BENIGN PROLIFERATIVE BREAST DISEASE: A HISTOPATHOLOGICAL REVIEW OF CASES AT KORLE BU TEACHING HOSPITAL.

ABSTRACT

Background: With the increasing education on breast cancer, most women are reporting to the hospital with breast lumps most of are benign breast lesions. Benign breast diseases constitute a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations and neoplasms. This is to look at the various histologic type of benign proliferative breast disease among Ghanaian women.

Method: This is a retrospective study of breast excisions received between 2006-2013 at the Department of Pathology, Korle Bu teaching hospital (KBTH), Ghana. All histological slides were retrieved

and examine. Demographic information was also retrieved from the request form. The data was subject to analysis using SPSS version 16.5 and Windows Excel.

Results: During the period of study, 2,805 cases of benign breast lesions were received by the department, out of which 2,396 were proliferative benign lesions representing 89.4%. The top five lesions were fibroadenoma (89.01%), fibroadenomatoid hyperplasia (3.26%), tubular adenoma (2.51%), benign phylloides tumour (1.71%) and intraductal papilloma (1.59%). The average ages of clients with these lesions were 24 years (±8.3 years), 28 years (±10.7 years), 22.7 years (±15 years), 38 years (±14.2 years and 45.4 years (±8.3 years) respectively. Fibroadenoma and benign phelloides tumour have preponderance to the right and left breast respectively with statistical significance.

Conclusion: There are some differences between benign breast lesions in Ghanaian women as compared to other African countries within the Sub Saharan region.

Keywords*: Benign proliferative breast disease, fibroadenoma, fibroadematoid hyperplasia and phylloides tumour.*

BACKGROUND

With the increasing education on breast cancer, most women are reporting to the hospital with breast lumps most of are benign breast lesions. [1,2] Benign breast diseases constitute a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations and neoplasms. These may present with a wide range of symptoms or may be detected as incidental microscopic findings, [2] examples include fibroadenomas, hyperplasia,

cysts, intraductal papilloma, sclerosing adenosis, radial scars, fat necrosis and oil cysts, mastitis, granular cell tumour, duct ectasia, lobular carcinoma in situ, amidst others.[4]

Although these benign conditions could occur in men, they are rather common in women and can sometimes lead to breast cancer.[5]

Fortugno (2007) described breast cancer as a malignant tumour that starts in the cells of the breast.[6] BBDs that could increase the risk of developing breast cancers comprise fibroadenoma, multiple papilloma and adenosis.[7]

According to Guray and Sahin (2006), the incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continues to increase after menopause, although at a less rapid pace. [2]

As explained by Chinyama (2013), currently, many such BBDs may be detected by mammography, ultrasound, and magnetic resonance imaging of the breast, as well as use of needle biopsies. Thus, diagnosis could be accomplished without surgery in the majority of patients.[8]

Histologically, BBDs could also be classified under three groups which provide an idea regarding potential future cancer risk-Non-proliferative disorders (no increased risk), proliferative disorders without atypia (mild to moderate increase in risk) and atypical hyperplasia (substantial increase in risk). [9]

Over the past few years, the pertinent story of BBDs has shown some dynamism across Africa, with respect to the commonest types of benign proliferative breast diseases, diagnosis and management and general risk awareness amongst the populace.[2]

This paper is to look at the different histologic types of benign proliferative breast disease among a group of Ghanaian women.

Methodology

This is retrospective study of breast excisions received between January 2006 and December 2013 received at the Department of Pathology, Korle-Bu Teaching Hospital, Accra, Ghana. Clinical and demographic data regarding age, gender, and clinical information were obtained from the histopathology request forms and registry. Histopathology slides of cases within the study period were reviewed by the authors. The slides were independently reviewed by three pathologists. New slides for faded cases were prepared from formalin fixed paraffin embedded tissue blocks. The study addressed basic demographic and pathological information. The data was entered and analysed using Statistical Package for Social Sciences Software v 16.5 (SPSS Inc: Chicago, IL, USA) with p value calculated at confidence interval of 95%.

RESULTS

During the seven-year period of study 2,805 cases of benign breast diseases were received. Out of which 2,396 were benign proliferative diseases forming 85.4% of all benign breast diseases over the period of study. From Table 1: fibroadenoma is the leading proliferative breast disease (89.01%) followed by fibroadenomatoid hyperplasia (3.26%), tubular adenoma (2.51%), benign phylloides tumour (1.71%), Intraduct papilloma (1.59%), lactating adenoma (1.04%)

