Histological and Morphological Study of Carcinoma Breast of Women

Aaya Hamid Al-Hakeem[1], Marwa Ahmed Meri[1]

[1]Assist. Lect., Department of Medical Laboratory Techniques, Faculty of Medical and Health Techniques, University of AlKafeel, Najaf, Iraq

Abstract

Previous studies have referred that the breast cancer, with particular histological traits, can be affected by the reproductive factors. In the current study, we employed 30 breast cancer cases for women in age (15-55 years) to study how factors such as microscopic screening, gross examination, as well as the age, can impact on histological type and grade of tumor. After the organ eradication from the patients, the tissue samples were picked, as fast as possible, and placed in 10% formalin directly. In such a way, we maintained the cells and cellular components in a situation that can be described as similar as possible to the living cells and preserved the antigenicity in order to be processed without any modification. Samples were divided depending on various factors, such as anatomical location, the nodal status, and tumor relationship to surgical margin, weight, size, and age. Each sample was sectioned and fixed onto a private embedding cassette to keep the tissue treatment. The histochemical stains, which is include the eosin and hematoxylin, had utilized to afford a disparity to tissue sections. We found that the majority of the 30 women with breast cancer were at age (31-40 years) and that 12 patients of them were involved left breast, while the other 18 patients included right breast. In agreement with previous studies that have investigated the level of risk of histological subgroups, our study concludes that the link between breast cancer risks and reproductive factors is vary depending on the histological structure of the tumor.

Keywords: *Breast carcinoma; breast neoplasms; cancer measurement; cancer staging*

Introduction

One of the most important indicators for survival percentage for women with breast cancer is the tumor size and its correlation with lymph node developments [(1)]. Depending on the cancer staging manual AJCC/UICC (American Joint Committee on Cancer/Union for International Cancer Control), the size of the tumer can be determined [(2)]. Among the different types of cancer that may occur in women around the world generally, breast cancer can be considered as one of the most popular, and it can be diagnosed in one of three women with cancer. After age 40, the percentage of the incidence of breast cancer will increase, while after age 50, the percentage of the incidence will be the highest and reach about 80% of invasive cases. For the cancer diagnosis, the pathologists implement several procedures including the estimating of breast cancer tumor morphology, where it will subject to the screening by the optical microscope, and the degree of differentiation, where it will point the similarity between the breast cancer tumor morphology and the extent of its identity with the other healthy tissue of the organ. The outcomes of such steps will definitely lead to the breast cancer diagnosis [(3)]. Nevertheless, the tumor stage is deal with as an uncertain indicator because of its low level reproducibility [(4)]. Furthermore, the bad inter- and intra-observer approval, can affect the optical specific morphology, which leads to non-utilize the grade as an essential indicator for the results. During the specific tumor determination, the pathologist may determine various grades to the same tumor after repeat the assessment for other times [(5)].

Corresponding author:
Aaya Hamid Al-Hakeem
asraalamyr81@gmail.com

Risk factors for Breast Cancer:

In wealthy societies with the western lifestyle, where people obtain diets that rich-fat and protein, and high caloric, concurrently with the absence of physical exercise, breast cancer can exist in high percentage. The affluent societies like Europe, North America, and Australia, with such a kind of lifestyle, have reached the top of the incidence percentage with (70-90) newly cases for every 100,000 people per year. On the other hand, societies, which have become rich and industrialized recently, have shown a significant increase in disease incidence rates and mortality. However, the main risk factors that have determined involve the dietary and obesity, hereditary, gynecological, age, lifestyle which include the smoking, alcohol and also exercise, oxygen reactive types, as well as the radiation dose and the factors of the environmental pollutants. While breast cancer incidence increases obviously up to the age (50 years), the incidence rate tends to raise in slow level after the age (50 years) [6]. Further might reach menopause early comp women [7], while the percentage whose have the risk of evolving reach to 15% [8].

In general, there is a link betw and the level of endogenous estroge estrogen in the serum or urine is h SHBG (sex hormone binding prot lead to high abundance of free es a bioavailability leads to increasi cancer caused by endogenous and [9]. Specific pollutants called xeno-estrogens, which involve the food preservatives, dyes, pesticides, and other, can play an important role in the causes of breast cancer, as long as they intervene with factors like the action of endogenous estrogens [10], the benign of breast cancer history [6], and the Ionizing radiation [11].

