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Rawia Faleh Albayati
Baghdad Health Directorate, Al-Karkh, Baghdad, Iraq

Besmah M Ali
Consultant, Department of Community Medicine, Head of Public Health Unit in Ghazi Al-Hariri Hospital for Surgical Specialties, Baghdad, Iraq

Khalid Kareem Rajab
Al Mustanstryia Medical College/Consultant Surgeon Al Yarmouk Teaching Hospital, Baghdad, Iraq

Corresponding Author:
Rawia Faleh Albayati
Baghdad Health Directorate, Al-Karkh, Baghdad, Iraq

Reviewing the pattern of breast diseases in patients who attended the breast clinic at Alkarkh teaching Hospital, in Baghdad, Iraq

Rawia Faleh Albayati, Besmah M Ali and Khalid Kareem Rajab

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Abstract
Background: Breast diseases are rising in incidence especially in developing countries. However, most research focuses on breast cancer. Breast cancer incidence increases with age. Benign diseases can be distinguished as epithelial inflammatory proliferations, stroma, tumors and deformities, and benign diseases are widespread compared to malignant and inflammatory diseases, as is the case in all parts of the world.
Objectives: The purpose of this study is to review the pattern of breast diseases in patients who attended the Breast Clinic at Alkarkh Teaching Hospital, in Baghdad, Iraq. Method: A cross-sectional descriptive study was done on Alkarkh Teaching Hospital women. The hospital breast clinic saw 1524 patients from 1/6/2022 to 1/6/2023.
Results: Fibroadenoma 240 (16%), Fibrocystic diseases 220 (14.43%), Simple cyst 140 (9.18%), Lipoma 90 (5.9%), Oil cyst 90 (5.9%), Mastitis 150 (9.84%), Abscess 10 (0.656%), Benign dilated duct 140 (9.18%), Fibro epithelial lesion 30 (1.97%), Gynecomastia 50 (3.3%), Epidermoid cyst 23 (1.51%), Carcinoma 11 (0.72%), Benign skin lesions 199 (13.1%), Ductal ectasia 72 (4.72%), Folliculitis 21 (1.38%), Normal findings 18 (1%).
Conclusion: Benign breast diseases are the commonest breast diseases, in which Fibroadenoma, fibrocystic diseases, simple cyst is the most common variety. Cancer prevalence is less reported. Patients normally present late with locally advanced diseases, due to lack of awareness and knowledge.

Keywords: Breast cancer, breast diseases, patterns, benign, malignant

Introduction
Breast diseases encompass inflammatory conditions, benign tumors, and malignant tumors, with around 200,000 cases diagnosed annually worldwide [1]. These diseases are more common in females than males and vary by country and race [2]. Benign breast diseases, which are more prevalent than malignant and inflammatory ones, include epithelial inflammatory proliferations, stroma, tumors, and deformities [3]. Among benign diseases, fibroadenomas are the most prevalent, constituting nearly half of all cases [4]. Benign diseases typically appear in the second decade of life, peaking in the fourth and fifth decades [5]. Over the past decade, the incidence of breast diseases has increased significantly. Benign breast diseases form a heterogeneous group of tissue changes that are related to the risk of breast cancer [1]. Advances in mammography have improved the diagnosis of both benign and malignant breast diseases [6]. Breast cancer is the second leading cause of cancer death worldwide after lung cancer, comprising 28% of cancer cases in the U.S. in 2010 [7]. Pathological or physiological nipple discharge is a concerning symptom, with 10 to 15% of women with benign breast disease reporting pathological discharge. A breast mass and cyst require histological diagnosis, while mastalgia (breast pain) is the most common symptom, with 36% of women diagnosed with breast cancer in Illinois, Chicago, reporting pain as their only symptom [8]. Symptomatic patients presenting with breast discomfort, lump, or nipple discharge, along with irregular clinical breast examinations, are included in the Iraq Breast Cancer Early Detection Model. For women over 40, mammograms are used, while ultrasounds are used for younger women. Tissue samples are taken from patients with positive radiological evaluations following the Triple Evaluation Protocol for Early Breast Detection Clinics [9]. Early detection procedures are the best strategy for improving breast cancer survival rates. In 2000, the Iraqi Ministry of Health, in collaboration with the World Health Organization, established a national program for early breast cancer detection.

