



## Diagnostic Approach to Breast Lesions by Core Needle Biopsy

Serkan Yaşar ÇELİK<sup>1,a</sup>

<sup>1</sup> Muğla Sıtkı Koçman University,  
Faculty of Medicine,  
Department of Pathology,  
Muğla, TURKEY

<sup>a</sup> ORCID: 0000-0001-6557-1451

**Objective:** Breast cancer is the most frequently diagnosed malignancy and also the leading cause of cancer death in women worldwide. The early diagnosis of the breast carcinoma is very important in order to decide the optimal treatment. So the usefulness of core needle biopsy in breast lesions is aimed to be researched in this study.

**Materials and methods:** We analyzed 930 female patients retrospectively from whom core needle biopsies of the breast lesions were performed by ultrasound-guidance and histopathologically evaluated. Age, histopathologic type of the lesions, tumor grade in malignant lesions were interpreted.

**Results:** The histopathological diagnosis of 189 (20.32%) patients were malignant tumors, 608 (65.38%) were benign lesions such as fibrocystic changes, fibroadenomas, intraductal papillomas, mastitis, fat necrosis and adenosis where 133 (14.30%) were usual breast tissues. Among the malignant tumors 10.58% were diagnosed as special-type-of invasive carcinoma like lobular, tubular, mucinous, medullary and metaplastic carcinomas, while 89.42% of the malignant tumors were classified as Invasive carcinoma of No-Special-Type (NST). Histological grading of the invasive carcinomas of no-special-type was made according to the Modified-Bloom-Richardson grading system. The ratio of grade 1,2,3 tumors were 36.09%, 52.66% and 11.25% respectively.

**Conclusion:** Ultrasonography-guided breast-core-needle-biopsy is the most suitable method which is used preoperatively for quick, accurate diagnosis and the histopathologically correct diagnostic rates are very high with it. Because this method is minimal invasive, it does not damage the breast aesthetically and the lesion histologically. It provides enough tissue for immunohistological studies like estrogen, progesterone receptors, HER2, MIB-1 to determine the appropriate approach to the malignant tumors and the need for neo-adjuvant therapy or to decide for the surgical method.

**Key words:** Breast cancer, histopathology, biopsy

### Meme Lezyonlarına İğne Biyopsisi ile Tanısal Yaklaşım

**Amaç:** Meme kanseri tüm dünyada kadınlarda en sık görülen ve kanserden ölümlerin en başında gelen sebeplerdendir. Meme kanserinin erken tanısı ise en uygun tedavi şemasını saptamak açısından çok önemlidir. Bu nedenle; bu çalışmada, meme lezyonlarında iğne biyopsisinin kullanışlılığının araştırılması amaçlanmıştır.

**Gereç ve Yöntem:** Çalışmada meme lezyonlarından ultrasonografi eşliğinde iğne biyopsisi alınan ve histopatolojik değerlendirme yapılan 930 kadın hasta retrospektif olarak incelendi. Yaşları, lezyonlarının histopatolojik tipleri ve malign tümörlerin dereceleri değerlendirildi.

**Bulgular:** Hastalardan 189'unun (%20.32) histopatolojik tanısı malign tümör, 608'inin (%65.38) tanısı fibrokistik değişiklik, fibroadenom, intraduktal papillom, mastit, yağ nekrozu ve adenozis gibi benign lezyonlarken, 133'ü (%14.30) normal meme dokusu olarak tanı almıştı. Malign tümörlerin %10.58'i; Lobüler, tübüler, müsinöz, medüller ve metaplastik karsinomlar gibi özel tip meme karsinomu iken %89.42'si özel tip içermeyen İnvaziv meme karsinomuydu. Özel tip içermeyen İnvaziv meme karsinomlarının histolojik derecelendirilmesi Modifiye Bloom Richardson derecelendirme sistemine göre yapıldı. Derece 1,2,3 tümörlerin oranları sırasıyla %36.09, %52.66 ve %11.25 idi.

**Sonuç:** Ultrasonografi eşliğinde yapılan iğne biyopsisi, meme kitlesine cerrahi tedavi öncesi hızlı ve kesin tanı verilebilmesi amacıyla uygulanan en uygun yöntemdir. Çünkü minimal invazivdir, memeye estetik olarak hasar vermez ve lezyonun da histopatolojisini bozmadır. Ayrıca bu yöntem Östrojen, progesteron reseptörleri, HER2 ve MIB-1 gibi immünhistokimyasal çalışmaların ilk başta yapılarak, uygun tedavi yaklaşımını, neo-adjuvan tedavi gereksinimini veya uygun cerrahi metodunu saptamak için yeterli doku sağlar.