Materials and methods

Our study population was included 30 female, at age (15-55 years), had diagnosed with breast cancer. Factors such as the family history with breast cancer, age, as well as other immunology disease, had been employed for current study. Such a research can lead to a great prospective study about the cancer risks and reproductive factors [12]. The survey about the medical family history was based on whether the mother or sisters has diagnosed with a breast cancer, and the existence or lack of cancer [13]. After the organ eradication from the patients, the tissue samples were picked, as fast as possible, and for the fixation, it placed in 10% formalin directly. After the fixation step, samples were trimmed by utilizing special scalpel to make them suitable for the labelled tissue cassette. For removing the fixation, and also the water, from the tissues, samples were passed through alcohols with graded concentrations (70 - 95 - 100%). Then, the paraffin block that contain the tissue was trimmed to reveal the interest tissue, and cut into fine sections with about 5 micrometers diameter by microtome machine. Both types of the histochemical stains, the eosin and hematoxylin, were typically used for the tissue sections contrast, to improve the tissue structures and make it clearer and easy to estimate.

Results and Discussion

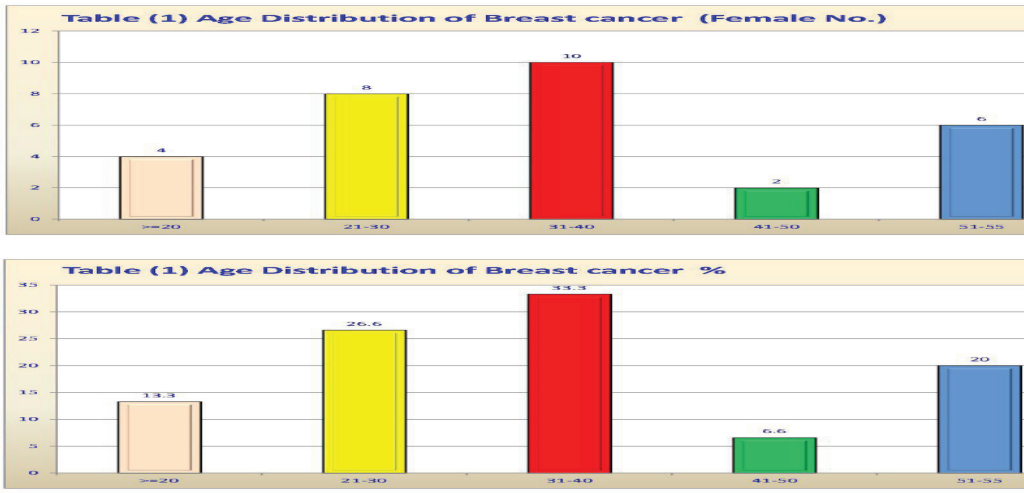

Figure - 1: Age Distribution of Breast Cancer (Female No.)

Age Distribution of breast cancer (female %)

In the current study, the majority of the 30 women with breast cancer were at age (31-40 years) (Figure2). The mean age was about (35.26) years, and about 12 patients of them were involved left breast, while the other 18 patients included right breast.

