

Characteristics of surgically treated benign breast disease

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Abstract

Introduction: Benign breast condition refers to a lump, cyst, or nipple discharge (fluid) of the female or male breast that is not cancerous. Benign breast conditions are generally caused by a number of factors. Those factors include the makeup of breasts (fatty tissue vs. dense or thick tissue), age, hormone problems.

Methods and Materials: This is a prospective study and observation study conducted in the Department of General Surgery at Prathima Institute of Medical Sciences over a period of 1 year. All patients who underwent surgery for benign breast disease were included. Patients who did not undergo surgery for benign breast disease were excluded. All the data were collected in predesigned proforma by observation of the files and operation notes of patient who underwent surgery for benign breast disease. The files were retrieved from the case sheet and histopathological examination reports were obtained from the department of pathology and relevant information were noted.

Result: In our study, most of the patients were 21-30 years i.e., 38 out of 70 (54.2%), followed by 10-20 years, i.e., 17 out of 70 (24.2%) and least were 1 (1.4%) belongs to 51-60 years. Patients with lump in left breast were more in number (31) than those with lump in right breast (29). Bilateral lump presentation as the least common 10 (14.2%) patients. In our study, 42 was firm 60% followed by 9 were soft while 19 were hard in consistency. Fibroadenoma was the most frequently diagnosed lesion, followed by fibrocystic change. Epidermoid cyst was the third most commonly diagnosed. Other histological diagnoses were fat necrosis, lactating adenoma and tuberculosis of the breast.

Conclusion: Benign breast disorders are a group of conditions that are commonly managed by surgeons. Benign breast pathologic conditions rarely increase the risk of malignancy. As knowledge of benign breast pathologic conditions improves, many conditions can be managed without the need for open surgery. Collaborative care models including nurse practitioners can improve patient experience and education about their breast health.

Keywords: Benign breast disease, fibroadenoma, epidermoid cyst

Introduction

A benign breast condition refers to a lump, cyst, or nipple discharge (fluid) of the female or male breast that is not cancerous. Benign breast conditions are generally caused by a number of factors. Those factors include the makeup of breasts (fatty tissue vs. dense or thick tissue), age, hormone problems^[1]. Hormone therapy, birth control pills, pregnancy, menopause, being overweight, infection, and breastfeeding can also cause them. The exact cause can often be traced back to specific diagnosis^[2].

Benign breast disease accounts for 80% of 1.6 million breast biopsies performed every year in the United States^[3]. The most common benign breast tumor is fibroadenoma, which is discovered in 67-94% of all biopsies in women under the age of 20 and is identified in 10% of all women in their lifetimes^[4]. Surgical excision is the definitive procedure performed for

symptomatic benign breast tumors to alleviate anxiety regarding potential for growth or malignancy as well as physical discomfort^[5]. Furthermore, treatment for giant (or juvenile) fibroadenomas in adolescents is necessary because of distortion of the breast, potential to cause psychological harm, and potential for enlargement that may cause venous congestion, glandular distortion, pressure necrosis and ulceration^[6]. Therefore, fibroadenomas are commonly surgically treated at a rate of approximately 500,000 per year^[7].

Hormonal factors (i.e., reproductive and lifestyle factors that affect hormonal exposure, including exogenous hormone use) are well known to affect a woman's breast cancer risk, but little is known regarding hormonal factors and BBDs^[8]. Factors such as early menarche, regular and short menstrual cycles, nulliparity, older age at first birth, use of oral contraceptives and hormone replacement therapy (HRT) and high postmenopausal body mass index (BMI) are associated with a higher breast cancer risk, whereas longer breastfeeding duration and higher premenopausal BMI are associated with a reduced risk^[9].

