Prevalence of Histopathological Diagnosis of Benign and Malignant Breast Lesions in Al-Muthanna Province for Two Years Duration

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Abstract

Introduction: Breast cancer (BC) is a common form of cancer among women globally. It is considered 5th cause of death in females with equally to 522,000 patients / year. Nowadays it is considered 15.4% of death in developed countries after lung cancer. In developing nations, breast cancer considered the 1st cause of death for females 324,000 cases of deaths (14.3%) for total deaths. **Method:** One hundred and six female patients with breast lesion were collected from the Al-Hussein Teaching Hospital Laboratory/Histopathology department –Al-Muthanna province, during the period from January 2018 to January 2020. The data for cases were collected to study the age, type of breast lesion whether benign or malignant. Haematoxylin/ Eosin staining done in Al-Hussein Teaching Hospital Laboratory / Histopathology department. **Results:** Cross sectional study for 106 patients done in Al- Muthanna proven for assessment breast mass and identify malignant and benign lesion, mean age of patients was (39.4 ± 15.8) years old, with min age 13 years and max age was 81 years old. Types of biopsy taken from surgeon were 71% excisional biopsy, 21% mastectomy and 8% true cut biopsy. After pathological assessment of biopsies showed 51% malignant and 49% benign. In addition, this assessment distributed as following: fibroadenoma 31.1%, IDC/ grade II 29.2%, IDC/ grade III 9.4%, ILC and fibrocystic changes 5.7% and IDC grade I 3.8% and other types of malignant and benign after pathological assessment. Significant association between age groups and cancer of breast. **Conclusion:** After pathological assessment of biopsies, malignant breast cancer (IDC/ grade II, IDC/ grade III, ILC and fibrocystic changes) most common changes, significant association between age group and breast cancer development more age group 41- 50 years old and then (31- 40), (51– 60) years old respectively.

Key words: *Prevalence, histopathological diagnosis, breast lesions, Al-muthanna province*

Introduction

Breast cancer (BC) is a common form of cancer among women globally. It is considered 5th cause of death in females with equally to 522,000 patients / year [(1)]. Nowadays it is considered 15.4% of death in developed countries after lung cancer [(2)]. In developing nations, breast cancer considered the 1st cause of death for females 324,000 cases of deaths (14.3%) for total deaths [(2, 3)]. This rate changes from 6 – 20 / 100.000 in West Africa and East Asia (4). The incidence in 2012 in females reach to 1.7 million (25% of entirely cancers), 883,000 patients in developed country in contradiction of 794,000 in developing nations [(4, 5)].

The incidence was increase in age after 35 years old and peaking in 60 years old [(6)].

Mortality rate depend on age of females, staging of malignancy, treatment respond, metastasis of malignancy, main reasons of breast cancer is hormonal factors, genetic tendencies, behaviors and ecological reasons [(7)].

Benign Breast Diseases (BBDs) is not cancer. Most usual reason of breast difficulty in women and more usual than malignancy (8, 9). It is more usual than malignancy in western countries (10). More than 30% of women with BBD need treatment where survive (11). A three-ways for evaluation done by clinical assessment: US and mammogram, pathological assessment, central needle biopsy. Most women with BBD not have risk of development of breast cancer, so early diagnosis and treatment is important to remove the anxiety especially women with family history of breast cancer and must follow up annually. Most common BBD is fibro adenoma (12). Two types of breast cancer (cancer in situ): **Ductal carcinoma in situ. (**DCIS) 83% of all cases 2010-2014 unusual cells substitute usual epithelial cells around ducts of breast and metastasis to the lobules in addition to the ducts; it is can or can not developed to the aggressive malignancy it is grow slowly without any management it is misdiagnosis with benign 20%-53% diagnosed with an invasive breast malignance for 10 years or more. **Lobular carcinoma in situ.**: 13 % of patients, atypical cells developing inside and growing about some of breast lobules. It is not precursor of invasive cancer, but considered one of strong cause of invasive cancer. The aim of study is to show proportion of benign and malignant breast lesions and types of malignancy tissues by pathological assessment and relation of malignancy with increase age of females (13-15).

