

*Full Length Research paper*

# Histopathologic analysis of benign breast diseases in Makurdi, North Central Nigeria

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**Most breast pathologies are benign. Benign breast diseases (BBD) constitute a spectrum of lesions ranging from developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations to various neoplasms. Some of the women with BBD, especially those with proliferative lesions have been reported to be at increased risk for development of subsequent breast cancer. This is a retrospective analysis of all histopathologically diagnosed benign breast diseases in archival records of the department of Histopathology, Federal Medical Centre, Makurdi. The study period is January, 1997 to December, 2006. Two hundred and eleven cases of BBD (67%) were histologically diagnosed out of 315 breast biopsies within the study period, and fibroadenoma 95(45%), was the most frequent diagnosis followed by fibrocystic changes which constituted 67(31.8%). The age of the patients ranged from 14 to 63 years with the mean age of  $32.2 \pm 9.4$  years. The most recurring presenting complaint was painless breast lump.**

**Key words:** Benign breast diseases, histopathology, neoplasm, proliferative, inflammatory.

## INTRODUCTION

Benign breast diseases (BBD) which form the majority of breast pathologies range from developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations to various neoplasms. They may present a wide range of symptoms or may be detected as incidental microscopic findings (Guray and Sahin, 2006). Breast tumours are generally less common in children and adolescents (Bauer et al., 1987; Daniel and Mathews, 1968). However, the incidence of BBD begins to rise during the second decade of life and peaks in the fourth and fifth decades (Kelsey and Gammon, 1990; Fitzgibbons et al., 1998; Sarnelli and Squartini, 1991; Donegan 2002; Shaaban et al., 2002). The most common symptoms are pain and palpable breast lumps. Other clinical features include nipple discharge, nipple deformity such as retraction and occasional skin changes

(dermatitis in some form of mastitis as well as dimpling in fat necrosis and fibrosis). Diagnosis of BBD can be achieved with the use of mammography, ultrasound, magnetic resonance imaging, fine needle biopsies and incision or excision biopsies. Most of the information in literature is focused on malignant breast lesions. This has resulted in undue anxiety over any lesion in the breast for fear of it being a malignancy. The resultant effect is the widely practised surgical excision of great number of breast lesions. Since BBD are the most common lesions accounting for 90% of the clinical presentation related to breast (Muritto et al., 2002) and majority of BBD is not associated with an increased risk for subsequent breast cancer (Guray and Sahin, 2006), it is important for pathologists, radiologists and oncologists to recognise benign lesions, both to distinguish them from *in situ* and invasive breast cancer and to assess a patient's risk of developing breast cancer, so that the most appropriate treatment modality for each case can be established. This will help avoid unnecessary surgical procedures.

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**Table 1.** Distribution of various diagnoses versus age-group of the patients.

Diagnosis	Age-group (years)						Total (%)
	11-20	21-30	31-40	41-50	51-60	61-70	
Fibroadenoma	21	61	10	2	1	0	95(45)
Fibrocystic change	3	17	40	5	1	1	67(31.8)
Duct ectasia	2	0	5	5	2	0	14(6.6)
Duct papillomas	0	1	3	1	1	0	6(2.8)
Lactating adenoma	2	4	5	0	0	0	11(5.2)
Gynaecomastia	0	0	0	4	1	0	5(2.4)
Others	1	0	0	5	2	5	13(6.2)
Total (%)	29(13.7)	83(39.3)	63(30)	22(10.4)	8(3.8)	6(2.8)	211(100)

## MATERIALS AND METHODS

This is a retrospective analysis of all histopathologically diagnosed benign breast diseases in archival records of the department of Histopathology Federal Medical Centre, Makurdi. The study period was January, 1997 to December, 2006. In a few cases of missing records of diagnosis, fresh sections (3 to 5 $\mu$ ) were obtained from the formalin fixed, paraffin embedded tissue blocks and stained with haematoxylin and eosin. Results were analysed using Epi Info version 3.5.1 and displayed in Table 1.

## RESULTS

211 cases of BBD (67%) were histologically diagnosed out of 315 breast tissue biopsies within the study period. Fibroadenoma 95(45%) was the most frequent diagnosis followed by fibrocystic changes which constituted 67(31.8%) of the BBD. The rest of the diagnoses are outlined in Table 1. Other less frequent diagnoses grouped as "others" in Table 1 include: fat necrosis (3), mastitis [acute (1), chronic nonspecific (3), granulomatous (2)], keloid (1), granulation tissue (1), leiomyoma (1) and neurofibroma (1). Within the fibrocystic changes are associated complex epithelial hyperplasia (2) and sclerosing adenosis (5). There were only 5 males with gynaecomastia. The age of the patients ranged from 14 to 63 years with the mean age of 32.2  $\pm$  9.4 years. 53% of the patients were 30 years and below with majority expectedly having fibroadenoma. The most recurring presenting complaint was painless breast lump. Other complaints were nipple discharge, nipple deformity, pains and skin changes.