Of importance, a history of certain BBDs is also a risk factor for breast cancer; benign proliferative disease with or without atypia increases the risk approximately 4- and 2-fold, respectively, whereas it is less clear whether non-proliferative diseases affect the risk^[10]. In addition, family history of breast cancer influences the risk of breast cancer after a BBD diagnosis, and the risk may be further elevated in younger women^[11]. Therefore, it is important to improve our understanding of benign vs malignant breast diseases for breast cancer risk assessment.

A previous study^[4] categorized BBDs according to their association with breast cancer risk. However, more detailed classification of the diseases is needed in accordance with recent pathological guidelines^[12]. Indeed, BBDs cover a group of various non-invasive breast conditions, including but not limited to, epithelial proliferation with atypia (EPA) or epithelial proliferation without atypia (EP) (hyperplasia), fibroadenomas (firm breast masses that often affect younger women), papillomas (small discrete benign tumors), adenosis (enlargement of the lobules), calcifications, fluid-filled cysts, and fibrocystic changes (FCCs) (composed of cysts and solid lesions)^[11].

Head and neck cancer affects 550,000 individuals per annum worldwide. Males are more commonly affected than females in a ratio that varies from 2:1 to 4:1. The annual incidence rate among males is 20 per 100,000 in the Indian subcontinent, France, Hong Kong, Central and Eastern Europe, Spain, Italy, Brazil and among African American males^[2]. Head and neck cancer accounts for 3% of all cancer burden in the United States with 55,000 annually affected individuals with a mortality of 12,000 per year. The incidence rates for cancer sites related to HPV infections, such as the oropharynx, tonsil, and base of the tongue, is increasing among young adults in the United States and in other developed countries (1983-2002)^[3]. The impact of HPV induced oropharyngeal cancers on overall incidence trends is unclear.

Methods and Materials

This is a prospective study and observation study conducted in the Department of General Surgery and Department of Pathology at Prathima Institute of Medical Sciences over a period of 1 year. All patients who underwent surgery for benign breast disease were included. Patients who did not undergo surgery for benign breast disease were excluded.

All the data were collected in pre-designed proforma by observation of the files and operation notes of patient who underwent surgery for benign breast disease. The files were retrieved from the case sheet and histopathological examination reports were obtained from the department of pathology and relevant information were noted.

Fine needle aspiration biopsy cytology (FNAC) a minimally invasive technique of diagnosis was used. Fine-gauge number 23 single-use disposable needles were used in combination with regular 10 cc single-use disposable plastic. Two to three dry clean slides were used for preparing the smears. All slides labelled with a glass pencil and air-dried. As routine, all smears are fixed with 95% alcohol and stained with eosin and hematoxylin stain.

Histopathologically cases were classified as benign neoplasms, inflammatory lesions and tumor like lesions. Pure benign neoplasm included fibroadenoma (FA), lactating adenoma, phylloid tumor and tubular adenoma. Inflammatory lesions included acute mastitis presenting as a lump, chronic mastitis clinically labelled as antibioma and tuberculosis of breast. Tumor like lesions included fibrocystic disease (FCD) and gynaecomastia.

Result

In table 1, in our study, most of the patients were 21-30 years i.e., 38 out of 70 (54.2%), followed by 10-20 years, i.e., 17 out of 70 (24.2%) and least were 1 (1.4%) belongs to 51-60 years.

Table 1: Distribution of different age groups of patients

Age	No. of patients	Percentage
10-20 years	17	24.2
21-30 years	38	54.2
31-40 years	11	15.7
41-50 years	3	4.2
51-60 years	1	1.4
Total	70	100

Table 2: Distribution of side of lump

Side of lump	No. of patients	Percentage
Left	31	44.2
Right	29	41.4
Bilateral	10	14.2
Total	70	100

In table 2, patients with lump in left breast were more in number (31) than those with lump in right breast (29). Bilateral lump presentation as the least common 10 (14.2%) patients.

Table 3: Distribution according to consistency

Consistency	Frequency	Percentage
Soft	09	12.8
Hard	19	27.1
Firm	42	60.0
Total	70	100

In our study, 42 was firm 60% followed by 9 were soft while 19 were hard in consistency in table 3.