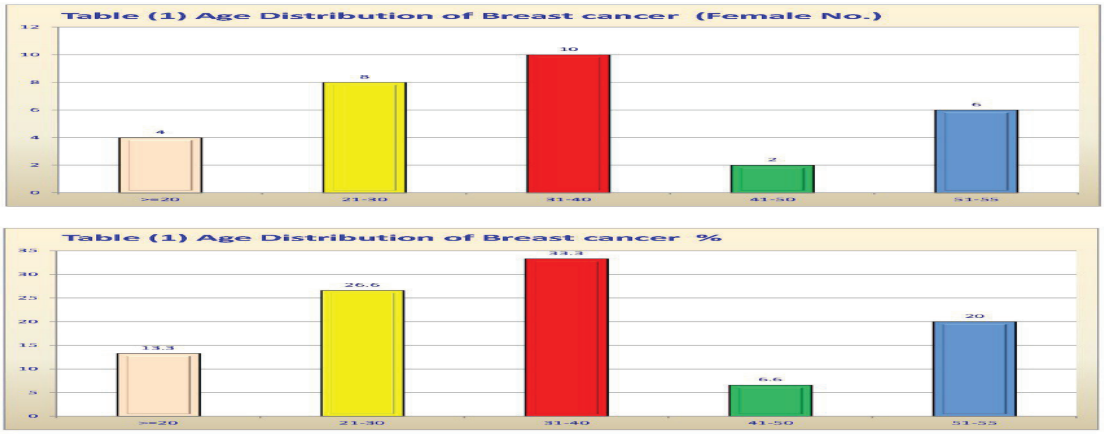

Figure - 2: Age Distribution of Breast Cancer %

One of the most widespread cancer that involves the female's population around the world is the breast cancer. In developing countries, its incidence percentage has raised at rate 3-4%, and generally diagnosed at final stages [9]. In Nepal, a previous study had been indicated that among the reproductive cancers, breast cancer had the highest prevalence, and the female age category that most exposed was (30-40 years) [15]. Our results proved that the female age category (15-50 years) had the highest rate of breast cancer in compared with other age categories. In contrast, previous study had shown that the most popular age category in diagnosis the breast cancer was (41-55 years) [16].

Histological and morphological change of female patient of breast cancer

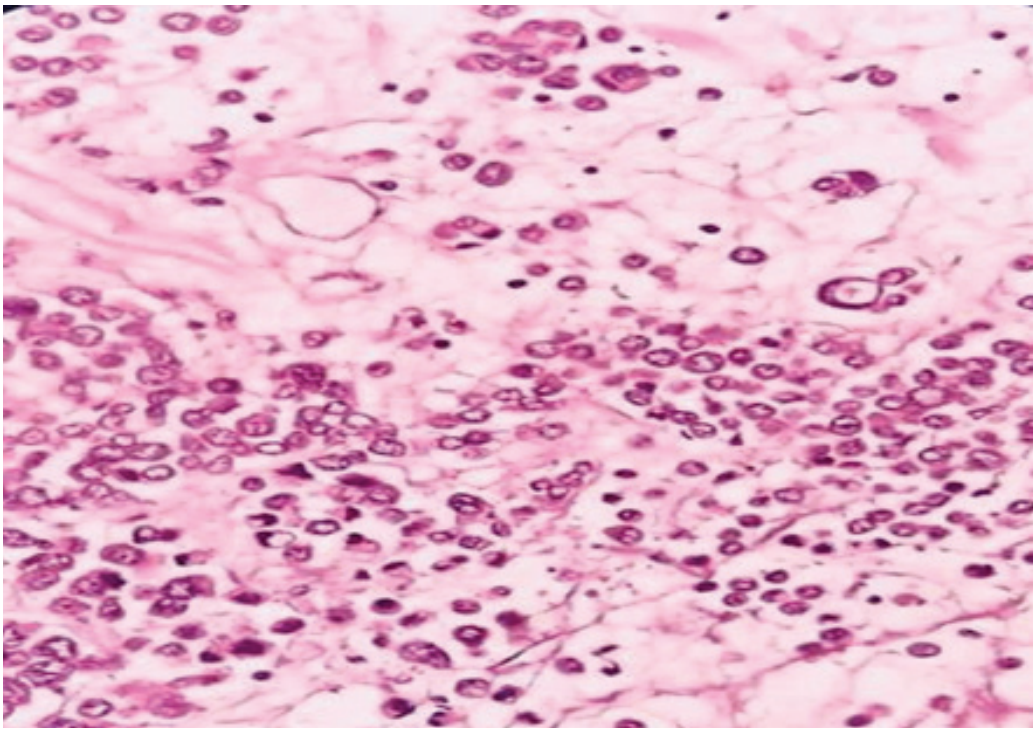

***Fig3*: Location of Biopsy: right breast nodule. Age of female 35 years. Gross examination: Multiple pieces of tissue measure (5x4) cm, brown in color, and firm in consistency, cut section reveal white homogeneous area, multiple pieces taken in five cassettes. Microscopic examination: Section revealed hyalinized stroma in broad papillary fibro vascular cores with presence of two cell types epithelial and myoepithelial with normochromic often-oval epithelial cell nuclei and scant mitotic activity Picture of intraductal papilloma.**

