

## **SURGICALLY TREATED PATIENTS WITH BREAST CANCER IN PHI GENERAL HOSPITAL WITH EXTENDED ACTIVITY – GEVGELIJA IN THE PERIOD FROM 2019 TO 2023**

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### **Abstract**

We are presenting the analysis of surgically treated patients with breast cancer in PHI General Hospital with Extended Activity – Gevgelija in the period from 2019 to 2023. The data were taken from the diary of the performed surgical procedures and the patients’ medical histories. The analysis consists of surgically treated patients’ gender and age, place of residence, type of surgery applied, days of hospitalization, disease stage, histopathological diagnosis and immunohistochemical markers.

**Keywords:** *breast cancer; mastectomy; quadrantectomy; tumorectomy.*

### **Introduction**

Breast cancer is the most common cancer in the female population worldwide, second in frequency in the general population (1). It is considered a systemic disease, with a tendency to metastasize in the early stages. There is a wide variety of therapeutic modalities that can be used for its treatment: surgical therapy, radiotherapy, chemotherapy, biological, hormonal and immunotherapy.

Breast cancer is the most common malignant disease in the female population (25 to 30% of malignancies in women are breast cancer) and is the leading cause of cancer-related death among women aged 20 to 59 years (2). The incidence of breast cancer has been increasing, especially in the last two decades (3). One in every twelve women will be diagnosed with breast cancer in their lifetime and one in seventy-one will die of it (4). The lifetime risk of developing breast cancer is 5-13% (30 to 100 cases per 100,000 inhabitants) (1). It is a global health problem, with more than 2 million cases diagnosed worldwide each year (5). The disease can occur at any age, but it most commonly affects women over the age of 50. The average age at diagnosis of breast cancer in women is 62 years (6). The incidence of breast

cancer in men is 1 per 100,000 men (1). This is less than 1% of all breast cancers, less than 1% of all cancers in men, and 0.2% of cancer-related deaths in men (4).

Breast cancer is considered a systemic disease that has a tendency to metastasize even in the early stages. It is believed that even when the disease is localized only in the breast, there are subclinical metastases (which cannot be detected by available diagnostic methods). For this reason, the treatment should be multidisciplinary, involving the application of multiple therapeutic modalities. Surgical treatment is the initial therapy of choice for earlier stages. In the case of more advanced stages, systemic therapy is started, followed by other types of treatment. In metastatic disease (stage IV), only systemic therapy is used. For breast cancer, all therapeutic modalities are available: surgical therapy, radiation therapy, chemotherapy, hormonal therapy, biological therapy and immunotherapy. The therapeutic modalities that are used and their combination depend on many factors: the stage and grade of the disease, the patient's age, overall health condition, etc. The decision is individualized for each patient. Surgical therapy is one of the most important components in the treatment of breast cancer. The primary goal of surgical therapy is locoregional control of the disease. Specifically, surgical treatment aims to remove the tumor and, in most cases, the locoregional lymph nodes in the axillary region.

Table 1. Surgical procedures for breast cancer treatment, sorted by radicality (1).

1. Superradical mastectomy (sec. Urban & Wangesten)
2. Radical Mastectomy (sec. Halsted)
3. Modified Radical Mastectomy (sec. Patey)
4. Modified Radical Mastectomy (sec. Madden)
5. Simple Mastectomy (Mastectomia Simplex)
6. Partial Mastectomy + Axillary Lymphadenectomy
7. Partial Mastectomy
8. Quadrantectomy + Axillary Lymphadenectomy
9. Quadrantectomy
10. Lumpectomy + Axillary Lymphadenectomy
11. Lumpectomy
12. Tumorectomy + Axillary Lymphadenectomy
13. Tumorectomy

As standard surgical procedures in the treatment of breast cancer today, modified radical mastectomy sec. Madden and quadrantectomy with axillary lymphadenectomy are commonly used. Tumorectomy is the most often used when there is suspicion of local recurrences or for establishing a definitive diagnosis.

## Materials and Methods

In this study, surgically treated patients with breast cancer at the General Hospital with Extended Activity - Gevgelija were analyzed in the period from 2019 to 2023. Out of a total of 1,991 surgical procedures performed during this period, 123 were related to breast cancer surgery. The data were obtained from the registry of performed surgical procedures and patients' medical histories.

For each surgically treated patient, separate data were collected on age, gender, place of residence, type of surgical procedure and length of hospitalization. From the histopathological findings of the removed tissues during the surgeries, data were collected on the pathological stage of the disease, the histopathological diagnosis and immunohistochemical analyses. All these data were analyzed, and the results are presented. Patients who were surgically treated due to suspicion of breast cancer, but whose pathological diagnosis was benign in nature, were not included in the study.

