Original Article

Review of Male Breast Disorder in Medical City

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Summary:

Background: Although uncommon, diseases of the male breast engender a tremendous emotional response. Fortunately, most diseases present with a mass and are easily detected. Unlike the female breast, only ducts but no lobules are present.

Objectives: The aim of this descriptive study is to present the clinical, pathological and ultrasonographic features of different breast lesions amongst males.

Patients & methods: Data obtained from 93 male patients with breast disorders collected between the first of January 2008 to the end of December 2009 and based on clinical examination were done in surgical wards in Baghdad teaching hospital and the main referral training centre for early detection of breast tumors.

Results: Gynecomastia was the most common pathological abnormality of the male breast (77 patients, 82.8%). Most of the patients presented in the 2nd decade of life. Amongst the malignant conditions, infiltrating ductal carcinoma was the only malignant tumor detected (5 patients, 5.37%).

Conclusion: The majority (94.63%) of male breast lesions are benign**.** Ultrasonographic examination is useful-but not the only for distinguishing benign versus malignant lesions, FNAC and histopathological examination yield the final diagnosis.

Keywords: Male breast, Gynecomastia.

Fac Med Baghdad 2011; Vol. 53, No. 4
Received Aug. 2011
Accepted Feb. 2012

Introduction:

Gynecomastia is enlargement of the male breast resulting from hypertrophy and hyperplasia of both glandular and stromal components. Most cases of gynecomastia are idiopathic. (1, 2) Gynecomastia manifests clinically as a soft, mobile, tender mass in the retroareolar region ,differ from carcinoma, which tend to be located eccentrically.(3,4) Male breast enlargement classified using Hoffman Kohn scale adapted from McKinny and Simon into:

Grade 1 - Minor breast enlargement without skin redundancy

Grade 2 - Moderate breast enlargement without skin redundancy.

Grade 3 - Moderate breast enlargement with skin redundancy.

Grade 4 - Gross breast enlargement with breast ptosis.

Gynecomastia and male breast cancer have many similarities and 20%to 40% of cases of male breast cancer have been reported to be associated with gynecomastia. (5, 6) Male breast cancer is similar to breast cancer in females in its etiology, family history, prognosis, and treatment. Male breast neoplasm are relatively rare, in contrast to gynecomastia, which is a relatively common condition.(7,8, 9,10, 11,12,13,14,15). Clinically, most breast carcinoma present in elderly individuals as painless breast nodules or lump, occasionally with or without associated nipple abnormalities (discharge, retraction, erosion, or ulceration). (16)

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Patients and methods:

Data obtained from male patients with breast disorders collected between 1st of January 2008 to the end of December 2009 and based on clinical assessments and reports of the FNAC and ultrasound from the main referral training centre for early detection of breast tumors and histopathological reports from teaching laboratories in medical city, Baghdad.

The number of the patients involved in this prospective descriptive study is ninety three patients and the data form is based on the age , chief complaints(pain ,mass,discharge), symptoms, decreased sexuality, weight loss, lymphadenopathy ,the site affected (left, right, or bilateral), associated diseases(testicular failure, liver diseases ,gastro-duodenal symptoms, family history and the social history (smoking, alcohol abuse, and drugs history) . Physical examination was done and it includes local and systemic. Investigations were focused on U/S, FNAC, and incisional or excisional biopsy and their histopathological reports.

Results:

The commonest male breast disorders is Gynecomastia, 77 cases (82.8%),and it is more commonly found in age group between 10-19 year (25%), while breast cancer was found in 5 cases (5.38%) and most common in age group 40-59years,Miscelaneous breast disorders found in 11 cases(11.83%) , and there is no specific age group (Table 1 and Figure 1).

Lipoma 4 cases and acute mastitis 4 cases were most common benign miscellaneous disorder of the male breast while abscess 2 cases, and hematoma 1 case.

