ORIGINAL ARTICLE

HISTOPATHOLOGICAL EVALUATION OF BENIGN PROLIFERATIVE BREAST LESIONS

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ABSTRACT

INTRODUCTION: Benign proliferative breast lesions deserve attention because of high prevalence and impact on women's life and due to cancerous potential of some histological types. **AIMS AND OBJECTIVES:**
i) To establish the significance of histopathology in the diagnosis of benign proliferative breast lesions.
ii) To ascertain the relative frequency of each type of lesion in different age groups and its significance.
iii) To compare the study with other different study. **MATERIAL AND METHOD:**
Total 3077 biopsy was received in histopathology department of our institution during August 2015 to July 2016. Among these, 120 cases were of breast lesions. **RESULT:** Out of 120 breast lesions, 97 were of benign lesions and 23 were of malignant lesion in different age groups. Among these 97 benign proliferative breast lesions, 46 cases (42.22%) has fibroadenoma , 8 cases (8.24%) has epithelial hyperplasia, 27 cases (27.83%) has fibrocystic disease of breast ,5 cases (5.15%) has gynecomastia, 6 cases (6.18%) has phylloid tumour, 2 cases (2.06%) has intraductal papilloma and 3 cases (3.09 %) has adenoma. **CONCLUSION:** Based on morphological distribution, fibroadenoma constitute maximum number of cases followed by fibrocystic disease of breast. Phylloid tumor is rare but it has clinical relevance. Fibroadenoma is more common in younger age group (16-30 years) whereas fibrocystic disease of breast is more common in older age group (31-45 years).

KEY WORDS: Breast, Benign proliferative lesion, Histopathology.

❖ INTRODUCTION

The epithelium of the breast may undergo a wide variety of benign physiological alterations with age which usually do not occur uniformly throughout the tissue. As a result of such changes various clinical abnormalities are produced.

Benign proliferative breast lesions deserve attention because of their high prevalence and their impact on women's life and due to cancerous potential of some histological types. The mammary gland develops in the embryo from an invagination of the superficial ectoderm which form elementary duct in the connective tissue. Lobule formation occurs after menarche and increases with age up to about 25 years. (1,2)

The breast has two main types of tissue :- glandular and stromal tissue. The glandular part includes lobules and ducts. Both are lined by inner secretory epithelial cells and outer myoepithelial cells. Hormones and growth factors act on stromal and epithelial cells to regulate the developmental maturation and differentiation of mammary gland cells. In adult breast, cyclical changes occur during the menstrual cycle that result in an increased rate of cell proliferation during luteal phase but complete differentiation with maximum development of lobular tissue takes place only through pregnancy and lactation. At menopause, the total numbers of lobules diminishes.

Benign proliferative breast disease constitutes a heterogeneous group of disorders including developmental abnormality, epithelial and stromal proliferation, inflammatory lesions and neoplasm.

- **CLASSIFICATION**

Histopathological classification [3, 4]

1) Non proliferative breast changes
2) Proliferative breast changes without atypia
3) Proliferative breast changes with atypia

- **Fibroadenoma:**

Fibroadenomas are the most common benign tumor of the female breast. They typically occur in patients between the ages of 20 and 35 years. Grossly, they are sharply demarcated, firm mass, usually no more than 3 cm in diameter. The cut surface is solid, grayish white, and bulging, with a whorl-like pattern and slit like spaces. Microscopically, it varies in appearances depending on the relative amounts of glandular and connective tissue. The tubules are composed of cuboidal or low columnar cells with round uniform nuclei resting on a myoepithelial cell layer. The stroma is usually made up of loose connective tissue but it may be partially or totally composed of a dense fibrous type. [5]

- **Epithelial hyperplasia:**

It is common form of proliferative breast disease defined by the presence of more than two cell layers.

Types: - 1. Ductal lesion – Simple & atypical ductal hyperplasia
2. Lobular lesions

- **Fibrocystic disease:**

Fibrocystic disease or fibrocystic changes (FCCs) constitute the most frequent benign disorder of the breast. Such changes generally affect premenopausal women between 20 and 50 years of age [6-7]. Although many other names have been used to describe this entity over the years, (including fibrocystic disease, cystic mastopathy, mammary dysplasia, chronic cystic mastitis, mazoplasia, Reclus's disease, Schimmelbusch disease), the term "fibrocystic changes" is now preferred, because this process is observed clinically in up to 50% and histologically in 90% of women [8]. Fibrocystic change without atypia are associated with a 1.5 to 2 fold increase in risk, whereas atypical hyperplasias are associated with a four to five fold increase in breast cancer risk.[9]

It is an extremely important lesion because of its high frequency, ability of some of its sub types to stimulate clinical, radiographic, gross and microscopic appearance of carcinoma. Basic morphologic changes include cystic change, apocrine metaplasia, fibrosis, calcification, chronic inflammation and epithelial hyperplasia.