Method

One hundred and six female patients with breast lesion were collected from the Al-Hussein Teaching Hospital Laboratory/Histopathology department –Al-Muthanna province, during the period from January 2018 to January 2020. The data for cases were collected to study the age, type of breast lesion whether benign or malignant. Haematoxylin/Eosin staining done in Al-Hussein Teaching Hospital Laboratory / Histopathology department.

***Specimens**:*

The one hundred and six cases classified into benign and malignant breast lesions. From each formalin fixed paraffin embedded tissue, one section of 5-micron thickness was obtained and stained by haematoxylin and eosin staining method for evaluation of morphology.

Methods of staining procedures:

The following steps were applied for (H&E) staining method.

a) Deparaffinization: This done by adding the following:

1. 5 min. period adding Xylene.

2. 5 min. period adding Xylene.

3. 5 min. period adding 99 % ethanol

4. 5 min. period adding 99 % ethanol

5. 5 min. period adding 99 % ethanol

6. 5 min. period adding 99 % ethanol

7. 5 min. period adding 99 % ethanol

8. 5 min. period adding 95 % ethanol

9. 5 min. period adding 70 % ethanol

10. Purified water.

b) Hematoxyline and eosin staining method:

1. Dewax sections (deparaffinization as above).

2. Stain in hematoxyline for 3-10 minutes.

3. Wash well in running tap water.

4. Remove excess stain by differentiating the sections in 1% acid alcohol (1% in HCL 70% alcohol) for 5-10 seconds.

5. Wash well with in tap water until sections regain their blue color.

6. Stain in eosin for 2-5 minutes.

7. Dehydrate slowly through increasing grades of alcohol (i.e.70%, 90% and 100%).

8. Clearing by xylene.

9. Mount wit DPX.

Statistical analysis done by SPSS 22 calculated mean and SD with percentage and frequency. Chi square use for revealed association between age groups and behavior of tumor, significant association when P-value

less than 0.05.

Results:

Cross sectional study for 106 patients done in Al- Muthanna proven for assessment breast mass and identify malignant and benign lesion, mean age of patients was (39.4 ± 15.8) years old, with min age 13 years and max age was 81 years old. Types of biopsy taken from surgeon were 71% excisional biopsy, 21% mastectomy and 8% true cut biopsy as showed in fig (1). After pathological assessment of biopsies showed 51% malignant and 49% benign as in fig (2). In addition, this assessment distributed as following: fibroadenoma 31.1%, IDC/ grade II 29.2%, IDC/ grade III 9.4%, ILC and fibrocystic changes 5.7% and IDC grade I 3.8% and other types of malignant and benign after pathological assessment showed in fig (3).

