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Review Article

Histologic Patterns of Benign Breast Diseases in a Niger Delta Population: A Five Year Review

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Abstract: Lumps in the breast are common especially in women of reproductive age, majority of these lumps which mimic or are suspected to be breast cancers clinically and radiologically are later found to be benign breast diseases histologically. This study therefore aims to determine the prevalence of benign breast diseases in this environment and describe the spectrum of histopathologic pattern of Benign Breast Diseases that is seen in Port Harcourt. A review of benign surgical breast specimen from the university of Port Harcourt teaching hospital was done. A total of 2002 breast specimens were diagnosed as benign between January 2007 and December 2011. 397 paraffin blocks were suitable for this study. No lesions from male patients or congenital lesions were observed in this study. 117 of these lesions (29.5%) were non proliferative breast lesions, 275 (69.3%) were proliferative breast lesions without atypia, and 5 (1.2%) were proliferative breast lesions with atypia. The commonest non proliferative lesion was fibrocystic change while the commonest proliferative lesion was fibroadenoma. The proliferative lesion with atypia was atypical ductal hyperplasia.
Keywords: Lumps, breast, fibroadenoma.

INTRODUCTION

The breast is a modified sweat duct found in both sexes, in females it is used to feed the young and also serves cosmetic functions. Breast diseases are common all over the world. Diseases of the female breasts are much more common than those of the male breast because it responds to some of the female steroid hormones. Benign breast disease (BBD) are very common among women of reproductive age [1, 2]. And is a well-known risk factor for breast cancer, although the magnitude of this association varies by lesion type [3-5]. BBD represents a composite of clinical and histopathological diagnoses of breast tissue lesions which includes developmental abnormalities, inflammatory lesions, epithelial, stromal proliferations, and neoplasms. The incidence of benign breast lesions is generally not well estimated but it is said to begin to rise during the second decade of life and peaks in the fourth and fifth decades [6]. The clinical course and prognosis of benign breast diseases remain favourable except in cases of benign proliferative disease which has increased risk for breast cancer. Because of the association of proliferative changes with the development of carcinoma, it is reasonable to speculate that both conditions could have common predisposing factors. The risk of biopsy-proven benign breast disease is increased significantly by nulliparity, late age of first birth, and late menopauses which are also factors known to be associated with increased risk of breast carcinoma [7, 8] and is hormone related. Dietary risks factors for breast cancer, such as high intake of meat fat and caffeine, also have been associated with a greater risk of benign breast disease [9, 10].

Clinical observations in women receiving estrogens suggest that hormonal events also play a role in the etiology of benign breast lesions but the use of anti-estrogens, obesity or excess body mass and the use of oral contraceptives are factors associated with a decreased risk for benign breast disease [7, 11].

Genetic abnormalities have been detected in benign proliferative breast disease but a complicating factor lies in the reported detection of genetic changes (Loss of Heterozygosity, and expression of HER2/neu) in histologically normal appearing breast tissues [12-19].

MATERIALS AND METHODS

This is a review of surgical specimens of patients diagnosed with benign breast lesions in the histopathology laboratory of the University of Port Harcourt Teaching Hospital (UPTH) between January 2007 and December 2011. The test population included patients in Rivers state and the adjoining Bayelsa, Akwa Ibom and Cross River States of Nigeria who seek medical care in the study centre. The patients' histopathological request cards were scrutinized, the

age, gender and other sociodemographic data of the patient and laterality of the lesion were extracted. The paraffin wax blocks of each case were retrieved and cases in which their original tissue blocks could not be found were considered unsuitable for examination and excluded from this study. Sections of the tissue blocks were done using the rotating microtome and the resulting ribbons left in a warm water bath to stretch out. Sections were picked from the warm water bath on to a clean plain glass slides, dried on the hot plate, deparaffinised and stained with routine Haematoxylin and Eosin stains. These slides were dried in an oven, mountant and cover slips applied and left to dry. All the slides were reviewed with the light microscope by the researchers and classified into the various categories . Special histochemical stains such as Zeihl Nielsen and Jones Methanamine silver stains were used in granulomatous lesions to specify the type of granulomatous inflammation.

