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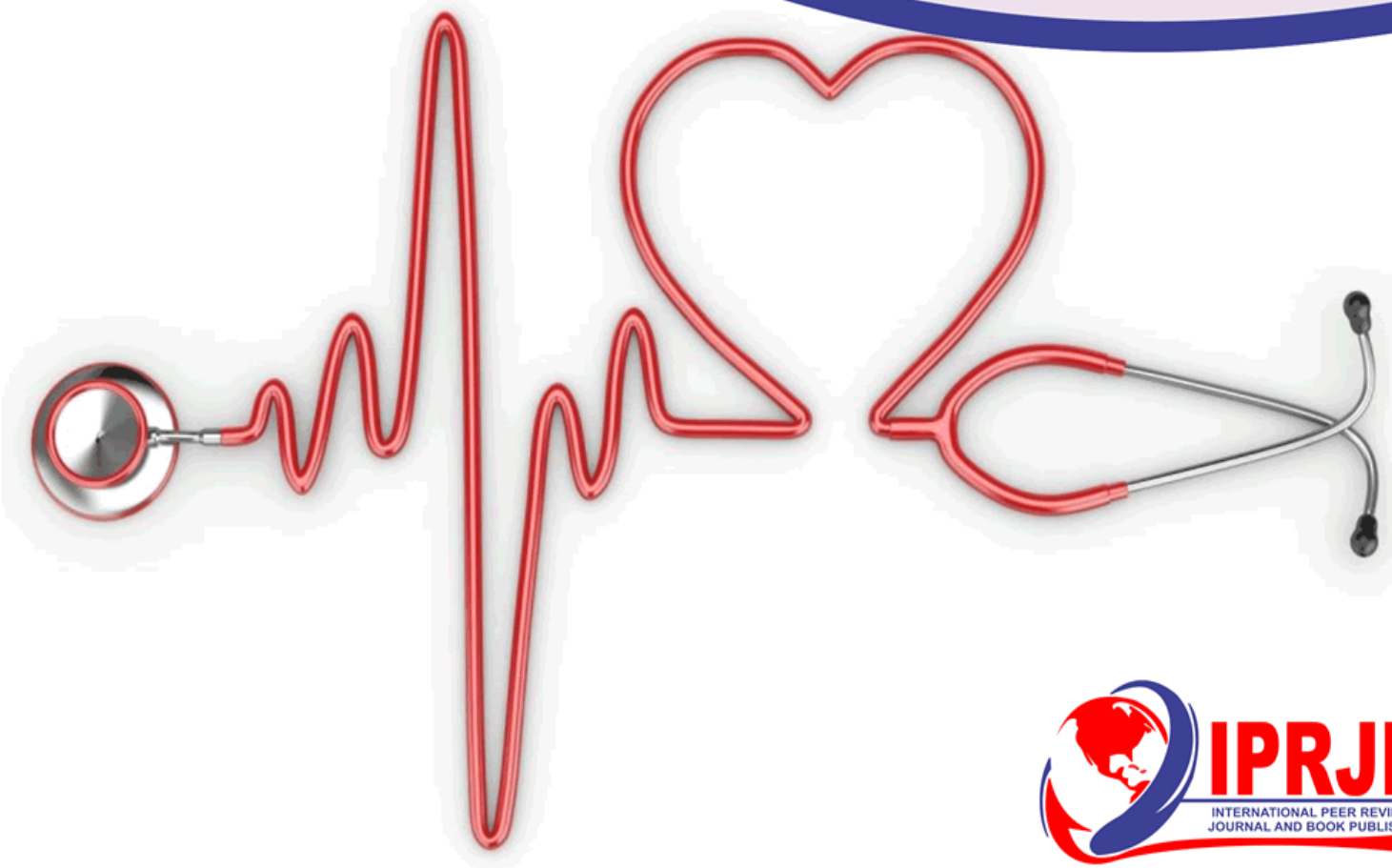

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PROGRESSION OF BREAST LESIONS FREQUENCY RATES BY AGE AND TUMOUR CHARACTERISTICS AMONG FEMALES IN OWO LOCAL GOVERNMENT AREA OF ONDO STATE

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Abstract

Purpose: Breast cancer accounts for over 30% diagnosis and 15% deaths in advanced clime like US. In Nigeria, female breast cancer is adjudged as major cause of mortality and mobility with incidence rate ranging from 36.3% to 50.2% per 100,000 live births. There is no record of study on women breast cancer in Owo Local Government Area of Ondo State. This research aims to determine trends in breast cancer by age and tumor pattern.