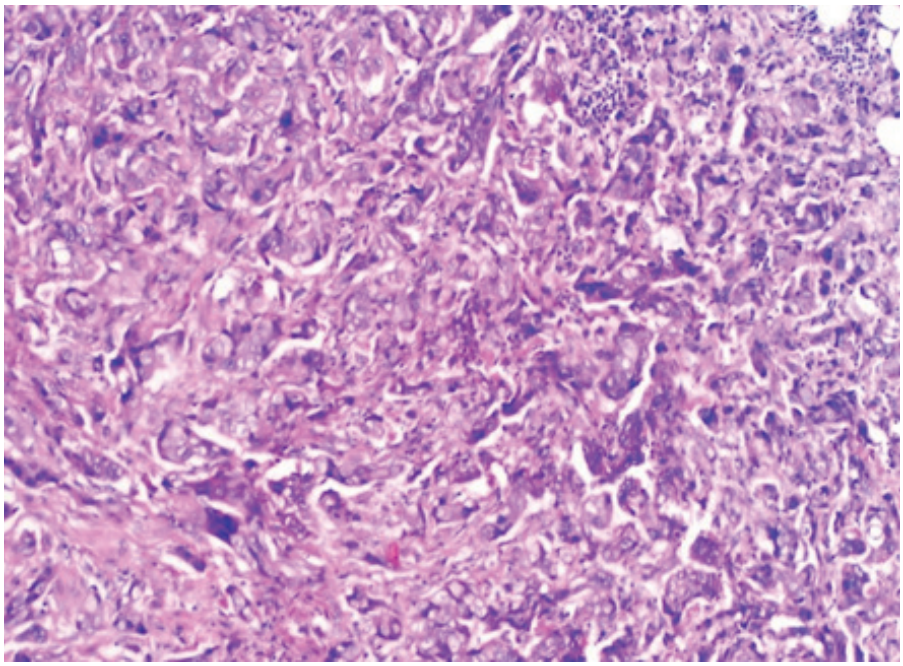

Fig4: **Site of biopsy: Right breast. Age 18 years.** *Gross examination:* **Single piece of tissue measure (4x2x1.5 cm), white in color, and firm in consistency, cut section revealed homogenous, white surface, multiple pieces taken in three cassettes.** *Microscopic examination: Section* **revealed pieces of breast tissue showing dilated small duct with intact epithelial lining surrounded by mild fibrosis with area of fibro-adenomatous changes. Picture of fibrocystic disease with fibro-adenomatous changes.**