Left side alone was the commonest side involved by all male breast disorders, Gynecomastia 46.2%, breast cancer 4.3%, and miscellaneous disorders 8.6 %. Bilateral breast involvement found in Gynecomastia only, 20 cases (21.5%). as shown in (Table 2). Painless mass was commonest presenting feature for Gynecomastia 51.9%, while Painful mass was commonest presenting feature for benign breast disorders (Table 3). Neoplasia and pleomorphism reported in 5 cases (5.38%) of breast cancer while gynaecomastia give no specific histopathological features in 11 cases (11.83%),it presents with proliferative glandular tissues with inflammatory cells ,in 28 cases(30.1%) with proliferative glandular tissues without inflammatory cells & in 31 cases (33.33%) with fibromyxoid stroma with periductal halo-effect(Table 6) .

Drug ingestion is an important and significant factor associated with 42 cases (45.16%), while 16 cases only (17.20%) have no any relevant factors (idiopathic), (Table 4).

Table 1: Distribution of different male breast disorders according to age .

Age	Gynecomastia		Breast Cancer		Miscellaneous		Total	
(year)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Below 10	-	-	-	-	1	1.08	1	1.08
10-19	24	25.81	-	-	2	2.15	26	27.96
20-29	20	21.51	-	-	2	2.15	22	23.66
30-39	15	16.13	-	-	3	3.22	18	19.35
40-49	12	12.9	2	2.15	3	3.22	17	18.27
50-59	6	6.45	2	2.15	-	-	8	8.6
60-69	-	-	1	1.08	-	-	1	1.08
Total	77	82.8	5	5.38	11	11.83	93	100

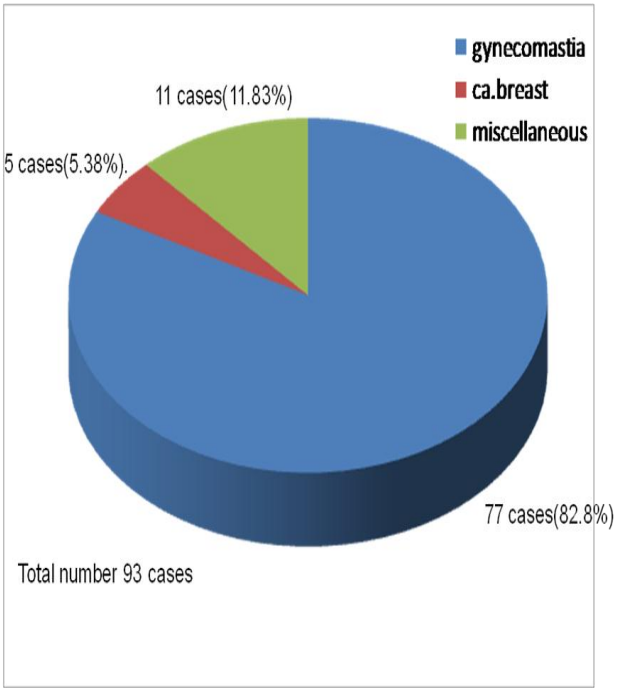

Figure1: Pie diagram shows the distribution of different male breast disorders

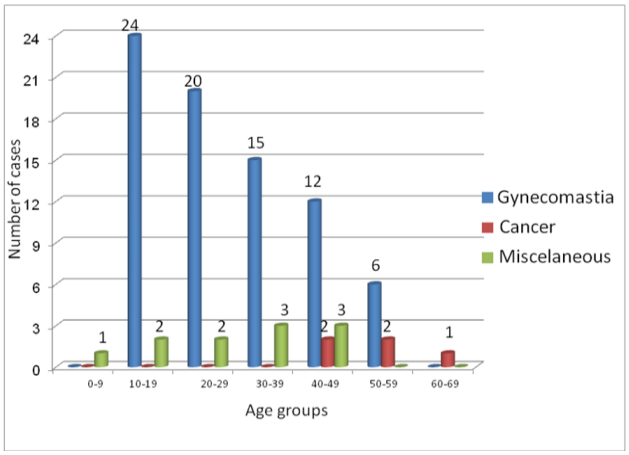

Figure 2: Compound Bar chart shows Distribution of disorders according to age groups

Side of disorders:-

Table 2 shows the distribution of different male breast disorders according to the side. Left side was the commonest side involve by all breast disorder.