Methodology: A descriptive, cross-sectional design was employed. A total of 310 breast biopsies were received, processed and analyzed between 2014 and 2018. Two of the breast biopsies were from male patients and diagnosed gynecomastia. Since the study focused on female breast lesions, 308 of the breast biopsies were considered and treated in the study.

Findings: The findings of the study will be used to determine the onset of age at which women are to access mammography. It will also be used to create awareness of burden of breast carcinoma in the study area. All cases of benign breast tumors accounted for 59.7% of all breast biopsies received followed by 31.2% of Malignant breast tumors, other breast lesions encountered accounted for 9.1%. the peak age brackets for all cases of benign breast diseases was 20-29 while 40-49 for invasive ductal carcinoma. The pre-malignant lesion of atypical hyperplasia was 2.59%.

Unique contributions to theory, practice and policy: Based on the incidences and age distributions, upsurge of benign breast diseases was observed within age bracket '20-29' while breast cancer was within 40-49. As a matter of policy, women of age bracket 20-29 should avail themselves of the opportunity of regular breast screening for early detection of lesions that may result into benign breast diseases. Immunohistochemical procedures should be added to the range of testings to allow for molecular characterization of breast cancer.

Keywords: *Biopsies, Cancer, Benign, Carcinoma*

1.0 INTRODUCTIONS

The female breast refers to the mammary gland which provides milk to nourish babies in women. It consist of six to ten major duct systems, each of which is subdivided into lobules. Before puberty, these duct systems end blindly but proliferate at the beginning of menarche, giving rise to lobules consisting of a cluster of epithelium-lined ductile or acini[1]. Lesions of the breast are predominantly and preponderantly confined to the female. The more complex the breast structure, the greater breast volume, and extreme sensitivity to endocrine influences which may eventually lead to a number of pathologic conditions like palpable masses, fat necrosis, phyllodes tumor, fibroadenoma ,fibrocystic changes, fibroadenomatosis and cancer of the breast[2]. Development of breast as a secondary sexual characteristic occurs between ages of 8 and 13 as a result of increased oestrogen levels[3].

Most breast lesions are benign and they constitute a spectrum of pathologies ranging from developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations to various benign breast diseases (BBD) and other malignancies. Some of the women with BBD are at risk of developing breast cancer. Benign breast diseases is an important risk factor for breast cancer[4]. Fibrocystic changes in the breast which may later result to mastalgia. They are considered to be in normal place of development but when associated with severe pains, pharmacological and hormonal agents may be of help[5]. Fibroadenomatosis (fibroadenomatoid masthopathy) is a benign breast lesion distinct from the typical well circumscribed fibroadenoma that may have fibrocystic changes. Fibromatosis is considered to be another complex morphologic spectrum known as benign proliferative breast diseases. Fibromatosis is a benign that can mimic breast carcinoma[6].

Breast cancer is a cancer that develops from the breast tissue signs of breast cancer may include a lump in the breast, a change in breast shape ,dimpling of the skin fluid coming from the nipple, or a red scaly patch of skin. It may also include bone pain, swollen lymph nodes, shortness of breast or yellow *skin*· painless lump, retraction of nipple and blood discharge[7]. There are risk factors for developing breast cancer which may include: female sex, obesity, lack of physical exercise, excessive alcoholic intake, hormone replacement in the rapy during menopause, ionizing radiation, early at first menstruation, having children late or not at all and older age[8]. Types of breast cancer include: ductal carcinoma, invasive ductal carcinoma, inflammatory breast cancer and metastatic breast cancer, which is classified as stage of breast cancer.

Research Questions

1) What is the association between ages of the respondents and occurrence of breast lesions
2) What is the frequency rate of the selected breast lesions within the study periods
3) What are the histomorphological features of the identified breast lesions

2.0 MATERIALS AND METHOD

This is a five year retrospective study of breast biopsies investigated at the department of Histopathology, Federal Medical Centre Owo, Ondo State. The hospital was founded in 1993 and served as a reference center to patients from all general and specialist hospitals in Ondo State and neighbouring states like Ekiti and Kogi. The retrospective study covered between 2014 and 2018. All women whose breast biopsies are submitted in histopathology department between 2014 and 2018. Information and data were retrieved from histopathology request forms, patients registers, archived breast tissue blocks and slides. Descriptive statistics were used to describe the basic features of the data generated in the study. The bio-data and specific diagnoses were utilized and analyzed statistically.