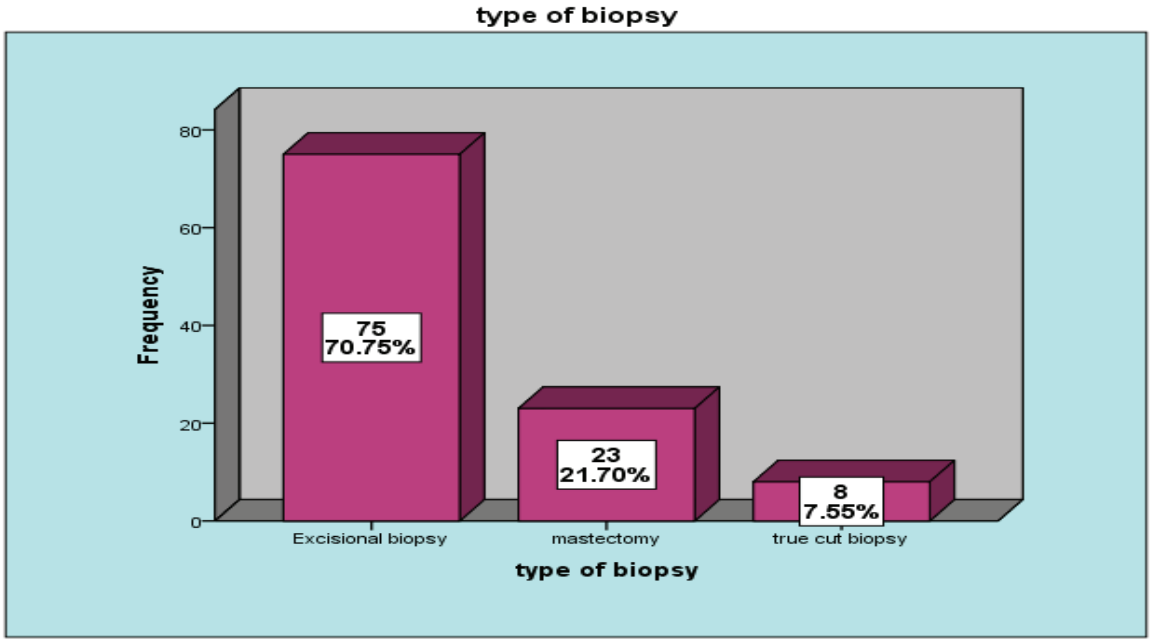

Fig (1): distribution of types of biopsy.

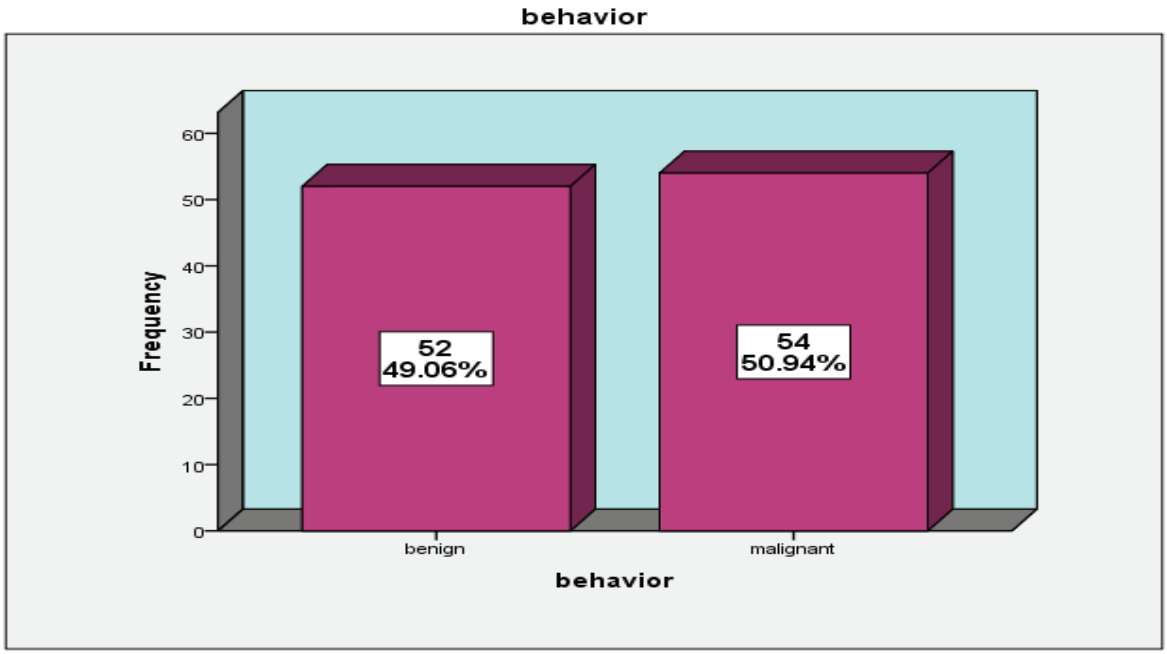

Fig (2): distribution of behavior of biopsy after pathological assessment.