Data entry, validation and analysis were done using SPSS version 13. Simple frequencies of histopathological types, categories of BBDs and their age groups are shown. All results are presented in tables and figures and all numerical data are presented in simple percentages.

Inclusion and Exclusion Criteria For This Study

The inclusion criteria are:

Surgical specimens of patients diagnosed with BBD between January 2007 and December 2011 in UPTH.
Well completed histopathological request forms with age, gender and other information completed.
Original paraffin blocks available and well preserved (suitable for examination).

The exclusion criteria are:

Specimen of patients whose diagnosis for BBD was not certain. Patients with incomplete information on histopathological request form. Patients whose original paraffin blocks could not be retrieved or were missing.
Patients whose original paraffin blocks were not well preserved (had been damaged).

RESULTS

The Department of Anatomical Pathology of UPTH received a total of 3140 breast biopsies between January 2007 and December 2011. 1138 (36.2%) of these were diagnosed as breast cancers while 2002(63.8%) were diagnosed as BBDs. Of the BBDs, 397 paraffin blocks were suitable for this study while the rest were unsuitable and therefore excluded from this study. The age of patients in this study ranged from 13 to 82 years with a mean age of 47 years. Fibrocystic change was seen between 32 and 82 years of age. 117 of these lesions (29.5%) were non proliferative breast lesions, 275 (69.3%) were proliferative breast lesions without atypia, and 5 (1.2%) were proliferative breast lesions with atypia. The commonest non proliferative lesion was fibrocystic change while the commonest proliferative lesion was fibroadenoma. The proliferative lesion with atypia was atypical ductal hyperplasia.

Ten (10) Morphologic Patterns Of BBDS were identified in this study as listed in table1. Proliferative breast lesions without atypia accounted for 275 (69.3%), non-proliferative diseases were 117 (29.5%) and proliferative disease with atypia were 5 (1.2%). Among the proliferative disease without atypia, fibroadenoma was the commonest accounting for 61.0% of all BBDs Fibroadenoma was the commonest entity accounting for (61%) of BBD . Some fibroadenomas coexisted with other entities such as chronic nonspecific mastitis, fibrocystic change, usual ductal hyperplasia, Lactational changes or atypical ductal hyperplasia. Fibrocystic change was the second commonest BBD (27.0%). Some of these also coexisted with chronic nonspecific mastitis, Lactational changes or usual ductal hyperplasia. The other entities found in this study are sclerosing adenosis (4.8%), tubular adenoma (2.0%) and atypical ductal hyperplasia (1.2%), chronic nonspecific mastitis (1%), granulomatous mastitis (0.5%), fat necrosis (1%), lactational changes (1%), and lactational adenoma (0.8%).

Table 1: Percentage of BBD

BBD	TOTAL	PERCENTAGE (%)
Fibroadenoma	242	61.0
Fibrocystic change	107	27.0
Chronic nonspecific mastitis	4	1.0
Granulomatous mastitis	2	0.5
Fat necrosis	4	1.0
Lactational change	4	1.0
Lactational Adenoma	2	0.5
Sclerosing Adenosis	19	4.8
Tubular Adenoma	8	2.0
Atypical ductal hyperplasia	5	1.2
Total	**397**	**100**

Table 2: Distribution of the morphologic entities of BBDs and age from 2007 – 2011

