

PATTERN OF BREAST DISEASES: KING KHALID NATIONAL GUARD HOSPITAL EXPERIENCE

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Epidemiological studies by the National Cancer Registry recognize carcinoma of the breast as the most prevalent cancer in Saudi females, and yet the risk factors, especially the anatomic ones, are not well recognized in our population.

This article presents the different pathological diagnoses of breast biopsies at the Pathology Department of King Khalid National Guard Hospital (KKNHG), in order to demonstrate the range of breast diseases that have a well-recognized cancer risk (Table 1), and encourage the hospital leaders to look at this health problem and become actively involved in breast cancer detection screening programs, by combining clinical, radiological and pathological facilities for early detection of precancerous lesions of the breast.

Materials and Methods

This retrospective study was designed to extract all breast biopsy reports from the archives of the Pathology Department of KKNHG between January 1986 and December 1997. All the pathological reports were examined and slides of histopathological sections of selected cases were reviewed by the author. The diagnoses were established by using SNOMED categories of the breast (1985). The diagnoses of cases were categorized according to their risk of developing cancer, as follows: benign non-neoplastic, benign neoplasms and nonproliferative fibrocystic changes which have no increased cancer risk; proliferative fibrocystic changes (FCC) which have a cancer risk between 1.5-4 times compared to the population; carcinoma in situ, which has a 10 times increased risk of developing invasive cancer; and finally, invasive carcinoma (Table 2). There were 434 biopsies in total, however, there were 443 cases. Nine patients had more than one biopsy of similar diagnostic category.

The following diagnoses were excluded from the study: normal and accessory breast, involution/developing (n=15),

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TABLE 1. *Relative risk of invasive carcinoma based on pathological examination of benign breast area.*

No increased risk	Sclerosing adenosis Apocrine metaplasia Cysts Duct ectasia Fibroadenoma Mild epithelial hyperplasia (more than two but not more than four epithelial cells in depth)
Slightly increased risk (1.5 to 2 times)	Moderate or florid hyperplasia
Moderately increased risk (5 times)	Atypical hyperplasia (AH) (borderline lesion), either ductal or lobular
High increased risk (7 times)	Ductal involvement by cells of atypical lobular hyperplasia (ALH) with diagnostic ALH
(10 to 11 times)	Ductal and lobular carcinoma in situ

as well as all male breast pathology (n=33) (Table 3). Therefore, there were 386 biopsies available for the study.

Results

The total number of biopsies and mastectomies available for the study was 386. The total number of benign non-neoplastic diseases seen was 115 (29.8%). The total number of nonproliferative fibrocystic changes was 46 (11.9%), and there were 24 cases of proliferative fibrocystic changes (6.2%). The benign conditions seen during that period were 91 (23.57%) and the total number of invasive malignant cases was 106 (27.46%), excluding the in situ component, which equalled 4 (1.03%). The total of all malignant cases, including invasive as well as in situ component, was 28.49% (Table 2).

Discussion

Mammary carcinomas represent a major cause of female cancer in developed and developing countries. According to the American Cancer Society 1999 Report, mammary carcinoma incidence was 32% and caused cancer deaths in 18% of American females with cancer.

In Saudi Arabia, mammary carcinomas constituted 18.8% of malignancies diagnosed in Saudi females. This retrospective study demonstrates that mammary carcinoma

TABLE 2. *Distribution of breast diseases in females.*

	Number of cases
Benign non-neoplastic	
Duct ectasia	30
Breast abscess	47
Chronic inflammation	3
Galactocele + cyst	9
Foreign body	4
Granulomatous inflammation	7
Chronic inflammation	3
Lactation	3
Fat necrosis	5
Fibrosis	4
Total	115
Proliferative fibrocystic changes (PFCC)	
Florid hyperplasia	3
Atypical/intraductal hyperplasia	7
Radial scar	1
Adenosis	2
Lobular hyperplasia	2
Sclerosing adenosis	9
Total	24
Nonproliferative fibrocystic changes (NPFCC)	
Fibrocystic changes	42
Hyperplasia NOS	4
Total	46
Benign neoplasm	
Fibroadenoma	73
Lactating adenoma	2
Intraductal papilloma	6
Phylloides tumor benign	3
Adenomas NOS	2
Lipoma	5
Total	91
Malignant neoplasm	
Infiltrating ductal carcinoma	80
Infiltrating lobular carcinoma	7
Infiltrating medullary carcinoma	6
Infiltrating scirrhous carcinoma	6
Infiltrating tubular carcinoma	2
Infiltrating papillary carcinoma	2
Infiltrating cribriform	1
Paget's disease	2
In situ, ductal	3
In situ, lobular	1
Total	110
Grand total of biopsies	386