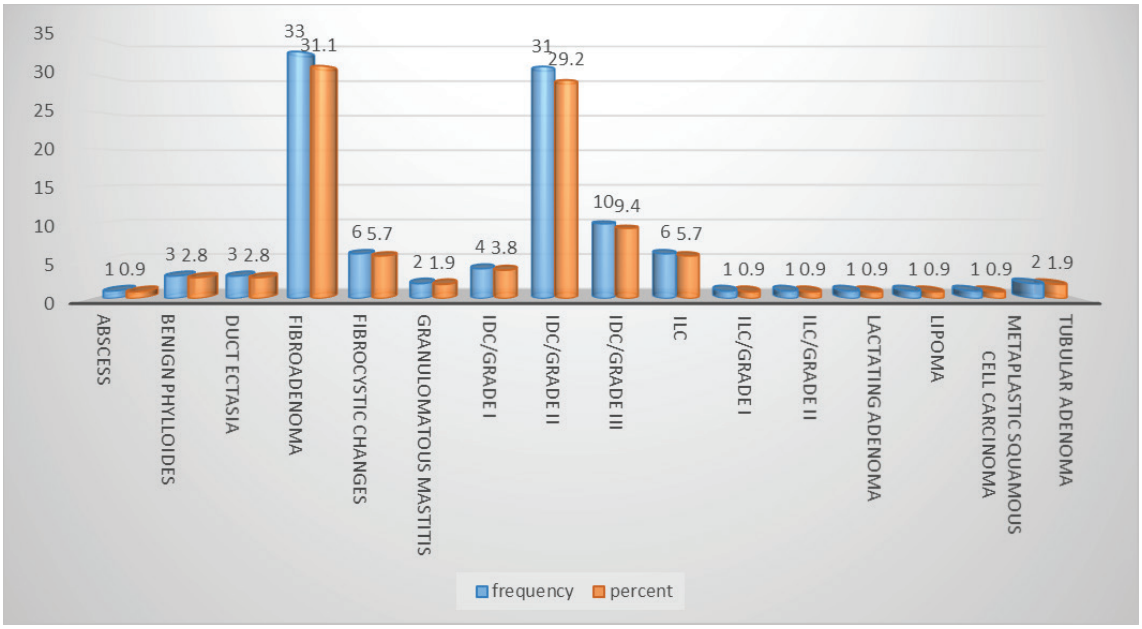

Fig (3): distribution of benign and malignant according to types after pathological assessment.

According to association between ages groups and behavior of lesion either benign or malignant, there is significant association between age groups and cancer of breast, 37% of females in age group 41- 50 years old with malignant breast cancer, while 20% of malignancy in age group (31 – 40) and (51 – 60) years old. 13% of malignancy in age group 61 – 70 years old and only 6% in female over 71 years old age. As show in table (1).

Table (1): association between age groups and behavior of lesion either benign or malignant.

			behavior		Total
			benign	malignant	
Age	11 - 20 years	Count	13	0	13
		% within behavior	25.0%	0.0%	12.3%
	21 - 30 years	Count	22	2	24
		% within behavior	42.3%	3.7%	22.6%
	31 - 40 years	Count	11	11	22
		% within behavior	21.2%	20.4%	20.8%
	41 - 50 years	Count	6	20	26
		% within behavior	11.5%	37.0%	24.5%
	51 - 60 years	Count	0	11	11
		% within behavior	0.0%	20.4%	10.4%
	61 - 70 years	Count	0	7	7
		% within behavior	0.0%	13.0%	6.6%
	more than 71 years	Count	0	3	3
		% within behavior	0.0%	5.6%	2.8%
Total		Count	52	54	106
		% within behavior	100.0%	100.0%	100.0%