## DISCUSSION

The result of this study shows that fibroadenoma is the most common benign breast lesion in this locality. Similar findings were reported by other studies in Nigeria (Kathcy et al., 1990; Adesunkanmi and Agbakwuru, 2001; Adeniji

et al., 1997; Ajao, 1979; Mayun et al., 2008; Anyikam et al., 2008; Otu, 1990). Khanzada et al. (2009) in Pakistan also reported similar finding. However, Memon et al. (2007) in a different study in Pakistan reported that fibrocystic change constituted the majority (66.3%) of BBD in their study area, and they concluded this represented a change in pattern from a previously more prevalent fibroadenoma. Very rarely ductal or lobular carcinoma *in situ* occurs within fibroadenomas. Invasive carcinoma has also been reported to arise in a fibroadenoma. When *in situ* or invasive carcinoma involves the fibroadenoma, about 50% of women also have disease outside of fibroadenoma (Rosen and Oberman, 1993).

Dupont and Page (1985) studied the risk factors for breast cancer in women with proliferative breast disease where they reported that the highest risk for the development of invasive breast carcinoma occurs during the first 10 years after biopsy and the risk decreases thereafter. Implying that the most critical follow-up period should be the initial 10 years following diagnosis. The second most common diagnosis was fibrocystic changes which accounted for 31.8% of the BBD. Most studies elsewhere (Adeniji et al., 1997; Mayun et al., 2008; Anyikam et al., 2008; Khanzada et al., 2009) reported fibrocystic change (FCC) as the second most common finding. Relatively, the age range of these patients was similar around 20 to 50 years. It is important to note however, that other studies showed FCC as the most common BBD (Jeje et al., 2010; McFarlane, 2001; Memon et al., 2007). Under this entity (FCC), is a spectrum of histological features comprising proliferative and non proliferative lesions some of which may be with or without atypia. Dupont and Page (1985) classified BBD and assigned semiquantitative values to the risk of developing carcinoma from BBD especially the proliferative lesions. In our study, there were 2 cases of FCC with epithelial hyperplasia without atypia and 5 cases with sclerosing adenosis. These seven fall under the

proliferative lesion without atypia with relative risk ranging from 1.3 to 1.9 according to various studies on classification and risk of cancer (Dupont and Page, 1985; Dupont et al., 1993; Palli et al., 1991; Marshall et al., 1997).

In addition to histologic features of the lesion, the age at biopsy and the degree of family history of breast cancer are reported to be the major determinants of breast cancer risk after the diagnosis of BBD (Hartmann et al., 2005). In this regard, the risk for breast cancer in young women with a diagnosis of atypical epithelial proliferation is twice the risk observed among women over 55 years with a diagnosis of atypical epithelial proliferation (Hartmann et al., 2005). However, over 80% of patients with a diagnosis of atypical hyperplasia do not develop invasive cancer during their lifetimes (Guray and Sahin, 2006). Duct papilloma was seen in only 2.8% of the study population. Khanzada et al. (2009) reported 4.7% within 3 years in Pakistan, while McFarlane (2001) in Jamaica reported 6.7% over a 2-year period. Papillomas especially central single types have not been considered premalignant or markers of risk when they are not associated with atypia. MacGrogan and Tavassoli (2003) suggested that the recurrence of papillomas is related to the presence of proliferative breast lesions including usual ductal hyperplasia, atypical ductal hyperplasia and lobular hyperplasia in the surrounding breast tissue. Epithelial atypia, even to the extent of low grade ductal carcinoma *in situ* (DCIS) has no known prognostic significance or impact on outcome when it is confined to the central papillomas. Therefore, if atypia is encountered in a papilloma on an excisional biopsy, the surrounding breast tissue should be carefully examined for further follow up of the patient (MacGrogan and Tavassoli, 2003). Lactating adenoma which occurred in 5.2% of the patients clustered around the reproductive age group. Literature shows that lactating adenomas have no proven malignant potential (Reeves and Tabuenca, 2000).

Of the few inflammatory lesions seen in this study, two had caseating granuloma typical of tuberculosis. Most inflammatory breast lesions are not commonly biopsied here but treated with antimicrobials except recalcitrant or ulcerated and non-healing. Majority of the biopsies within this study period was by excision due to dearth of tru cut and fine needle methods then.

## Conclusion

From this study, it is obvious that the most common benign breast disease in this environment is fibroadenoma, followed by fibrocystic changes. And that generally, BBD is common in this region with majority belonging to those with less relative risk for cancer

development. Therefore, it is advisable that all cases of breast lumps should be carefully evaluated before definitive surgical procedures are employed.

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