TABLE 3. *Male breast diagnosis.*

Diagnosis	Number of cases
Accessory breast	2
Inadequate material	2
Epidermal cyst	1
Hemangioma	1
Gynecomastia	20
Nodular fasciitis	1
Invasive ductal carcinoma	3
Malignant lymphoma	2
Malignant melanoma	1
Total	33

represents 28% of all breast biopsies seen at National Guard Hospital. This high prevalence could be due to the presence of an oncology department, with moderate facilities for treating cancer of the breast. The aim of this study was to evaluate the prevalence of premalignant conditions that have a well-documented risk of developing breast carcinoma that were diagnosed at KKNHG over the last 13 years. The lesions are presented in Table 1. Between the relatively common hyperplastic lesions that have little implication for breast cancer risk (less than twice that of comparable women)¹² and noninvasive carcinoma (carcinoma in situ, which increases cancer risk 10 times), there are lesions identified microscopically by using specific criteria. The atypical hyperplasia which identifies a further increased risk for future invasive breast cancer development is equal to four-five times the risk compared to women without such lesions.¹¹

Our findings showed that the prevalence of nonproliferative FCC was 12%, proliferative FCC was 6%, atypical and florid hyperplasia were 2.6% (n=9) and ductal and lobular carcinoma in situ were 1% (n=4), and adding up the total of the atypical ductal hyperplasia (ADH) and carcinoma in situ (CIS), 3.6%. We compared our findings with those of Dupont and Page,⁴ who conducted an epidemiological study to assess the importance of various risk factors for breast cancer in women with benign proliferative breast lesions. They included 3303 women in their study and followed them for 17 years. The nonproliferative FCC cases made up 68.5%, proliferative disease without atypia was 26.2%, atypical hyperplasia was 3.6% and carcinoma in situ was 1.7%. Their frequency of proliferative and nonproliferative changes was much higher than ours, 94.7% compared to 18%. Furthermore, the frequency of AH and CIS was 5.3% in their study, compared to 3.3% in ours. Such a difference in the frequency of these lesions could be related to the number of cases studied, as well as to the large difference in culture, health awareness and education in American and Saudi societies. Another factor is that we may underestimate the diagnosis of proliferative and nonproliferative FCC. As well, some pathologists may not apply the proper criteria in diagnosing AH and CIS.

It is obvious from this small-scale study and other studies in the Kingdom of Saudi Arabia that breast cancer has a high frequency in Saudi females.⁵⁻⁷ Furthermore, premalignant, noninvasive lesions are of significant occurrence, although they are underdetected. We encourage pathologists to refine their diagnoses in terms of listing all the proliferative and nonproliferative FCC, and using the well-established criteria in the literature to diagnose AH and CIS.⁸⁻¹⁰

The National Guard Hospital is one of the five major government hospitals serving the Jeddah population of over 2.5 million. It employs more than 2000 staff, so it serves a relatively good sector of the Saudi population. If a breast cancer screening program were developed at the hospital, it would be of great benefit to the whole of the Western Region. The program should ideally include a clear

screening protocol, with clear objectives, plans and management. A collaborative diagnostic team should be present between major clinical departments involved in the program, such as Family Medicine, Surgery, Radiology, and Pathology. The budget for such programs could be designated from the hospital budget and from the patients (fee for service) at a minimum non-profit-based cost, to encourage large numbers of women to enrol in such a screening program. If such a program were available, we would have a good number of patients that would reflect the real magnitude of breast cancer in the region and its premalignant precursors, which would help in planning the future health service needs of the Saudi female population.

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