Pearson Chi-Square= 58.188, P-value = 0.0001 (significant).**

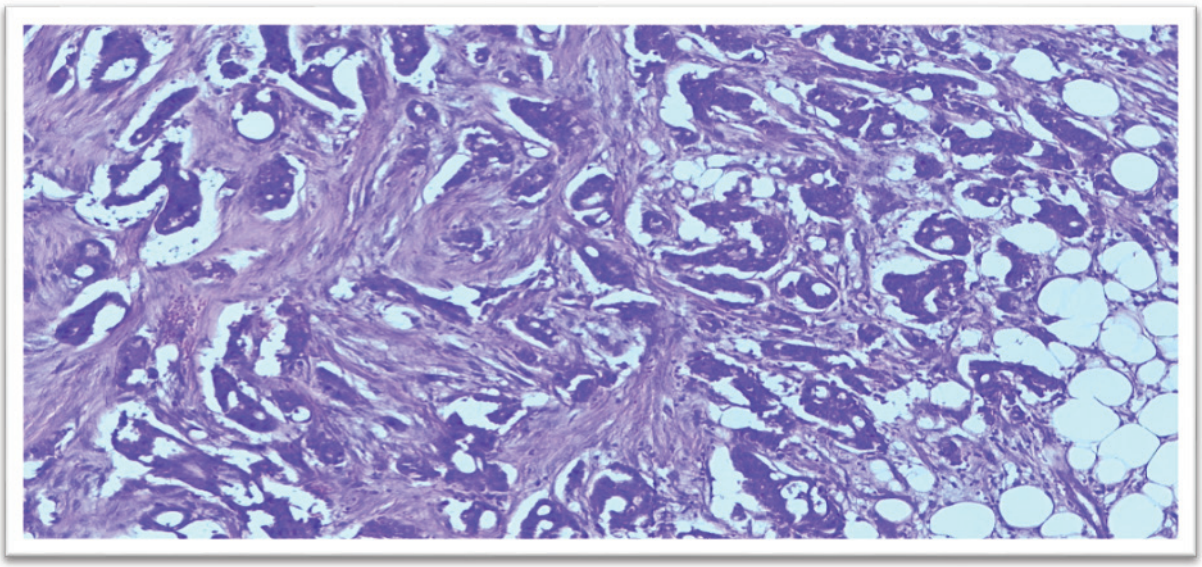

Fig (4): Invasive ductal carcinoma with Hematoxylin & Eosin staining (10X)

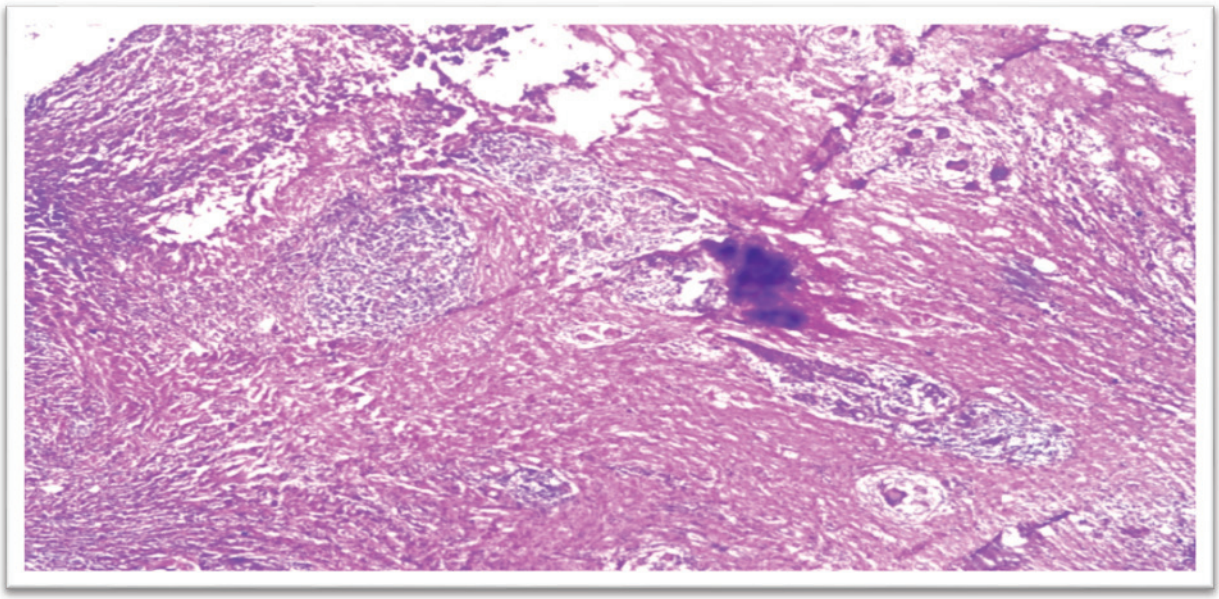

Fig (5): Granulomatous mastitis with Hematoxylin & Eosin staining (4X)