BBDs	10-20yr	21-30yr	31-40	41-50	51-60	61-70	71-80	81-90	TOTAL
Fibroadenoma	85	128	20	7	0	2	0	0	242
Fibrocystic change	9	46	30	16	4	2	0	0	107
Chronic non specific mastitis	0	0	2	1	1	0	0	0	4
Granulomatous mastitis	0	1	0	1	0	0	0	0	2
Fat necrosis	0	0	1	1	1	0	0	1	4
Lactational changes	0	3	1	0	0	0	0	0	4
Lactational adenoma	1	1	0	0	0	0	0	0	2
Sclerosing adenosis	3	11	4	0	1	0	0	0	19
Tubular adenoma	3	4	1	0	0	0	0	0	8
Atypical ductal adenoma	-	3	2	0	0	0	0	0	5
TOTAL	101	197	61	26	7	4	0	1	397

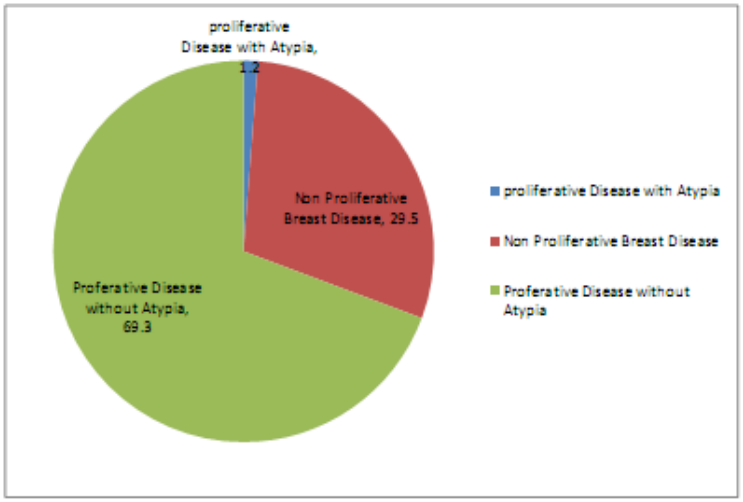

Fig-1:

DISCUSSION

This study describes the spectrum of histopathologic pattern of benign breast diseases and the age distribution of these entities. A total of 3140 breast biopsies were received between January 2007 and December 2011. 1138 (36.2%) of these were diagnosed as breast cancers while 2002(63.8%) were diagnosed as BBDs. This is in keeping with other studies done that showed benign breast diseases being commoner than malignant lesions [1-3]. No lesions from male patients or congenital lesions were observed in this study but has been reported by other studies [21-23]. Our inability to report these lesions may be due to poor storage and that these entities are rare not that they do not exist. BBDs were seen in patients between 13 and 82 years of age and is in keeping with others studies [4- 6]. They were rarely seen after 50 years of age and even rarer in subjects above 70years of age. This supports the fact that BBDs are commoner in the reproductive age groups and the role of hormones in the cause of BBD. Fibroadenoma was the commonest Proliferative Lesions seen in this study accounting for 61% of BBD and this correlates with studies done elsewhere [4, 21-23]. Fibroadenoma was seen between 13 and 42 years. It was rare after 40years of age and even rarer after 70years. The nonproliferative lesions seen in this study included fibrocystic change and inflammatory lesions. The second commonest entity was fibrocystic change, and was seen between 32 and 82 years of age. It was rarely seen before the 2nd decade and after the 5th decade. Studies done elsewhere observed that fibrocystic change was rare before 25 years of age and affected premenopausal women [19, 20]. But this was not the case in this study as fibrocystic change was seen in a postmenopausal woman of 52 years. Some lesions were seen coexisting for example fibroadenoma coexisting with fibrocystic change, ductal hyperplasia or Lactational changes.

CONCLUSIONS

BBDs are commoner than breast cancers and are seen mostly during the reproductive years and are rare after 50 years of age. Proliferative breast lesions without atypia being the commonest lesions seen in this

study. Fibroadenoma and was commonly seen in young women of reproductive age while the commonest of the nonproliferative lesions was fibrocystic change. The entity with the least frequency was proliferative lesion with atypia. Congenital breast lesions and lesions in the male breast were not observed.

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