3.0 RESULTS

A total number of 310 breast biopsies were thoroughly investigated in the study. Two(2) were from male patients and were not treated or considered in the study. The remaining 308 breast biopsies from females were therefore utilized in the study.

Table 1 : Incidence of various categories of Breast Lesions within study period

S/N	Lesions	Frequency for lesion	Percentage
1	Fibro adenoma	138	44.8%
2	Fibrocystic changes	33	10.7%
3	Fibroadenomatosis	03	1.0%
4	Invasive ductal carcinoma	88	28.5%
5	Malignant Epithelial Neoplasm	08	2.6%
6	Intracanalicula Fibro adenoma	10	3.2%
7	Hyperplasia	08	2.6%
8	Chronic Mastitis	05	1.6%
9	Others	15	4.9%

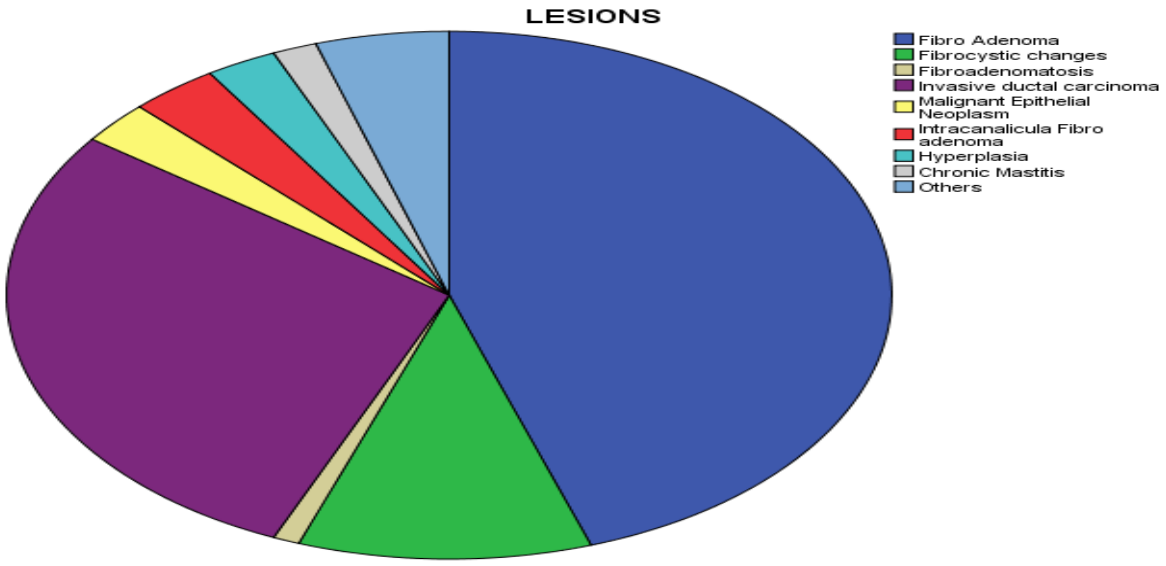
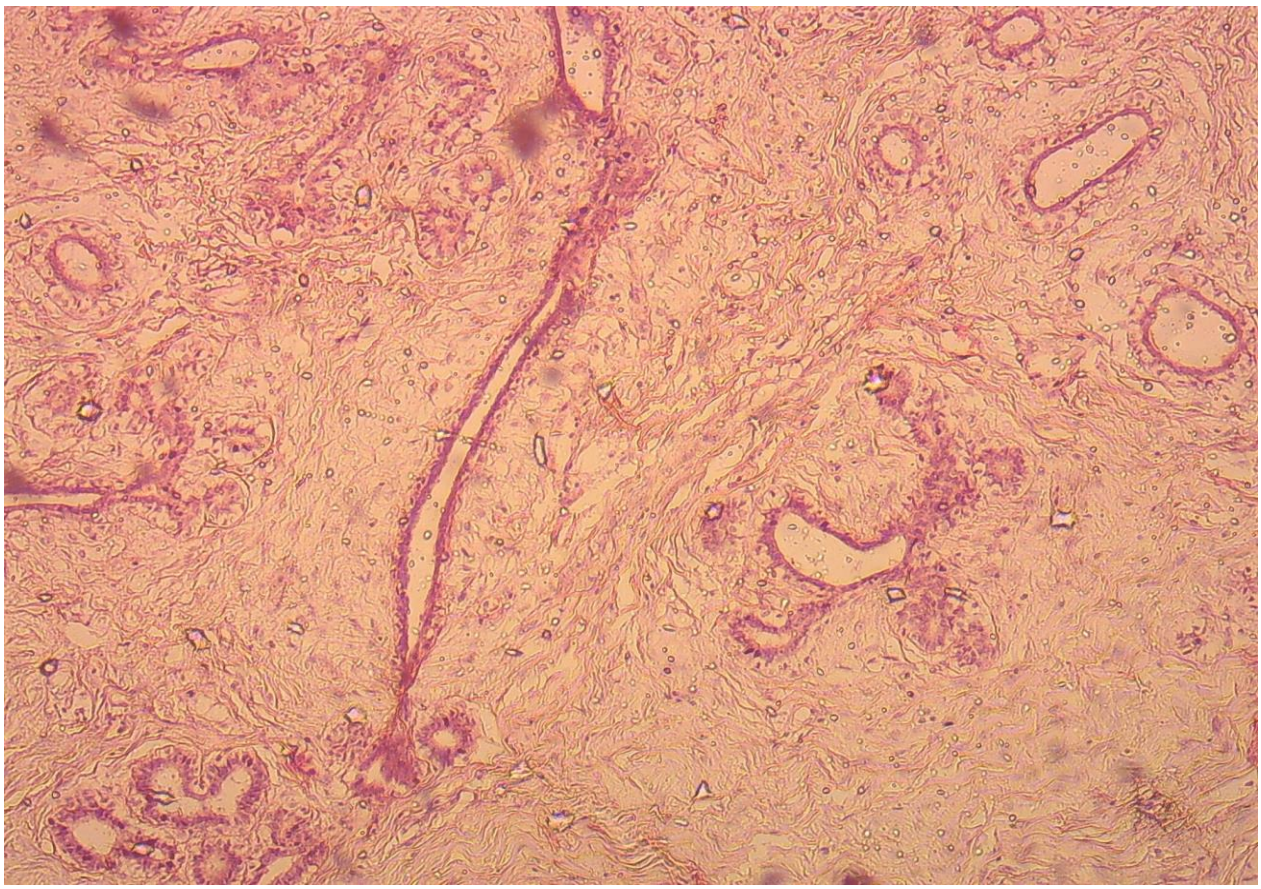