- **Phylloid tumour**

Phylloid tumor (cystosarcoma phylloides) arises from intralobular stroma and can occur at any age but most present in the sixth decade with the median age of 45 at the time of diagnosis. Benign phylloid tumors, like malignant ones, can grow to be large size, creating a visible lump on breast and perhaps even breaking through the skin, causing pain and discomfort.

Biphasic tumor resembling fibroadenoma but with hyper-cellular mesenchymal component organized in leaf-like pattern around benign epithelial/ myoepithelial lined spaces. Grossly, the tumor is round, relatively well circumscribed, and firm. The cut surface is solid and gray white and shows the cleft like spaces that give the tumor

its name. Microscopically, the two key features of Phylloid tumor are stromal hyper-cellularity and the presence of benign glandular elements as an integral component of the neoplasm [5].

- **Intraductal papilloma:**

  Intraductal papilloma of the breast occurs at an average age of 48 years. It can arise in large or small ducts, consequently; it can be identified grossly as a polypoid intra-luminal mass or be found only on microscopic examination. The lesion is soft and fragile, and may have areas of hemorrhage in it. Microscopically, papillomas are complex, cellular, and often intricately arborescent.

  Features favoring malignancy in a papillary breast lesion are well-developed stroma in the papillary folds, the presence of two cell types (luminal and myoepithelial), normochromatic and often oval nuclei, scanty mitotic activity, the presence of some foci of apocrine metaplasia in some foci, and a lack of cribriform or trabecular patterns[10].

- **Adenoma:**

  It is a pure epithelial neoplasm of the breast characterized by benign overgrowth of milk duct or lobules. Adenomas of the breast can be divided into the following categories [11].

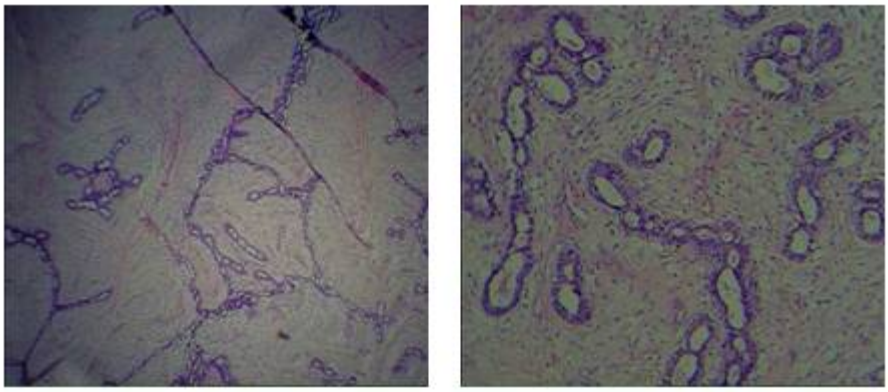
a) Tubular adenoma
b) Lactating adenoma
c) Apocrine adenoma

- **MATERIAL AND METHOD**

  Total 3077 biopsy was received in histopathology department of our institution during August 2015 to July 2016. Among these, 120 cases were of breast lesions.

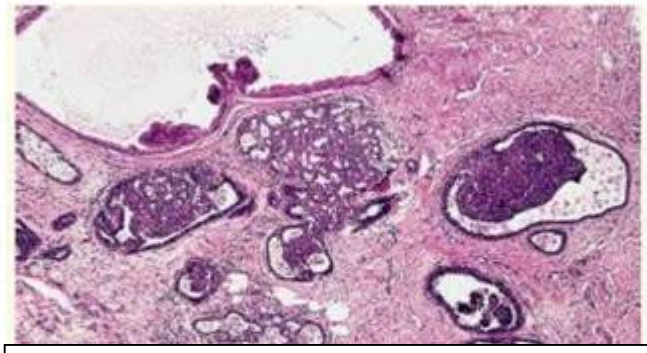
  A detailed history of each patient regarding age, sex, chief complaints & other relevant findings were taken. The specimen was fixed in 10% formalin. Each specimen was examined grossly. Representative tissue bits were sampled from the specimen. Tissue bits were processed by routine paraffin embedding technique. Tissue sections of 4-5µm thickness were cut and stained with Hematoxylin and Eosin stain.