Table 4: Distribution according to histopathological reports

Histological diagnosis	Frequency	Percentage
Fibroadenoma	31	44.2
Fibrocystic change	16	22.8
Epidermoid cyst	11	15.7
Fat necrosis	5	7.1
Tuberculosisadenitis	2	2.8
Others	5	7.1
Total	70	100

In our study, Fibroadenoma was the most frequently diagnosed lesion, followed by

fibrocystic change. Epidermoid cyst was the third most commonly diagnosed. Other histological diagnoses were fat necrosis, lactating adenoma and tuberculosis of the breast in table 4.

Discussion

In our study, out of 70 patients, maximum (38) were in the age group of 21- 30 years, comprising 54.2%, followed by 17 (24.2%) patients in age group 10-20 years. Only 5 (8.6%) patients were more than 40 years. Our youngest patient was of 15 years while eldest was of 51 years (Table 1). Shanker MR *et al.*, reported commonest age group as 20-40 years and mean age as 28.6 years^[13]. Y Narendra *et al.* mentioned the mean age of patients as 30 years^[14]. In the prospective study by Newton P *et al.*, most common presentation in women was either pain or lump, followed by skin and nipple changes and nipple discharge^[15].

Patients with lump in right breast were more in number (31) than those with lump in left breast (29). Ten patients had bilateral lump. This is with consistency to the finding of Y Narendra *et al.* in which the most common side was left^[14]. They reported bilateral presentation as the least common, which is similar to our study. In our study, consistency of 81% of lumps i.e. 42 was firm, 60% i.e. 9 were soft while 19 were hard in consistency. However, in the study by Sharma *et al.*, majority of patients were diagnosed with fibroadenosis^[16].

Oestrogen is known to influence proliferation of breast lesions. Oestrogen has intracellular receptors that mediate a cascade of genetic process that consequently result into protein synthesis. Estrogen has physiological effects of cell proliferation and differentiation during the cell cycle. Probably in benign proliferative breast disease the steroid hormones antagonizes cell differentiation and apoptosis^[17]. The normal proliferation of cells due to action of endogenous steroid hormones leads to the breast enlargement seen at puberty and the reproductive period. An impairment of this process leads to the development of fibrocystic change that eventually presents as breast lumps^[18].

The proliferation of cells that lead to formation of a breast lump is usually a painless process, unless other intercurrent pathology such as milk stasis, infection of the lactiferous ducts, trauma with subsequent tissue necrosis, pressure effects of the lumps on the blood vessels and nerves occur. The atypical proliferation occurs most frequently in the post-menopausal period. This is when serum oestrogen wanes, perhaps explaining the atypia^[19]. The majority of the patients in this study were premenopausal women. This age category usually has high levels of serum estrogen.

Fibroadenoma was the most frequently diagnosed lesion, followed by fibrocystic change. Epidermoid cyst was the third most commonly diagnosed. Other histological diagnoses were fat necrosis, lactating adenoma and tuberculosis of the breast. Nalwanga S found that fibroadenoma was the most frequently diagnosed breast lumps followed by fibrocystic change then breast abscesses at Mulago hospital a decade ago in the year 2002^[20]. Almost all of the benign proliferative lesions were found in the fibrocystic change and fibroadenoma categories.

Though not statistically significant (due to small numbers), the non-hormonal contraceptive users were twice more likely to have benign proliferative lesions as compared to users. Howard in 1979 suggested that oral contraceptives reduces the risk of benign breast diseases^[21].

Conclusion

Benign breast disorders are a group of conditions that are commonly managed by surgeons. Benign breast pathologic conditions rarely increases the risk of malignancy. As knowledge of benign breast pathologic conditions improves, many conditions can be managed without the need for open surgery. Collaborative care models including nurse practitioners can improve patient experience and education about their breast health.

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