Table 2: Age Distributions and Incidence of Fibroadenoma for year 2014-2018

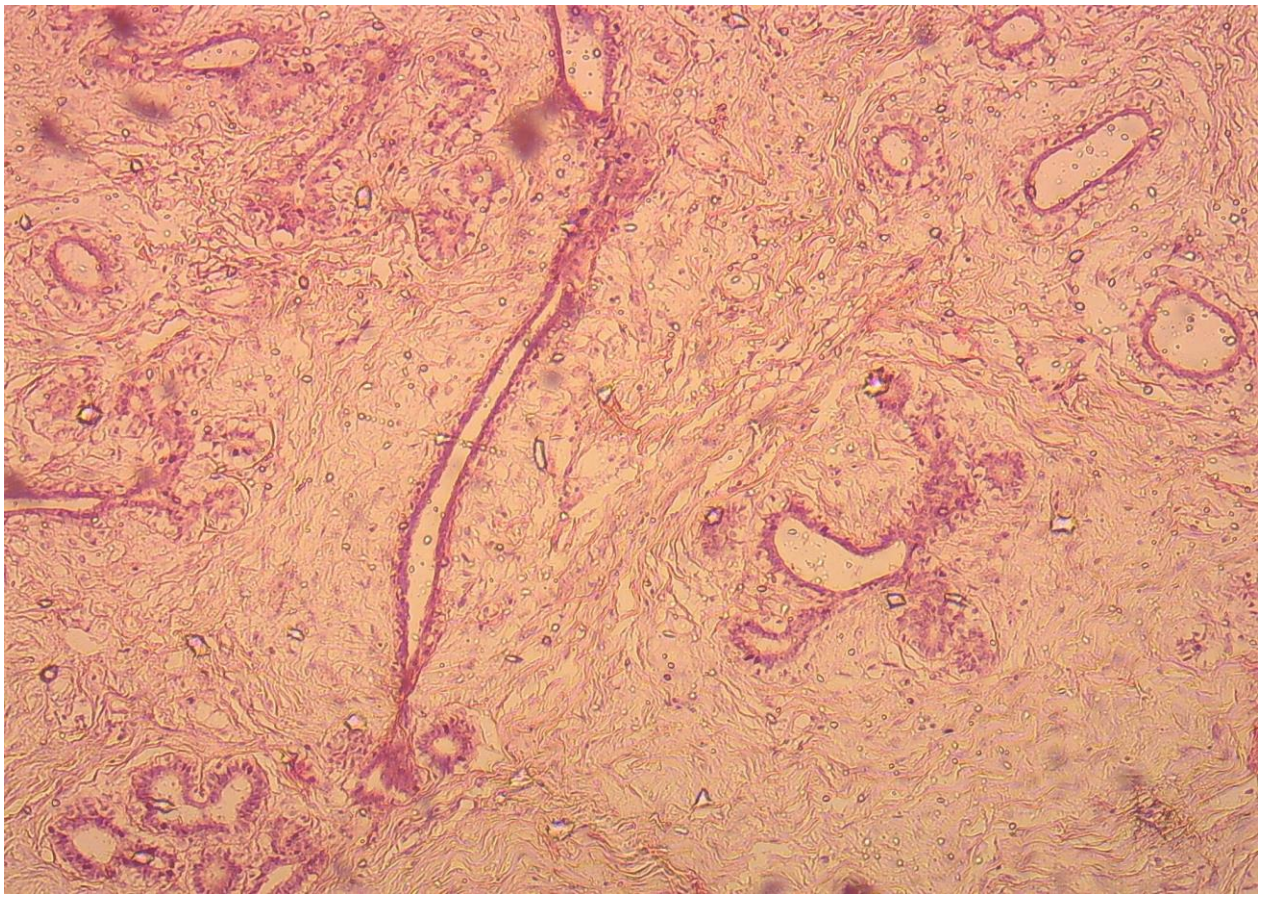
Age brackets	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	2	6	8	16	15
20-29	6	18	16	20	16
30-39	3	0	3	4	4
40-49	1	0	5	3	3
50-59	0	0	0	0	0
60-69	0	0	0	0	0
70-79	0	0	0	0	0
80-89	0	0	0	0	0
90-99	0	0	0	0	0



Photomicrograph of fibroadenoma--- has a pericanalicular pattern i.e connective tissue. The lumen of some of the diets contains eosinophilic secretions. The ducts of the tumour are larger and more basophilic. Some form lobular masses while some with denser fibrins tissue.

Table 3: Age Distribution and Incidence of fibrocystic changes among women between 2014 and 2018