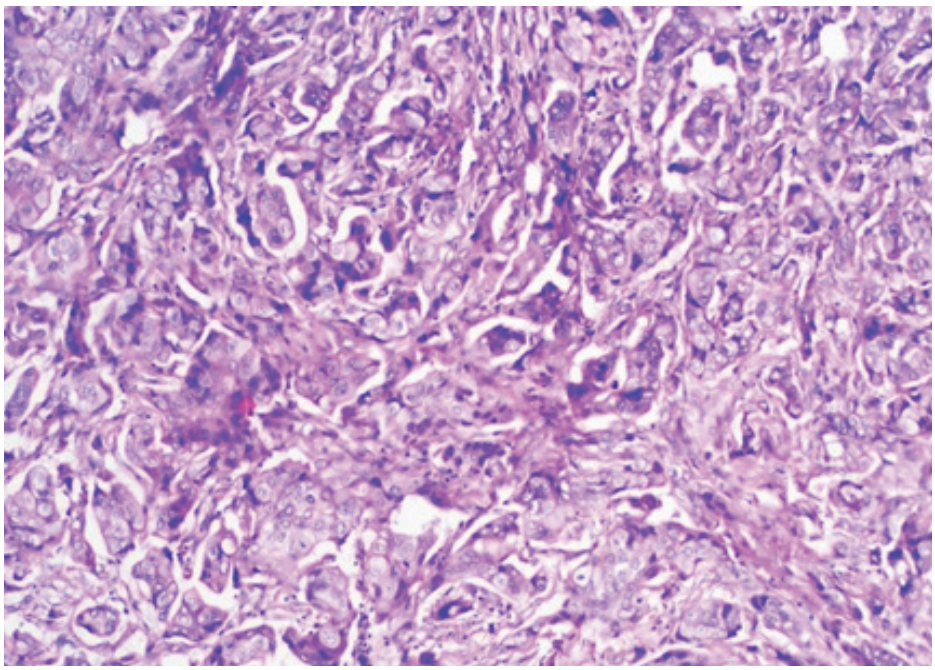

Fig5**: Site of biopsy: right breast lump. Age 55 years. Gross examination: Four core of tissue measure (1x0.5x0.2) cm, all taken (each two cores) in one cassette. Microscopic examination: Section reveal four core of breast tissue showing increase proliferation of atypical pleomorphic ductal cell , arranged in a ducts , cords and single cells , on a background of desmoplastic stroma , associated with focal area of lymphocyte infiltration . Picture of invasive ductal carcinoma**

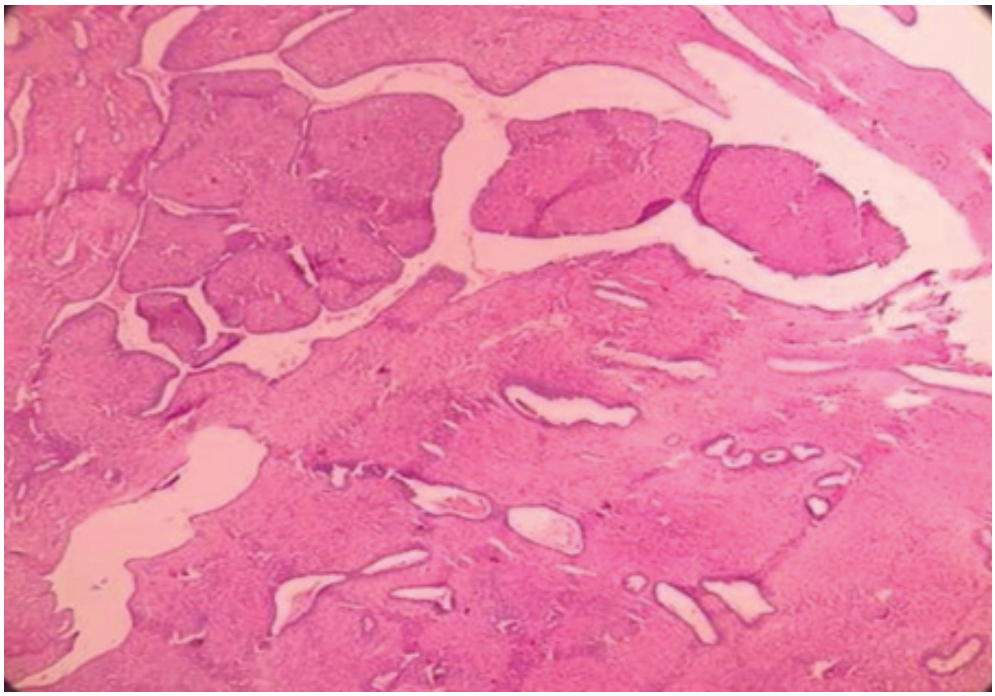

***Fig6*: Site of biopsy: left breast mass. Age 35 years. Gross examination: Multiple piece of tissue measure (1x1) cm, all taken in one cassette. Microscopic examination: Section reveal marked infiltration malignant neoplastic cell showed marked necrosis and stromal invasion, few cluster showed marked stromal invasion. Picture of non-differentiated invasive ductal carcinoma grade 2.**

Depending on (modified Scarff-Bloom-Richardson grade), which is basically grading system, parameters such as the nuclear size and pleomorphism, the level of tubule formation, and mitotic rate had been measured. Each factor was specified with a score (1-3), however, the final grade was determined from the total of every single scores. Regardes to the differentiation degree, (grade I) is a well differentiated with scores (3-5), (grade II) is a moderately differentiated with scores (6-7), and (grade III) is a poorly differentiated with scores (8-9) [17].

Conclusion

Our results showed that the link between the risk of breast cancer and the reproductive factors is vary depending on the histological pattern of the tumor.

Although not included it in staging guidelines because of the nature of the assessment procedure, the histological grade of breast cancer considers as a substantial prognostic factor.

Despite the fact that the highest frequency of medullary tumors is existed among multiparous women, it's considered as not preferred factor effect for pregnancy on the histological type of breast cancer

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

Conflict of Interest: None

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