However, a systematic examination program has not been fully implemented due to a lack of services in health institutions [10]. The aim of this study is to review the pattern of breast diseases in patients who attended the Breast Clinic at Alkarkh Teaching Hospital, in Baghdad, Iraq.

Method

A cross-sectional descriptive survey was implemented among female patients of Alkarkh Teaching Hospital. A total of 1524 women were randomly selected. The medical statistical records in the centre were employed to acquire the data. Age, body mass index, and diagnosis were the specific fundamental information collected from the women. And we rely on the methods associated with these categories to investigate its relationship with breast maladies. Statistical analysis: The data that was collected were coded and entered into SPSS 16.0 (Statistical Package for the Social Sciences (SPSS) 16.0 by IBM) (SPSS for Windows, Rel. 16.0.2007, SPSS Inc., Chicago, IL, USA). The mean and standard deviation were used to express the continuous variables. Frequency and percentage analyses were implemented for categorical data.

Results

Table 1. Shows the distribution of demographic information for the participants in the study, represented by age, body mass index, and final diagnosis of cases for which a descriptive study was conducted. 376 (24.67%), then followed by the age group 40-49, with a participation rate of 324 (21.26%). Also 771 (50.60%) the highest frequency rate among the participants who had their BMI measured fell into the category of 25.0 - 29.9 which indicates an increase in body weight according to WHO (World Health Organization), and the FDA (U.S. Food and Drug Administration) Which is scientifically documented in its references as being If the body mass index (BMI) is less than or equal to 24.0, it is considered normal weight. If the BMI falls between 25.0 - 29.9, it indicates an increase in body weight beyond the normal range. If the BMI is 30.0 or higher, it is considered an indicator of obesity or severe obesity [11, 12], As for the final diagnosis, the percentage of benign cases was 1495 (98.1%), which was higher than the percentage of malignant cancer cases, which was 11 (0.722%), regarding normal cases, their proportion was 18 (1.181%). So there is a significant relationship between age and the final diagnosis, whether benign or malignant, at a significance level of $p \leq 0.01$, with a p-value of 0.0014. However, there is no significant relationship between body mass index (BMI) and the final diagnosis, whether benign or malignant, at a significance level of $p \leq 0.01$, with a p-value of 0.0704.

Table 1: Distribution of characteristics of study participants among women who attended the breast clinic at Alkarkh Teaching Hospital in Baghdad, Iraq. (n=1524)

Variables	Categories	Frequency (n)	(%)	P-value
Age (years)	8-10	3	0.20	0.0014
	11-19	27	1.80	
	20-29	92	6.03	
	30-39	234	15.35	
	40-49	324	21.26	
	50-59	376	24.67	
	60-69	268	17.58	
	70-79	120	7.87	
	80-89	52	3.41	
	90-99	28	1.83	
	Total	1524	100%	
BMI**:**	≤24	451	29.59	0.0704
Normal: Over	25.0-29.9	771	50.60	
Weight: Obesity:	30.0 ≤	302	19.81	
	Total	1524	100%	
Diagnosis	Malignant	11	0.722	
	Benign	1495	98.1	
	Normal	18	1.181	
	Total	1524	100%	
BMI= Body Mass Index, n=1524, P≤0.01				

From Table (2), we can observe that the number of patients with mammography results classified as BIRADS 0 was 54 (3.54%), while the number of patients with results classified as BIRADS [I, II, III] was 352 (23.10%), 256 (16.80%), and 96 (6.30%), respectively. On the other hand, the number of patients with mammography results classified as BIRADS [IV, V] was 42 and 1, respectively. Also the number of patients with ultrasound results classified as BIRADS [I, II, III] were 288 (18.89%), 223 (14.63%), 222 (14.57%) respectively. While the number of patients with ultrasound results classified as BIRADS [IV, V] were 62 (4.10%) and 5 (0.33%), respectively.