## Results

The study includes 123 patients who were surgically treated at the General Hospital with Extended Activity in Gevgelija for breast cancer.

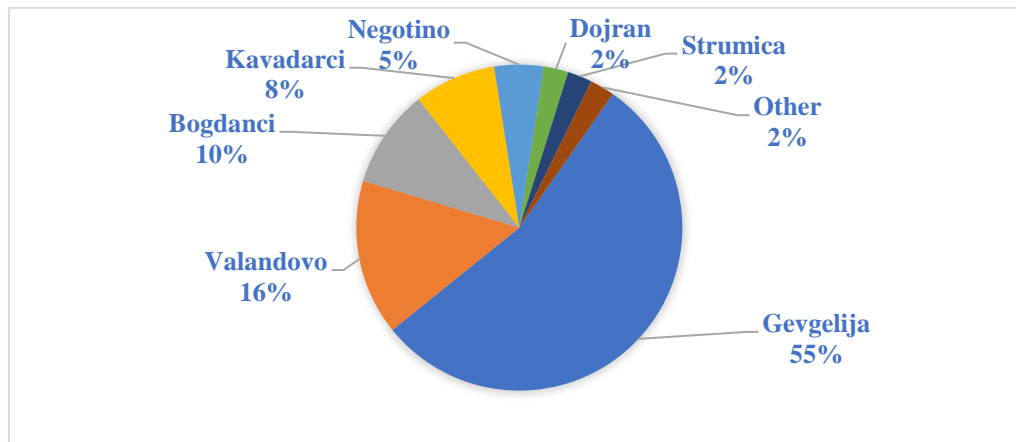
From January 1, 2019, to December 31, 2023, a total of 1,991 surgeries were performed at the General Hospital with Extended Activity in Gevgelija. Of these, 123 surgeries, or 6.2%, were for breast cancer.

Table 2. Total number of operations and operations for breast cancer in PHI GHEA Gevgelija from 2019 to 2023.

Year	Breast cancer surgeries	Total number of operations	Percentage
2019	22	409	5.4%
2020	19	329	5.8%
2021	34	364	9.3%
2022	24	398	6%
2023	24	491	4.9%
In total	123	1,991	6.2%

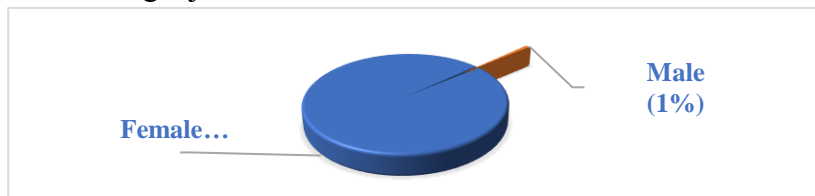
Table 2 presents data on the number of surgeries for each year separately. The highest percentage of breast cancer surgeries occurred in 2021 (34 surgeries, or 9.3% of the total number of surgeries for that year), while the lowest percentage was in 2023 (24 surgeries, or 4.9% of the total number of surgeries for that year).

Diagram 1. Percentual representation by place of residence of surgically treated patients with breast cancer in PHI GHEA Gevgelija from 2019 to 2023.



Out of a total of 123 surgically treated breast cancer patients at the General Hospital with Extended Activity in Gevgelija over the last 5 years, the majority, 67 patients (55% of the total treated), are residents of Gevgelija. In addition to residents of Gevgelija, patients from other municipalities with breast cancer have also been treated at this institution, as shown in Diagram 1.

Diagram 2. Percentual representation by gender of surgically treated patients with breast cancer in PHI GHEA Gevgelija from 2019 to 2023.



Out of a total of 123 patients who were surgically treated for breast cancer in the last 5 years at the General Hospital with Extended Activity in Gevgelija, only 1 patient was male (around 1%). The remaining 122 patients (99%) were female.

Table 3. Average age of surgically treated patients with breast cancer in PHI GHEA Gevgelija from 2019 to 2023.

Year	Average age
2019	58.9
2020	61.5
2021	62.2
2022	53.2
2023	60.8
2019 - 2023	59.4

The average age of patients surgically treated for breast cancer in the last 5 years at the General Hospital with Extended Activity in Gevgelija is 59.4 years. Table 3 provides the average age for each year separately.

Table 4. Number and percentage of surgically treated patients with breast cancer in PHI GHEA Gevgelija from 2019 to 2023 by age groups.