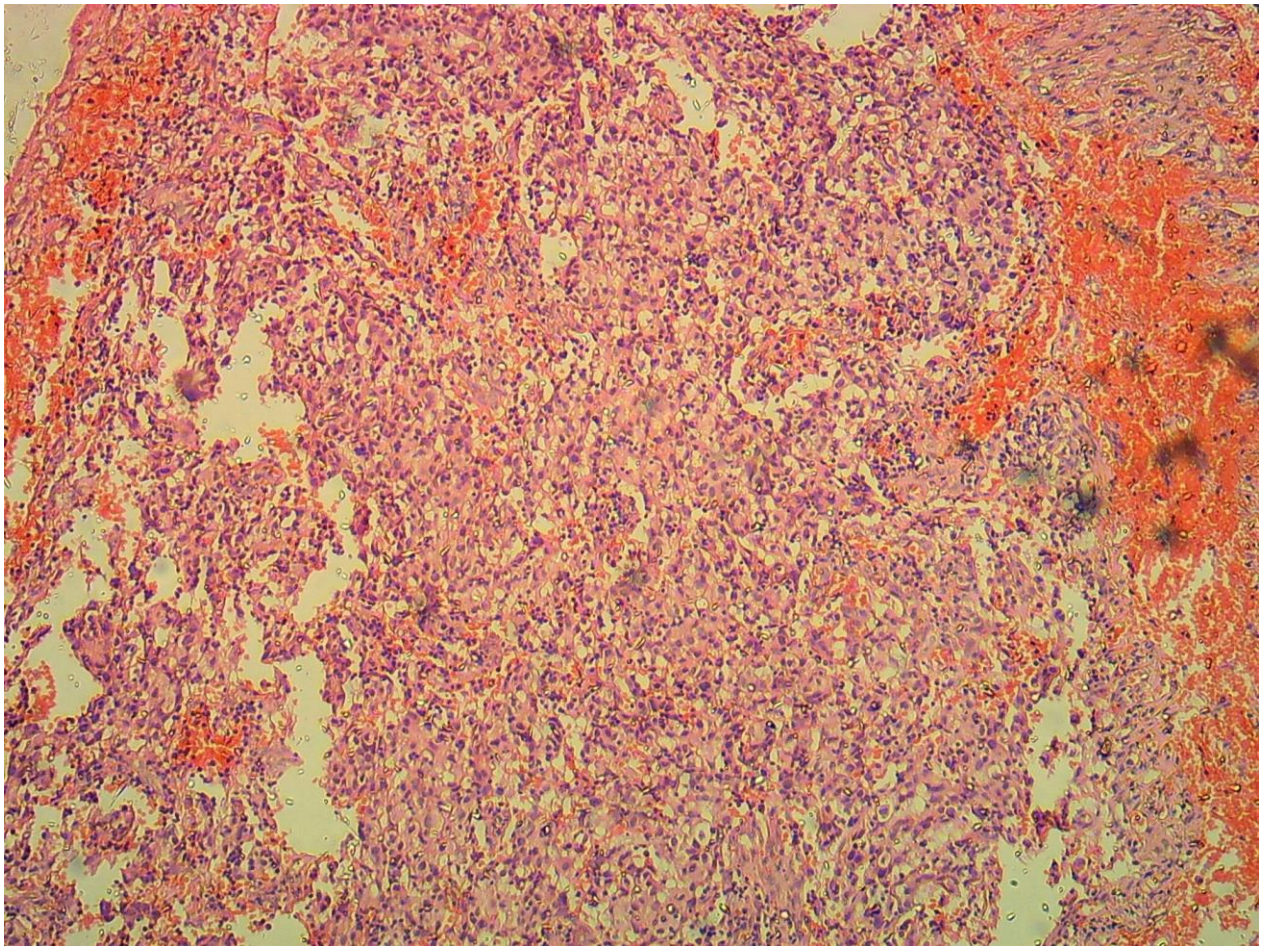
Age Distribution	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	0	1	0	0	0
20-29	4	2	0	0	3
30-39	4	0	0	3	3
40-49	2	1	2	2	4
50-59	0	2	0	2	1
60-69	0	0	2	0	0
70-79	3	0	0	0	0
80-89	0	0	0	0	0
90-99	0	0	0	0	0



Photomicrograph of Fibrocytic changes—showing cystically dilated ducts, lobular laid with abundant connective tissue and stromal fibrosis.

Table 4: Age Distribution and incidence of a typical ductal Hyperplasia for year 2014-2018