Table 2: Distribution of disorders according to breast side

Side	Gynecomastia	Breast Cancer	Miscellaneous	Total
	No. %	**No. %**	**No. %**	No. %
Left alone	43 46.24	4 4.3	8 8.6	55 59.14
Right alone	14 15.05	1 1.08	3 3.23	18 19.36
Bilateral	20 21.50	- -	- -	20 21.5
Total	77 82.8	5 5.38	11 11.83	93 100

Clinical presentation and physical examination:-

Table 3: Clinical presentations of male breast disorders and associated features

Clinical presentations	Gynecomastia	Breast Cancer	Miscellaneous	Total	
	No.	No.	No.	No.	%
Pain only	5	-	2	7	7.53
Painful mass	32	1	5	38	40.86
Painless mass	40	4	4	48	51.61
Associated features					
Decreased sexuality	7	4	-	11	11.83
Weight loss	2	1	-	3	3.23
Testicular atrophy	4	3	-	7	7.53

Past relavant history:-

Table 4: Demonstrate the relevant factors in male breast disorders.

Relevant factors	Gynecomastia		Breast Cancer		Miscellaneous		Total	
	No.	%	No.	%	No.	%	No.	%
Testicular failure	5	5.38	2	2.15	-	-	7	7.53
Drugs	42	45.16	-	-	-	-	42	45.16
Tumors	-	-	1	1.08	-	-	1	1.08
Alcohol abused	8	8.60	1	1.08	2	2.15	11	11.83
Smoking	11	11.83	1	1.08	4	4.30	16	17.20
Idiopathic	11	11.83	-	-	5	5.38	16	17.20
Total	77	82.8	5	5.38	11	11.83	93	100

Ultrasonographic findings:

Table 5: Showing the ultrasonographic features of different breast disorders in male.

Ultrasonographic findings	Gynecomastia		Breast Cancer		Miscellaneous		Total	
	No.	%	No.	%	No.	%	No.	%
Retroareolar well define mass	5	5.38	-	-	1	1.08	6	6.45
Proliferation of fibro glandular tissues	37	39.78	-	-	3	3.23	40	43.01
Retroareolar ill define mass	16	17.20	3	3.23	2	2.15	21	22.58
Cystic mass (lipoma, abscess, hematoma)	-	-	-	--	5	5.38	5	5.38
Eccentric ill define masses	19	20.43	2	2.15	-	-	21	22.58
TOTAL	77	82.8	5	5.38	11	11.83	93	100

Histopathological and cytological findings:

Table 6: Showing the fine needle aspiration cytology and histopathological results of excisional biopsy of different breast disorders.

Laboratory Findings	Gynecomastia		Breast Cancer		Miscellaneous		Total	
	NO.	%	NO.	%	NO.	%	NO.	%
Proliferative glandular tissues with inflammatory cells.	11	11.83	-	-	4	4.30	15	16.13
Proliferative glandular tissues without inflammatory cells.	28	30.1	-	-	-	-	28	30.1
Fibromyxoid stroma & periductal halo-effect	31	33.33	-	--	-	-	31	33.33
Atypical /hyperplastic cells	7	7.53	-	-	-	-	7	7.53
Plasma cellalymphocytes	-	-	-	-	3	3.23	3	3.23
Mature adepocytes	-	-	-	-	4	4.30	4	4.30
Neoplasia & pleomorphism	-	-	5	5.38	-	-	5	5.38
TOTAL	77	82.8	5	5.38	11	11.83	93	100

Discussion:

In our descriptive study on 93 male patients with different breast lesions, benign breast lesions comprises 88 patients (96.78%); gynecomastia 77 (82.8%), miscellaneous conditions 11 (11.83%); whereas; carcinoma comprises 5 patients (5.38%) of all male breast lesions, all were of infiltrative ductal carcinoma. No standard figure has been described, benign breast lesions range from 62-99% in the literatures. Palpable breast tissue is so prevalent in studies of men and boys that some authors suggest differentiating it clinically from the important disorder, the gynecomastia. (19)

Table 7: Comparism between our study and other studies.

