s12558-010-0059-3>
- [8] Goumbri, O.M., Domagni, O.E., Sanou, A.M., Konsegré, V. and Soudre, R.B. (2009) Aspects épidémiologiques et histopathologiques des cancers au Burkina Faso. *African Journal of Cancer*, **1**, 207-211. <https://doi.org/10.1007/s12558-009-0052-x>
- [9] Sano, D., Dao, B., Lankoandé, J., Touré, B., Sakandé, B., Traoré, S.S., *et al.* (1997) Cancer du sein de l'homme en milieu africain. À propos de 5 cas observés au Centre hospitalo-universitaire de Ouagadougou (Burkina Faso). *Bull Cancer (Paris)*, **84**, 175-177.
- [10] Zongo, N., Ouédraogo, S., Korsaga-Somé, N., Somé, O.R., Naïma, G.O., Ouangré, E., *et al.* (2018) Male Breast Cancer: Diagnosis Stages, Treatment and Survival in a Country with Limited Resources (Burkina Faso). *World Journal of Surgical Oncology*, **16**, 4. <https://doi.org/10.1186/s12957-017-1297-y>
- [11] Nguyen, C., Kettler, M.D., Swirsky, M.E., Miller, V.I., Scott, C., Krause, R., *et al.* (2013) Male Breast Disease: Pictorial Review with Radiologic-Pathologic Correlation. *RadioGraphics*, **33**, 763-779. <https://doi.org/10.1148/rg.333125137>
- [12] Madhukar, M. and Chetlen, A. (2013) Multimodality Imaging of Benign and Malignant Male Breast Disease. *Clinical Radiology*, **68**, e698-e706. <https://doi.org/10.1016/j.crad.2013.07.007>
- [13] Giordano, S.H., Buzdar, A.U. and Hortobagyi, G.N. (2002) Breast Cancer in Men. *Annals of Internal Medicine*, **137**, 678-687. <https://doi.org/10.7326/0003-4819-137-8-200210150-00013>

- [14] D'orsi, C.J., Bassett, L.W., Berg, W.A., Feig, S.A., Jackson, V.P. and Kopans, D.B. (2003) Breast Imaging Reporting and Data System: ACR BI-RADS-Mammography. American College of Radiology, 2003, 4.
- [15] Laabadi, K., Jayi, S., Alaoui, F.F., Bouguern, H., Chaara, H., Melhouf, M.A., *et al.* (2014) Cancer du sein de l'homme: À propos de 6 cas. *The Pan African Medical Journal*, **16**, 70.
- [16] Sano, D., Dao, B., Lankoandé, J., Touré, B., Sakandé, B., Traoré, S.S., *et al.* (1997) Cancer du sein de l'homme en milieu africain. À propos de 5 cas observés au Centre hospitalo-universitaire de Ouagadougou (Burkina Faso). *Bull Cancer (Paris)*, **84**, 175-177.
- [17] de Lara, C.T., Goudy, G., MacGrogan, G., Durand, M., Dilhuydy, J.-M., Avril, A., *et al.* (2008) Cancers du sein chez l'homme: à propos de 52 cas pris en charge à l'institut Bergonié de Bordeaux entre 1980 et 2004. *Gynécologie Obstétrique & Fertilité*, **36**, 386-394. <https://doi.org/10.1016/j.gyobfe.2008.02.020>
- [18] Oger, A.-S., Boukerrou, M., Cutuli, B., Campion, L., Rousseau, E., Bussièrès, E., *et al.* (2015) Le cancer du sein chez l'homme: approche épidémiologique, diagnostique, et thérapeutique: étude multicentrique rétrospective à propos de 95 cas. *Gynécologie Obstétrique & Fertilité*, **43**, 290-296. <https://doi.org/10.1016/j.gyobfe.2015.02.010>