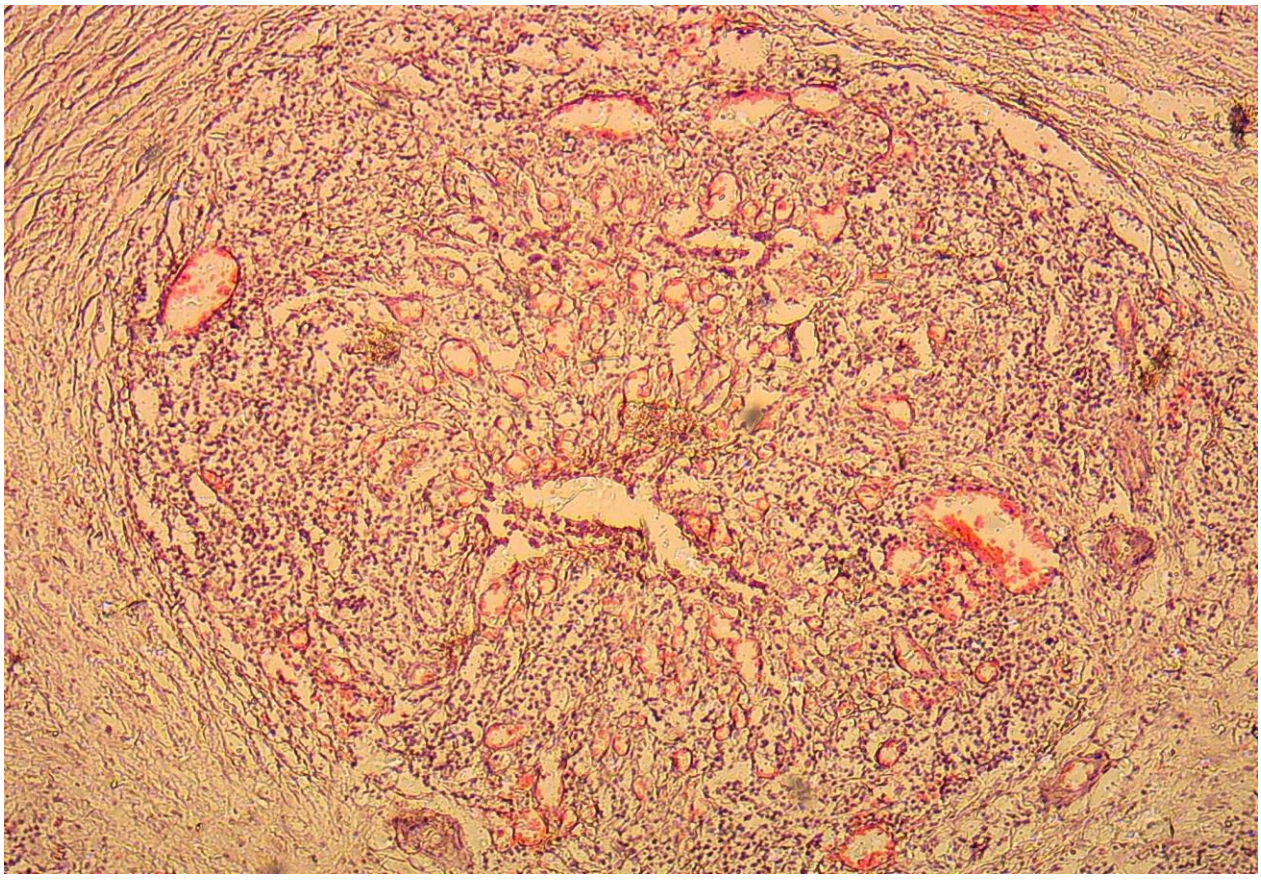
Age bracket	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	0	0	0	3	1
30-39	0	0	1	1	0
40-49	0	0	0	0	0
50-59	0	0	0	0	0
60-69	0	0	0	0	0
70-79	0	0	0	0	0
80-89	0	0	0	0	0
90-99	0	0	0	0	0



Photomicrograph of Atypical ductal hyperplasia—indistinguishable from low grade ductal carcinoma in-situ(DCIS) with many monomorphic cells with round or oval nuclei, micro papillary structures, tufts,fronds,cribils form areas.

Table 5: Age Distribution and Incidence of invasive ductal carcinoma between 2014 and 2018.

Age distribution	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	0	0	1	1	0
30-39	2	0	1	4	3
40-49	2	5	9	12	10
50-59	1	4	10	11	4
60-69	0	0	3	2	3
70-79	3	0	0	0	2
80-89	0	0	0	0	2
90-99	0	0	0	1	0



Photomicrograph of chronic mastitis—showing multinucleate giant cell, epitheloid cells, neutrophils and lymphocytes.

Table 6: Age Distribution and incidence of chronic mastitis for year 2014- 2018

Age bracket	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	0	0	0	0	0
30-39	0	0	0	2	0
40-49	0	0	0	2	0
50-59	0	0	0	0	0
60-69	0	0	0	0	1
70-79	0	0	0	0	0
80-89	0	0	0	0	0
90-99	0	0	0	0	0

Table7: Age Distribution and incidence of other breast lesion for year 2014- 2018

Age bracket	2014	2015	2016	2017	2018
0-9	0	0	0	0	0
10-19	0	0	1	0	2
20-29	2	1	1	0	0
30-39	1	1	1	1	0
40-49	0	2	1	0	0
50-59	0	0	1	0	0
60-69	0	0	0	0	0
70-79	0	0	0	0	0
80-89	0	0	0	0	0
90-99	0	0	0	0	0