Discussion

Cancer is illnesses that lead the cells in body loss of control and change. All types of cancer cells finally changes to lump or mass that named cancer, and this malignant tumor called according to the site form it the tumor originate. Breast cancer start from gland of breast tissue that lead to production of milk called (terminal duct lobular unit). Other parts of breast tissue consist of connective, fatty and lymphatic tissues (16).

According to our study, mean age of patients was (39.4 ± 15.8) years old, with min. age 13 years and max. age was 81 years old. These results similar to study done by Augustin et al. showed the age extended since 16 - 90 years by a mean of 45.83± 13.5 years old (17). Zhi-Gang Yu et.al. Also, have the same results that mean age of patients was (44 ± 11.6) years old (18).

In our study the types of biopsy taken from surgeon were 71% excisional biopsy, 21% mastectomy and 8% true cut biopsy this is similar to Augustin et al. that showed, the total of cases that take and examine by pathologist contain of 69% of lumpectomy then 30% biopsy of breast.

After pathological assessment of biopsies in our study showed 51% malignant and 49% benign while in another study the proportion was around 4:1 or 5:1 (19), this different is due to sample collection or may be due to high no. of malignancy of breast in al-muthanna province.

In addition, this assessment distributed as following: fibroadenoma 31.1%, IDC/ grade II 29.2%, IDC/ grade III 9.4%, ILC and fibrocystic changes 5.7% and IDC grade I 3.8% and other types of malignant and benign after pathological assessment this results similar to Augustin et al. that showed he predominant tumor histological designs IDC 113 (64.9%), ILC 17 (9.8%) then histological designs were invasive ductal carcinoma 113 (64.9%), invasive lobular carcinoma 17 ductal carcinoma in situ 10 (5.7%) and medullary ca. 5 (2.8%) (17). Similar features diagnosed by Ohene et al. (20); detailed that 53.7% of grade III, 31.5% of grade II and 14.8% of grade I. Essiben et al. showed a propensity in the following course of incidence: grades II, I besides III to the Yaoundé Gynecological Obstetric and Pediatric Hospital (21). Koffi et al. presented that tumor grade II exemplified 58.4% of females, however grade I in addition II were in the comparable amount (20.8%) (22). These results are conflicting to those reported by Meye et al. that, the grade II detained the past location after grade I and III (23).

According to association between ages groups and behavior of lesion either benign or malignant, there is significant association between age groups and cancer of breast, 37% of females in age group 41- 50 years old with malignant breast cancer, while 20% of malignancy in age group (31 – 40) and (51 – 60) years old. 13% of malignancy in age group 61 – 70 years old and only 6% in female over 71 years old age. Augustin et al. stated the same results that most patients in ages of 35 to 44 and 45 to 54 with 28.2% and 29.3% correspondingly. We can roughly that the major people found is dependable with some preceding studies approved globally (24, 25). Another study done by Hai-long Chen et al. showed that age groups from 50-59 years old was most group with breast cancer (26.4%), less than 30 years old and less than 40 years old represented low mount of patients (6.4%) (26). In another study stated that 6.4% of patients with breast cancer younger than 40 years old while 93.6% of them more than 40 years old, so the incidence of females to developed breast ca. was more in age group more than 40 years old so all women must do routinely breast cancer screening (27).

Conclusion

After pathological assessment of biopsies, malignant breast cancer (IDC/ grade II, IDC/ grade III, ILC and fibrocystic changes) most common changes, significant association between age group and breast cancer development more age group 41- 50 years old and then (31- 40), (51– 60) years old respectively.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

Conflict of Interest: Non

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