**Anahtar Kelimeler:** Meme kanseri, histopatoloji, biyopsi

### Introduction

Breast cancer is the most frequently diagnosed malignancy in women (1). It is also the leading cause of cancer death in women worldwide (2). After a diagnosis of breast cancer it is important to define the initial extent of the disease (stage) correctly as it will affect the treatment options. Also as the stage of the disease is higher the treatment is more difficult. So early diagnosis of the breast carcinoma is very important (3, 4). Globally in many countries women older than 40 years old age have been scanned by mammography and ultrasonography in order to diagnose the breast cancer earlier just the same as in our country (5-8). The breast lesions are grouped in 6 (1 to 6) according to BI-RADS (Breast Imaging Reporting and Data Systems) categorization system. Core needle biopsies are done to the lesions categorized as BI-RADS 4 or 5 with the suspicion of malignancy (9-11).

### Correspondence Yazışma Adresi

Serkan Yaşar ÇELİK  
Muğla Sıtkı Koçman  
University,  
Faculty of Medicine,  
Department of Pathology,  
Muğla – TURKEY

sycelik@gmail.com

## Materials and Methods

We analyzed 930 female patients retrospectively from whom core needle biopsies of the breast lesions were done by ultrasonography guide in radiology department and histopathologically evaluated at our hospital between the beginning of 2016 to 2018 in this study. Clinical parameters of the patients were obtained from the hospital automation system. The parameters evaluated were age, histopathologic type of the lesions, tumor grade in malignant lesions according to the Modified Bloom Richardson grading system (1, 12).

This Project was evaluated by Research and Publication Ethics Committee with 180092 registration number and 111/2018 decision number and it was approved in terms of scientific researches and patient ethics.

In statistical analysis of data, mean and standard deviation for continuous variables and percentages for categorical variables were used. Descriptive statistics and categorical variables were given as frequencies (percentages).

## Results

The mean age of 930 female patients included in the study was 45.4 (min 16–max 89). The results of the histopathological evaluation were given in Table 1.

**Table 1.** Histopathological evaluation of the breast core needle biopsies.

Histopathological Diagnosis	Number	Ratio (%)
Usual breast tissue	133	14.30
Benign lesions	608	65.38
Malignant tumors	189	20.32
Total	930	100.00

The biopsies which were seen as normal breast parenchym were reported as Usual breast tissue. Fibrocystic changes, fibroadenomas, intraductal papillomas, mastitis, fat necrosis and adenosis were taken into the benign category.

The mean age of the malignant tumors was 49.3 (min 30–max 89). Among the malignant tumors 20 cases (10.58%) were diagnosed as special type of invasive carcinoma (lobular, tubular, mucinous, medullary and metaplastic carcinomas). One hundred and sixty nine cases (89.42%) of the malignant tumors were classified as Invasive carcinoma of no special type (NST). Histological grading of the invasive carcinomas of no special type was made according to the Modified Bloom Richardson grading system (Table 2).

Among the 189 patients with malignant tumors, the diagnoses of 161 (85.19%) were confirmed with the surgical specimens (breast conserving surgery, simple or modified radical mastectomy) that are performed in our hospital; however 28 patients preferred other hospitals for surgery.

**Table 2.** The histological grades of the Invasive carcinomas of no special type (NST)

Grade	Number	Ratio (%)
1	61	36.09
2	89	52.66
3	19	11.25
Total	169	100.00

## Discussion

Breast cancer is the most frequently diagnosed cancer accounting for 23% of total cancer cases. Also it is the leading cause of cancer death among women with the rate of 14% of all cancer deaths (3). Despite increasing incidence rates, annual mortality rates from breast cancer have decreased over the last few decades (4). A significant portion of the decline in mortality is attributable to the impact of screening mammography, which permits diagnosis at an earlier stage of disease (6-8,13). Ultrasonography guided breast core needle biopsy provides a minimal invasive method for histopathological evaluation of the lesions with malignancy suspicion (BIRADS 4 and 5 lesions) (14, 15).

In our study we diagnosed normal breast tissues in biopsies of 133 patients. The ratio of this group was similar with the study of Hukkinen et al. (16). We also join the idea of them and think the foremost reason of this was missing the mass while taking the biopsy with the needle. So the exclusion of a lesion in these patients is impossible with the first biopsy. The correlation of the radiological diagnosis of the breast with the histopathology is needed by subsequent biopsies.

We also observed that most of the lesions (65.38%) were benign. Normally close clinical and radiological follow-up is the optimal approach for them. However most of the patients (71.85%) preferred excision of their benign lesions in order not to live with a breast mass as this was psychologically disturbing and not to visit the hospital frequently and also to eliminate the possibility of presence of carcinoma focus in a benign lesion. These results were in paralel with the study of Koç et al. (9) in the literature.

Ultrasonography guided breast core needle biopsy is the most suitable diagnostic approach which is used preoperatively for quick and accurate diagnosis (17). Because this method is minimal invasive, does not damage the breast aesthetically and the lesion histologically. It provides enough tissue for immunohistological studies like estrogen, progesterone receptors, HER2, MIB-1 which are used to determine the appropriate approach to the malignant tumors, to determine the need for neo-adjuvant therapy or to decide the surgical method.

As a result, ultrasonography-guided breast core needle biopsy is a quite easy, quick and safe diagnostic approach and the histopathologically correct diagnostic rates are very high.

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