TABLE 1: DISTRIBUTION OF BENIGN PROLIFERATIVE BREAST DISEASES BY NUMBER OF CASES AND MEAN AGES FROM 2006-2013, KBTH

Breast Condition	Cases (%)	Mean age(±SD)
Fibroadenoma	2130 (89.01)	24 (±8.3)
Fibroadenomatoid Hyperplasia	78 (3.26)	28.0(±10.7)
Benign Phylloides tumour	41 (1.71)	38 (±14.2)
Intraductal Papilloma	38 (1.59)	45.4 (±8.3)
Lactating Adenoma	25 (1.04)	29.6 (±6.0)
Tubular Adenoma	60 (2.51)	22.7 (±15.0)
Atypical Hyperplasia	3 (0.13)	48.3 (±6.1)
Ductal Hyperplasia	12 (0.50)	43.4 (±13.8)
Epithelial Hyperplasia	3 (0.13)	55 (±18.0)
Microglandular Hyperplasia	1 (0.04)	45 (±0.0)
Stromal Hyperplasia	2 (0.08)	12 (±1.0)
Fibroepithelial Polyp	3(0.13)	24.3(±2.1)

The mean ages calculated are fibroadenoma 24 years(±8.3 years), fibroadenomatoid hyperplasia 28 years (±10.7 years), benign phylloides tumour 38 years(14.2 years), intraductal papilloma 45.4 years(±8.3 years), lactating adenoma 29.6 years(±6.0 years), tubular adenoma 22.7 years (±15.0 years), atypical hyperplasia 48.3 years(±6.1 years), ductal

hyperplasia 43.4 years (±13.8 years), epithelial hyperplasia 55 years (±18 years), microglandular hyperplasia, 45 years (±0.0 year), stromal hyperplasia 12 years (±1.0 year) and fibroepithelial polyp 24.3 years (±2.1 years). Most of the women above the age of 40years are likely to present with intraductal papilloma, atypical hyperplasia ductal hyperplasia and epithelial hyperplasia as compared to those less than 40 years.

TABLE 2: BENIGN PROLIFERATIVE BREAST DISEASES AND MORE LIKELY SITE OF OCCURRENCE.

Breast Condition	Right	Left	Bilateral	Total	p-value
Fibroadenoma	920	845	168	1933*	0.006
Fibroadenomatoid Hyperplasia	35	35	7	77*	0.932
Benign Phylloides tumour	11	28	1	40*	0.006
Intraductal Papilloma	14	16	4	34*	0.642
Lactating Adenoma	12	11	0	23*	0.363
Tubular Adenoma	25	27	4	56*	0.894
Atypical Hyperplasia	2	1	3	6*	0.747
Ductal Hyperplasia	2	9	0	11*	0.047
Epithelial Hyperplasia	2	1	0	3	0.743

Microglandular Hyperplasia	1	0	0	1	0.567
Stromal Hyperplasia	2	0	0	2	0.321
Fibroepithelial Polyp	1	2	0	3	0.718

* missing data

From table 2, the only lesions that show statistical significance with the common site of occurrence are fibroadenoma and benign phelloides tumour. Fibroadenoma commonly occurs in the right breast (p=0.006) and benign phelloides tumour in the left breast (p=0.006).

DISCUSSION

Benign lesions of the breast have been said to have assumed increasing importance in recent years because of the public awareness of breast cancer.[2,10,11] This is indicative of the recognition of the diseases as important risk factors for the development of breast cancer.[11] This risk is reported to be higher with atypical ductal and atypical lobular hyperplasia. Women with benign proliferative or atypical breast lesions have a two-fold risk of developing breast cancer in western populations.[10]

In this study the commonest benign proliferative breast disease is fibroadenoma (89.1%) which is in line with research done by Ohene-Yeboah and Amaning (2008), Uwaezuoke and Udoyen (2014) and Olu-Eddo and Ugiabe (2011) in Ghana, Belyasa state and Benin state in Nigeria respectively.[11,12,13] The next common lesion is fibroadenomatoid hyperplasia (3.26%), benign phylloides tumour (1.71%) and intraductal papilloma (1.59%). This is

in contrast to what was reported by Okoth et al (2013). [10] In their study the third and fourth commonest lesions were epidermoid cyst and fat necrosis. By definition these lesions are non-proliferative.

The four least diagnosed lesions were epithelial hyperplasia (0.13%), fibroepithelial polyp (0.13%), stromal hyperplasia (0.08%) and microglandular hyperplasia (0.04%).

Lesions with high malignant transformation were diagnosed. These lesions were atypical hyperplasia (0.13%), ductal hyperplasia (0.5%), tubular adenoma (2.5%) and lactating adenoma (1.04%). These figures are as low as those reported by Olu-Eddo and Ugiagbe (2011). [10] In the study by Dupoint et al (2006), they reported a fourfold increase in invasive carcinoma as compared to the general population. [14]

The average age of occurrence of fibroadenoma in our study is 24 years (± 8.3 years). This is in line with the Benin State study which had a mean age of 22.3 years (±6.7 years).[11] A similar study done in Ghana by Bewtra (2009) also estimated the mean age at presentation with fibroadenoma as 23 years which is in line with this current study.[15] In our study also we noticed that fibroadenoma has a predilection for the right breast (p=0.006). The mean age of the fibroadenomatoid hyperplasia was also in line with the Nigerian study.[11,16,17] There is no statistical significance to the site of this lesion.