Age groups	Patient number	Percentage
<19	1	0.8
20-29	2	1.6
30-39	6	4.9
40-49	18	14.6
50-59	28	22.8
60-69	41	33.3
70-79	19	15.4
80-89	8	6.5
In total	123	

Table 4 shows the number and percentage distribution of patients who were surgically treated for breast cancer according to age groups. The most common age group of patients is 60 to 69 years (33.3% of the total), while the least represented age group is under 19 years (only one patient).

Table 5. Days of hospitalization on average for each type of breast cancer surgery in PHI GHEA Gevgelija from 2019 to 2023.

Type of surgery	Patient number	Average days of hospitalization
Radical mastectomy sec. Madden	93	8
Quadrantectomy with axillary lymphadenectomy	12	7
Tumorectomy (wide local excision)	18	3.5

Table 5 shows the types of surgeries performed and the average hospitalization time for each type separately. The majority of breast cancer patients (75.6%) underwent Madden's radical mastectomy, with an average hospitalization time of 8 days. Approximately 15% were treated with wide local excision, with an average hospitalization time of 3.5 days. The smallest group, or 12 patients, underwent more extensive local procedure (quadrantectomy with axillary lymphadenectomy), with an average hospitalization time of 7 days.

Table 6. Histopathological types and their percentage representation in surgically treated patients with breast cancer in PHI GHEA Gevgelija from 2019 to 2023.

Histopathological type of carcinoma	Patient number	Percentage
Carcinoma ductale in situ (DCIS)	3	2.5 %
Carcinoma lobulare in situ (LCIS)	2	1.6 %
Carcinoma ductale invasivum mammae	92	74.8%
Carcinoma lobulare invasivum mammae	13	10.6%
Invasive breast carcinoma of no special type	3	2.5%
Mixed invasive lobular and ductal carcinoma	2	1.6%
Carcinoma colloides (mucinosum) mammae	3	2.5%
Carcinoma ductale invasivum et papillare	1	0.8%
Medullary carcinoma with lymphoid stroma	1	0.8%
Malignant Fibrous histrocytoma mammae (MFH)	1	0.8%
Benign (low grade) phylloides tumor	1	0.8%
Malignant phylloides tumor	1	0.8%

In the majority of cases (77%), the diagnosis is invasive ductal carcinoma. The second most common type is invasive lobular carcinoma, found in 10% of the cases.

Out of the 123 breast cancer patients analyzed, around 85% (105 patients) had a definitive pathological stage of the disease. In stage 0- 5 patients (4.1%) were diagnosed; in stage 1 - 18 patients (14.6%) were diagnosed, in stage 2 - 45 patients (36.6%) were diagnosed, and in stage 3 - 37 patients (30.08%) were diagnosed.

The available immunohistochemical reports of the patients were also analyzed. It was found that: Estrogen receptor positivity was present in 90% of the cases, Progesterone receptor positivity was found in 62%, HER2 positivity was observed in 30%, p53 positivity was present in 28%.

Table 7. Number, percentual representation and average age of non-invasive and invasive breast cancer among surgically treated patients in PHI GHEA Gevgelija from 2019 to 2023.

Type of carcinoma	Patient number	Percentage	Average age
Carcinoma In Situ	5	4%	49.8
Invasive Carcinoma	118	96%	59.9

Only a small portion, specifically 4% of the patients, were diagnosed with non-invasive, "in situ" carcinoma. Their average age is 10 years younger than that of patients diagnosed with invasive carcinoma (96% of the patients).

## Discussion

According to statistics provided by the World Health Organization, 99% of those affected by breast cancer are women, while only 1% are men, which is consistent with the findings of this study (4). The average age of patients diagnosed with breast cancer is 62 years, according to the American Cancer Society. According to this research, the average age is 59.4 years. Numerous studies analyzing breast cancers for the expression of immunohistochemical markers indicate that: estrogen receptor positivity is found in over 70% of cases (90% in our study), progesterone receptor positivity is found in over 45% of cases (62% in our study), HER2 positivity occurs in 25% (30% in our study), p53 positivity is seen in 30% (28% in our study).

## **Conclusion**

The analyzed patients treated for breast cancer were 99% women. This statistical data correlates with the statistics provided by the WHO. The average age of patients is 59.4 years, compared to an average age of 62 years found in literature.

The most common type of surgery performed is modified radical mastectomy sec. Madden. This procedure is the most radical compared to the other two procedures, and this radicality reflects in the number of hospitalization days. On average, tumorectomy requires 5 days of hospitalization less than the more radical procedures.

The histological type that predominates is invasive ductal carcinoma. The majority of patients are in pathological stage 2, positive for estrogen and progesterone receptor and negative for p53 and HER2 expression, which supports a better prognosis for overall survival. The average age of patients with "in situ" lesions is 10 years lower than that of patients with invasive carcinomas.

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