Study (year)/No. of cases	Gynecomastia (%)	Cancer (%)	Miscelaneous (%)
Our Study (2010) / 93 cases	82.8%	5.38%	11.83%
Sazan,Lubab and Nada(20) (2008)/124 cases	83.1%	9.7%	7.2%
Siddiqui et al(21) (2002)	82.6%	5.2%.	12.2%
Gill MS, et al(22) (2000) Morphological study of 150 cases	58.7%	8.7%	32.6%
Alan H. Appelbaum et al(23) (1999) mammographic appearances of 97 patients	67%	12.4%	20.6%

From the above table we conclude that there is no statistical significant difference (P- value > 0.05) between our study and other studies which depend on cytological or histopathological findings (**Sazan, Lubab and Nada(22**) and **Siddiqui et al(23)**),while there is statistical significant difference (P-value < 0.05)between our study and other studies which depend on Morphological study(**Gill MS, et al(20**))and mammographic appearances only (**Alan H. Appelbaum et al(21**)).So the difference way of studies gives different readings.

The age distribution of gynecomastia in our study varied from the highest (25.81% and 21.51%) in the 2nd and 3rd decades ,respectively; to the lowest (6.45% &12.9%) in the 6th and 5th decades ,respectively; while breast cancer is reported in the 5th decade forward of a total (5.37%).While breast cancer peak distribution is equal in the 5th and 6th decades(2.15%)(Table 1). It has been reported by Gill MS. et al (22) as well as Anderson WF, et al (24), that the peak incidence of age in gynecomastia occurs during puberty, with peaking around 14years old (P > 0.05), due to the hormonal changes; resulting from altered estrogen – androgen balance of breast tissues or from increased sensitivity of this tissue to normal estrogen level. Sazan, Lubab and Nada (20) reported that the peak incidence of gynecomastia in the 2nd decade is 23.4% (P > 0.05), whereas carcinoma of breast is (9.7%) mostly after the age of 50 years old (P < 0.05). the incidence of male breast cancer is less than 1% of all breast cancer in Europe (24). In our study gynecomastia affecting male breast bilaterally in 20cases (21.50%), left -sided is mostly affected in 55 patients (59.14%),and the right breast affected in 18 patients (19,36%).Breast cancer &miscellaneous breast conditions that affect breast bilaterally are not reported(Table2).Felner and White found that during adolescence 75% of gynecomastia cases are bilateral(24). Sazan, Lubab& Nada (20) reported bilateralism in (8.9%) all were with gynecomastia, while different disorders involve left breast in (53.2%) and right side in (37.9%),(P < 0.05). In our study painless mass with or without other symptoms was the most common presentation in male breast disorders. It was reported in 48 patients (51.95%) gynecomastia, in 4 patients (80%) breast cancer, & in 4 patients (36.36%) miscellaneous conditions , whereas painful mass was presented in 38 patients (40.86%) of all patients, gynecomastia comprises 32 patients (41.55),breast cancer 1 patient (20%), miscellaneous conditions 5 patients (45.5%) of every group own number. Pain only without mass reported in 7 patients (7.5%), it was presented in 5 patients (6.5%) of gynecomastia, and 2 patients (18.2%) of miscellaneous conditions. Decreased sexuality, presented in 11 cases (11.83%) with or without testicular atrophy, testicular atrophy per se presented in 7 patients (7.53%); whereas,

nipple discharge, ulceration or retraction are not reported in our study(Table3). Yap HY, et al(25) describe that painless lump, alone or with other problems arises in 75% of cases and pain is associated with a lump in only 5% ($P < 0.05$), and revealed that gynecomastia is not uncommonly precedes or accompanies breast cancer in men but there is no convincing evidence to link gynaecomastia with male breast cancer.