Discussion

A total of 308 breast biopsies from female were reviewed within the period of study. Information gleaned from table 1, 138 (44.8%) were found with fibroadenoma. When fibroadenoma is detected in a woman older than 35years of age with the support of mammography, the patients must be advised to undergo surgery. However ;if the patient is below 35years of age, it is believed that it may regress spontaneously. In previous studies, it was affirmed that fibroadenomas are common and accounting for 44% -94% of all breast lesions[9]. The findings of fibroadenomas from this study is in tandem with the above submission. Fibrocystic changes in female breast was formally referred to as breast fibrocystic diseases. The new term, fibrocystic changes denote or implies that women with lumpy breasts or non-discrete nodules do not have breast diseases. Fibrocystic changes are common and can be considered as a normal phase of breast development when they are asymptomatic[10]. In table 1, breast fibrocystic changes were 33 (15.6%) of all benign breast tumour. This finding was near in agreement with *other researchers*, where fibrocystic changes was 18% of all clinically benign breast diseases in females[11]. The table also shows

that the fibroadenomatosis consisting of 03 (1.0%). It is a benign breast lesion with a composite pathologic features of a fibroadenoma and fibrocytic changes. It is otherwise known as fibroadenomatoid mastopathy. The findings here is supported *as* was earlier reported as a rare form of breast fibroadenoma[12].

Intracanalicular fibrosis of the breast accounted for 10(3.24%) of all the female breast biopsies. This number is rather too high because *in previous work only* five cases of intracanalicular fibroadenoma of the breast were received in a period of five years[13]. The breast hyperplasia was noted in 8(2.59%) of the biopsies. It is classified as high risk precursor lesion leading to ductal carcinoma in-situ as well as invasive carcinoma. This is similar to the findings where 3.1% qualified as Atypical ductal hyperplasia(ADH). Chronic mastitis accounted for 5(1.62%) of the biopsies[13]. This condition is an inflammation of breast tissue which may or may not result from infection. Other breast lesion like epidermal cystitis trauma,fat necrosis,lactating adenomas,sclerosing adenosis papilloma, account for 15(4.5%)of the total breast biopsies within the study period.

Table 2 shows the age distributions of the prospective study on308 female breast biopsies of which 148 were diagnosed fibroadenomas (138) and intracanalicula fibro adenoma(10). There wasn't any occurrence of fibro adenomas within age 50 to 99 between year 2014 and 2018. These findings were in agreement with a reported work that breast adeno fibromas were far more common in middle age women[15]. In this study ,it was found that between 2014 and 2018, breast fibro adenoma were highest in age bracket 20-29 and followed by teenagers of age bracket 10-19. This view was also earlier shared and reported, that the peak age of fibro adenomas among teenage girls was 18[16]. This falls within the age bracket in this study.

Table 3 shows the age distributions in fibrocystic changes of the breast among 36 breast biopsies. There were breast fibrocystic changes within the teenage group of (10-19) between 2014 and 2018. This is tandem with *previous work* , where 13(3.25%) as breast masses for teenage age group from 400 females were analyzed[17]. Breast fibrocystic changes occurred among pre-menopausal age groups(20-29;30-39 and 40-49). This may be associated with the use of contraceptive pills as alluded in previous work, where fibrocystic breast changes occurred up to 50% of pre-menopausal women who used oral contraceptives[18].

Table 4 shows age distribution and incidence of atypical ductal hyperplasia in which the lesion occurred in age bracket 20-29 and 30-39. This is in agreement with *previous reported work* where 3.6% of Atypical ductal hyperplasia was in the third decades[19]. Table 5 :the increase in invasive ductal carcinoma was observed in age brackets 40-49, and 50-59. This view was also shared by researchers, who reported that carcinoma was relatively common in women above 40 to 59[20].

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Breast fibroadenoma (intracanalicular fibroadenoma inclusive) constituted 48% of breast lesions. All cases of benign breast diseases (BBD) accounted for 69% of the total breast biopsies received between 2014 and 2018. The peak age bracket for BBDs was 20-29 while

peak age bracket for invasive ductal carcinoma was 40-49. The pre-malignant lesions of atypical hyperplasia were less common.

Recommendations

The study recommended that much awareness should be created among women folk about the rapid increase in the incidence of breast lesions among the populace. The cytological examination of breast lesions before biopsies from surgical operation should be promoted. It is also important that immunostain should be included into the histopathological compendium for proper characterization of breast cancers.

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