Table 2: BIRADS mammo and U/S for women with breast diseases attended in health center, use frequency and (%), n=1524

BIRADS	Mammography		Ultrasound	
	Frequency	(%)	Frequency	(%)
0	54	3.54	0	0.00
1	352	23.10	288	18.89
2	256	16.80	223	14.63
3	96	6.30	222	14.57
4	42	2.75	62	4.10
5	1	0.065	5	0.33
BIRADS= Breast Imaging-Reporting and Data System,				

From Fig. 1 shown that Fibroadenoma 240 (16%), Fibrocystic diseases 220 (14.43%), Simple cyst 140 (9.18%), Lipoma 90 (5.9%), Oil cyst 90 (5.9%), Mastitis 150 (9.84%), Abscess 10 (0.656%), Benign dilated duct 140 (9.18%), Fibro epithelial lesion 30 (1.97%), Gynecomastia 50 (3.3%), Epidermoid cyst 23 (1.51%), Carcinoma 11 (0.72%), Benign skin lesions 199 (13.1%), Ductal ectasia 72 (4.72%), Folliculitis 21 (1.38%), Normal findings 18 (1%).

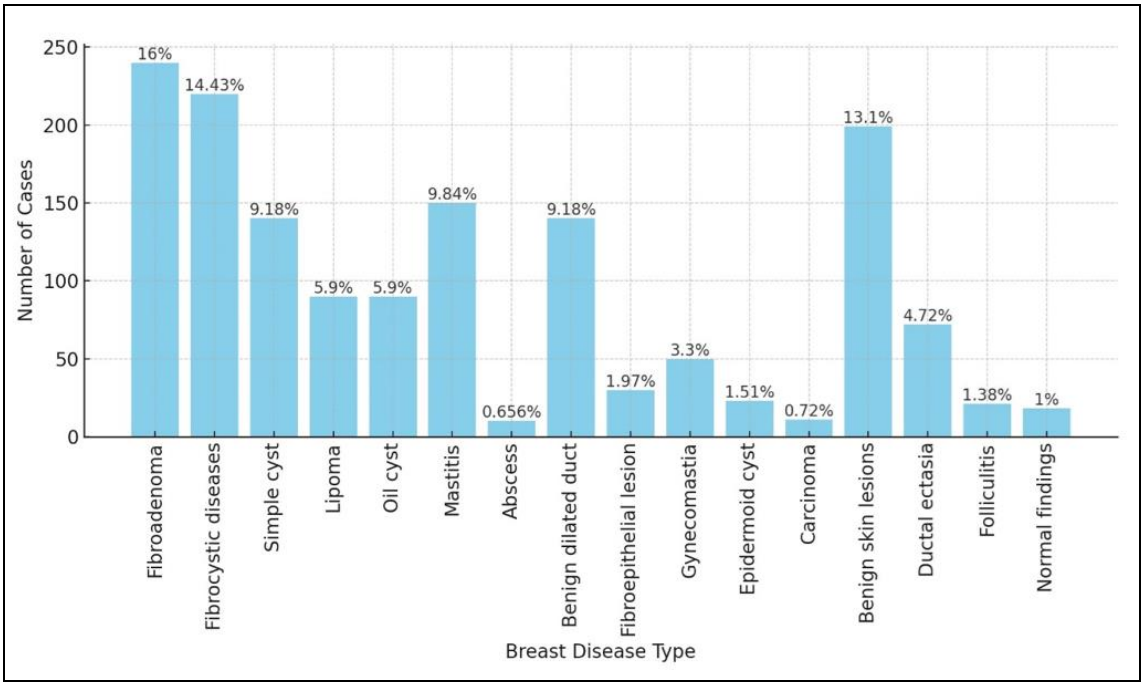

Fig 1: Final diagnosis of breast diseases in patients attended in Alkarkh teaching hospital (n = 1524)

Table 3 indicates the most important examinations that had to be conducted to describe cases of breast diseases and differentiate between them in terms of being benign or malignant, according to the type of radiographic or histopathological examination. Among them, 758 cases (49.74%) were benign, while 11 cases (0.722%) were malignant based on BIRADS - mammography. Additionally, 733 cases (48.1%) were benign, and 11 cases (0.722%) were malignant based on BIRADS - ultrasound. Furthermore, 37 cases (2.43%) were benign, and 10 cases (0.656%) were malignant based on cytological and/or histological investigations. Also as observed from the table, there is a strong significant relationship between the final diagnosis and the diagnostic methods employed at a significance level of $p \leq 0.01$, with a p-value of 0.00001.

Table 3: Types of investigations done for final diagnosis, for women with breast diseases (benign, malignant) use frequency and (%), n=1524.