CONCLUSION

Although there are some differences between the benign proliferative breast diseases in Ghana and certain African countries, fibroadenoma still remains the commonest benign proliferative breast disease as seen in other countries. Fibroadenoma forms more than four-fifth of all benign proliferative conditions in Ghana.

LIST OF ABBREVIATION

BBD -- Benign breast disease

KBTH – Korle-Bu Teaching Hospital

DECLARATION

- Ethics approval and consent to participate: Ethic approval was waived for the project because of it retrospective nature and no direct human or animal contact.
- Consent for publication: Not applicable
- Availability of data and material: The raw data can be found at Korle-Bu Teaching Hospital Department of Pathology archives and the processed data is accompanying this manuscript.
- Competing interests: Authors have no competing interest
- Funding: We did not receive any funding
- Authors' contributions: Research was designed by LDK, AAB and ADK, the pathology slides were reviewed by three pathologist; LDK, KPA and AA. The data was analysed by EG and ADK. All authors contributed to the final manuscript.

Acknowledgements: The authors are grateful to the entire staff of Department of Pathology, KBTH for the data and preparation of this manuscript.

- Authors' information (optional)

REFERENCE

[1]. Caleffi M, Filho DD, Borghetti K Cryoablation of benign breast tumors: Evolution of technique and technology. Breast, (2004); 13: 397–407.

[2]. Eric Gyan, Leonard Derkyi-Kwarteng, Ato Ampomah Brown, Abigail Derkyi-Kwarteng, Abrahams Afua Darkwa, Solomon Quayson, Patrick Kafui Akakpo Benign breast conditions: An eight-year single-centred histopathologic review of

women presenting with mass lesions at the Korle-Bu Teaching Hospital, Ghana. Annals of Diagnostic Pathology 42 (2019) 33-38

[3].Guray, M.and Sahin, A. A. Benign breast diseases: classification, diagnosis, and management. The Oncologist 2006; 11:435–449

[4]. American Cancer Society.

http://www.cancer.org/acs/groups/cid/documents/webcontent/003180-pdf.pdf.last reviewed 2016. Accessed in December, 2016.

[5].Bonewit-WestKathy, Sue Huntand Edith Applegate. Today's Medical Assistant: Clinical and Administrative Procedures. Elsevier Health Sciences2015. Page 419

[6]. Fortugno L. P. Frontiers in Breast Cancer Research. Nova Publishers 2007. Page 1

[7].Edward T. Bope, and Rick D. Kellerman. Conn's Current Therapy. Elsevier Health Sciences 2015. Page 1025.

[8]. Chinyama C. N. Benign Breast Diseases: Radiology - Pathology - Risk Assessment, 2nd edition. Springer Science & Business Media 2013.page 9

[9].~~Pearlman MD and Griffin JL~~. Benign breast disease. Obstet Gynecol. 2010 Sep; 116 (3):747-58

[10]. Okoth Christopher, Moses Galukande Josephat Jombwe and Dan Wamala. Benign proliferative breast diseases among female patients at a sub Saharan Africa tertiary hospital: a cross sectional study. BMC Surgery, 2013; **13**:9.page

[11].Olu-EddoA. N. and Ezekiel Enoghama Ugiagbe. Benign breast lesions in an African population: A 25-year histopathological review of 1864 cases. Niger Med J. 2011 Oct-Dec; 52(4): 211–216.

[12]. Oheneba –Yeboah M. and Amaning E.P spectrum of complaints presented at specialist breast clinic in Kumasi, Ghana. Ghana medical journal 2008 Volume 11:3; 110-112.

[13]. Uwaezuoke Stanley Chibuzo and Ezenwa Patrick Udoye. Benign breast lesions in Bayelsa State, Niger Delta Nigeria: a 5 year multicentre histopathological audit**.** *The Pan African Medical Journal. 2014;19:394.*

[14]. Dupoint W.D, Parl F.F, Hartmann W.H, Winfield A.C, Worrel J.A, et al. Breast cancer risk associated with proliferative breast disease and atypical hyperplasia. Cancer 2006;71:1258-65. [PubMed8435803]

[15]. Betraw C. fibroadenoma in women in Ghana. Pan Afri Med J. 2009;2:11. [PMCID: PMC2984278]

[16]. Irabor D.O and Okolo C.A. An audit of 149 conservative breast biopsies in Ibadan, Nigeria. Pak J Med Sci 2008;24:257-62.

[17]. Ochicha O., S. T Edino, A. Z. Mohammed and S. N. Amin. Benign breast lesions in Kano. The Nigerian Journal Of surgical research, 2002.vol 4:1. Page 1-5