Van Geel AN, et al.(26) and Heller KS, et al.(6) described that nipple involvement is a fairly early event, with retraction in 9%, discharge in 6%, and ulceration in 6%, although ulceration was separate from the nipple in half the cases, with a mean age of 60 years. Gupta N, et al (7) described that fixed painless hard mass with retraction ulceration, nipple discharge, and enlarged axillary lymph node are likely to be signs of malignancy. Clinical breast examination is the key in evaluation of palpable mass in men, and it is found to be important in assessing grade of gynecomastia and further evaluation may or may not be necessary ,by using Hoffman Kohn scale adapted by McKinny &Simon,(7, 24,27) because there is no convincing evidence to link gynaecomastia with male breast cancer.(25) Fortunately, it has been demonstrated that pubertal gynecomastia often regress spontaneously within six months,75% within two years of onset ,and 90% resolved within three years of onset.(24) In our study ,ingestion of drugs for any cause play an important past relevant history in precipitating gynecomastia in 42 patients(45.16%) ,smoking of cigarettes in 11patients(11,83%), alcohol abuse in 8 patients (8.6%) on the other hand ,no important relevant history recorded in 16 patients (17.2%) involved in this study(Table 4). Bembo SA & Carlson HE. (2) gave similar picture. while Glass AR, et al(28) Plourde PV et al(29) and Ewertz M, et al(30) showing that persistent pubertal gynecomastia occur in 25%,Drugs in (10-25%),no detectable abnormality in 25%,Cirrhosis or malnutrition in 8%, primary hypogonadism in 8%, testicular tumors in 3%,secondary hypogonadism in 2%, hyperthyroidism in 1.5% ,Chronic renal insufficiency in 1%.(29) In our study 42 patients (45.16%) gave history of ingestion of different types of drugs. hyperoestrogenisation in men can be caused either by oestrogen agonist drugs as digoxin ,spironolactone, or oestrogen hormone therapy ;this group represent 11 patients (11.83%) of patients; or by testosterone target cell inhibitors which is taken by 17 patients (18.28%) of total patients; or the third group; drugs that causing Hyperprolactinaemia (methyldopa & phenothiazines) reported in 14 patients (15.05%); on the other hand 51 patients (54.88%) with no history of drug association (Table 4). Ultrasonography may be useful in demonstrating cystic lesion in male breast, in 5 patients (5.38%) the cystic lesions were lipoma in 4 patients (4.3%) & hematoma in 1 patient (1.08%), and well defined retroareolar solid-rather than cystic- mass consistent with gynecomastia in5 patients (5.38%) ,but most of gynecomastia, 37 patients (39.78%) presented as generalized prominent proliferation of fibro-glandular tissue unilaterally or bilaterally, and in 3 patients (3.23%) this finding correspond to benign inflammatory lesions .Multiple ill defined masses as well as retroareolar ill defined mass give another ultrasonographic picture of gynecomastia in 19 patients (20.43%) and in16 patients (17.2%),respectively. Breast cancer on the other hand, presented ultasonographically with retroareolar ill defined mass in (3 of 5 cases) and with eccentric ill defined masses in (2 of 5 cases) of total number of breast cancer reached in this study (Table 5). Doonegan(9) and Gunhan et al(31) documented that ultrasonography alone is not a reliable technique to distinguish male breast carcinoma from other etiologies, where false positive result may be seen in abscess, gynecomastia ,and fat necrosis. The main stay in diagnosis of different male breast disorders is fine needle aspiration & /or excisional biopsy which should be the integral part of the primary assessment of breast lumps in male (9, 32, 33). The typical cytological features consistent with gynecomastia reported in 7 patients (7.53%) ,while the other reported a few scattered cells of benign origin , and need excisional biopsy to settle up the diagnosis; Sazan, Lubab and Nada(20) in 2008 reported gynecomastia being diagnosed by FNAC in(13.6%) and Amrikachi et al 2001(9%)(34) who reported that apocrine metaplasia and epithelial atypia are common finding in gynecomastia; adding that the attention should be directed toward the pattern of the cells. All the cases of breast cancer diagnosed by histopathological examination which reveal neoplasia and pleomorphism implicated for infiltrative ductal carcinoma 100%(5 of 5 cases) .Although there are many other subtypes for carcinoma of breast but the predominant histological type of disease in all literatures is invasive ductal, which forms more than 90% of all male breast tumors(35). In one series microscopic changes consistent with gynecomastia were found in 40% 0f breast carcinoma cases. (36)

Conclusion:

(94.63%) of male breast lesions are benign, amongst them (82.8%) were gynecomastia. Breast cancer account for (5.38%) of the cases mostly presented with painless breast lump in the 5th decade and upward. In men, cystic lesions commonly yield benign pathologic findings, eccentric location of discrete mass is highly suspicious for cancer; therefore, complex masses should be worked up as potentially malignant lesions. It is particularly important to be able to distinguish those suspicious lesions by clinical examination, U/S, FNAC and histopathological examination.

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