Investigation	Benign		Malignant		P-value
	Frequency	(%)	Frequency	(%)	
BIRADS - Mammo	758	49.74	11	0.722	0.0001
BIRADS - Ultrasound	733	48.1	11	0.722	
Cytology or Histo	37	2.43	10	0.656	
Mammo = Mammography, U/S = Ultrasound, Cyto = Cytology, Histo = Histology, $p \leq 0.01$					

Discussion

Benign breast diseases are the most common breast lesions identified in this study, consistent with previous findings [1, 4, 11, 12]. Table 1 shows the distribution of demographic information for participants, including age, body mass index (BMI), and final diagnosis. The age group 30-39 had the highest participation rate with 376 (24.67%), followed by 40-49 with 324 (21.26%). Among participants with BMI measurements, 771 (50.60%) fell into the 25.0-29.9 category, indicating overweight according to WHO and FDA standards [13, 14]. For the final diagnosis, benign cases accounted for 1495 (98.1%), malignant cancer cases 11 (0.722%), and normal cases 18 (1.181%). There is a significant relationship between age and final diagnosis at $p \leq 0.01$ (p-value = 0.0014), but no significant relationship between BMI and final diagnosis at $p \leq 0.01$ (p-value = 0.0704). Biopsy results showed the following distribution: Fibroadenoma 240 (16%), Fibrocystic diseases 220 (14.43%), Simple cyst 140 (9.18%), Lipoma 90 (5.9%), Oil cyst 90 (5.9%), Mastitis 150 (9.84%), Abscess 10 (0.656%), Benign dilated duct 140 (9.18%), Fibroepithelial lesion 30 (1.97%), Gynecomastia 50 (3.3%), Epidermoid cyst 23 (1.51%), Carcinoma 11 (0.72%), Benign skin lesions 199 (13.1%), Ductal ectasia 72 (4.72%), Folliculitis 21 (1.38%), Normal findings 18 (1%) [15, 16]. These findings reveal a high rate of lesions compared to past studies, with peak incidence in the 2nd and 3rd decades of life, but also occurring post-menopause due to hormone replacement therapy [17]. Table 2 illustrates the number of patients with mammography results classified as BIRADS 0 at 54 (3.54%), while BIRADS I, II, III classifications were 352 (23.10%), 256 (16.80%), and 96 (6.30%) respectively. BIRADS IV and V classifications were 42 and 1, respectively. Ultrasound results showed BIRADS I, II, III at 288 (18.89%), 223 (14.63%), and 222 (14.57%) respectively, and BIRADS IV and V at 62 (4.10%) and 5 (0.33%) respectively. The sensitivity of mammography is reduced in dense breasts [18], contradicting research that compared mammography and ultrasound [19].

Ultrasonography had a better cancer detection rate and was more useful than mammography, especially in dense breast tissue where mammography may struggle to identify lesions [20]. When mammography indicated BI-RADS=0, ultrasonography often identified abnormalities. Studies suggest that those with BI-RADS below 4 benefit more from additional ultrasound study, while those with BI-RADS 4 and above, already at high risk, might not gain additional information from ultrasound [21]. In this study, 758 (49.74%) were benign diseases, and 11 (0.722%) were malignant with BIRADS-mammography. For BIRADS-ultrasound, 733 (48.1%) were benign, and 11 (0.722%) were malignant. FNAC cytological and/or histological investigations showed 37 (2.43%) benign and 10 (0.656%) malignant cases, as shown in Table 3. There is a strong significant relationship between final diagnosis and diagnostic methods employed at $p \leq 0.01$ (p-value = 0.0001). Other studies showed that out of 50 breast masses on FNAC, 7 cases (14%) were malignant and 43 (86%) were benign [22]. Another study of 757 cases on FNAC found most cases benign (50.2%) and malignant (31.4%) [16]. The percentage of benign cases in this study was closer to that in Bangladesh [22], possibly due to sample size and decreased awareness among women about breast lump risks and seeking medical consultation from breast cancer screening clinics.

Conclusion

Breast disorders can be benign, inflammatory, or cancerous. The most frequent benign breast disorders include fibroadenoma, fibrocystic diseases, and simple cysts. Fewer malignancies are reported. Patients sometimes arrive with locally advanced illnesses later owing to lack of awareness and information. We highly advocate educating women of all ages, especially those 14–48, on the necessity of frequent check-ups at breast cancer early detection centres and breast self-examinations.

Conflict of Interest

Not available

Financial Support

Not available

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