IMAGES

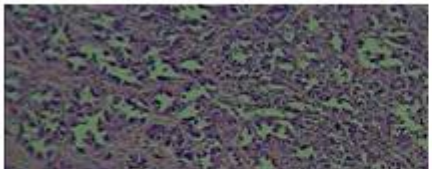


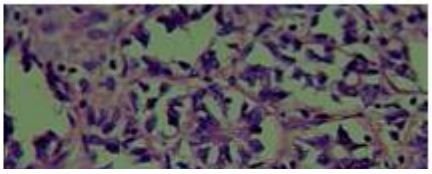
FIBROADENOMA:(A) 4X (B) 10X

Fibroadenoma 10x shows pericanalicular (Open glandular-spaces) & intracanalicular compressed glandular spaces.

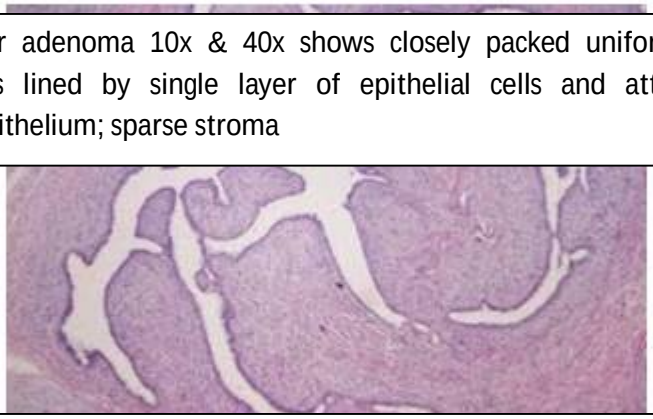


Fibrocystic disease shows cystic dilation, apocrine metaplasia, florid ductal hyperplasia and fibrosis.





Tubular adenoma 10x & 40x shows closely packed uniform small tubules lined by single layer of epithelial cells and attenuated myoepithelium; sparse stroma



Phyllodes tumor 10x shows exaggerated intracanalicular pattern & increased stromal cellularity.

❖ **OBSERVATION & RESULT**

Out of 120 breast lesions, 97 were of benign proliferative breast lesions and 23 were of malignant lesions. In this study these 97 benign proliferative breast lesions were studied.

❖ **Morphological distribution of cases (According to histopathological diagnosis)**

HISTOPATHOLOGICAL DIAGNOSIS	NO. OF CASES	PERCENTAGE%
Fibroadenoma	46	47.22
Epithelial hyperplasia	08	8.24
Fibrocystic disease	27	27.83
Gynecomastia	05	5.15
Phylloid tumour	06	6.18
Intraductal papilloma	02	2.06
Adenoma	03	3.09
TOTAL	97	

Fibroadenoma was the commonest histological lesion seen (47.22%) followed by fibrocystic change (25.4%)

❖ **The age distribution of the cases studied was as given below:**

AGE (IN YEARS)	NO. OF CASES	PERCENTAGE%
16-20	13	13.40
21-30	45	46.39
31-40	34	35.05
41-50	05	5.15
TOTAL	97	

In the present study youngest patient is 16 years old and oldest is 49 years old. Largest no. of cases (46.39 %) are in 21-30 age group.

- **Morphological distribution of cases according to age:**

Age group (in years)	Fibrocystic disease	Fibroadenoma
16-20	-	17
21-30	07	26
31-40	15	03
41-50	05	-
total	27	46

Fibrocystic diseases are more common in older age group (31-40years) whereas, Fibroadenomas more commonly occurred in younger age group (21-30years)

- **DISCUSSION**

- The data obtained in the present study was compared with data obtained by other author. Morphological distribution of cases in present study and other study.

Histopatholoical diagnosis	Present study%	Cole & Elwood%
Fibroadenoma	42.22	32.8
Epithelial Hyperplasia	8.24	9.2
Fibrocystic Disease	27.83	25.4
Gynecomastia	5.15	5.9
Phylloid Tumour	6.18	6.1
Intraductal Papilloma	2.06	2.2
Adenoma	3.09	10.1

In the present study, maximum number of cases are fibroadenoma followed by fibrocystic disease. This is comparable to study by Cole and Elwood. [12]

❖ CONCLUSION

Based on morphological distribution, fibroadenoma constitute maximum number of cases followed by fibrocystic change. Fibroadenoma is more common in younger age group (16-30 years) whereas fibrocystic change is more common in older age group (31-45 years).

In benign proliferative breast lesions, biopsy and histopathological study constitute one of the most important investigations to prove a definitive diagnosis and to rule out possibility of malignancy in any breast lump.

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