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MALE BREAST CANCER TREATMENT: A CLINICAL CASE*

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ABSTRACT

Relevance: Male breast cancer (BC) has always been behind female BC in detection, treatment, and surveillance. Lower BC frequency in men limits the usefulness of screening. However, BC incidence in men is growing.

The study aimed to demonstrate the results of surgical treatment and typical changes in clinical and morphological manifestations of male breast cancer under chemotherapy and surgery.

Methods: The article describes a clinical case of a male patient diagnosed with "Cancer of the right breast St III (T4NxM0), edematous-infiltrative form with an intraductal component, upper outer localization. Immunohistochemically luminal subtype B without Her2neu expression"; the condition – after six neoadjuvant chemotherapy courses.

Results: Ultrasonography of the mammary glands conducted after six preoperative courses of chemotherapy showed a hypoechoic formation, centralized, with fuzzy, uneven contours, $52.5 \times 48.2 \times 46.1$ mm in size, V=60.98 cm 3 . Compared to March 2022 (the presence of a formation in the right breast craniolateral quadrant, with precise uneven contours, 9.0 cm in size, with infiltrating growth), the tumor formation decreased to US BI-RADS R6, L2. The multidisciplinary council prescribed surgery to the extent of radical mastectomy by Madden on the right and simple mastectomy on the left. The surgery was performed in August 2022. According to a postoperative histological conclusion, the therapeutic pathomorphism was index RCB-2.233, class RCB-II.

Conclusion: This article shares the results of systemic and surgical treatment of a man with breast cancer. Considering the clinical picture and anamnesis, literature data, and the clinical protocol, the multidisciplinary group recommended radiation therapy with adjuvant endocrine therapy with tamoxifen for an initial period of five years.

Keywords: clinical case, male breast cancer (BC), luminal subtype B without Her2neu expression, mastectomy, therapeutic pathomorphism, radiation therapy, endocrine therapy.

Introduction: Male breast cancer (BC) has always been behind female BC in detection, treatment, and surveillance. However, male BC incidence is growing [1]. Currently, male breast cancer is an independent nosological unit with its own biological, molecular, and clinical features that require an interdisciplinary approach [2]. A male hormonal milieu is a unique and powerful determinant for assessing risk, prognosis, and treatment outcomes [3]. Multimodal breast cancer treatment includes surgery, radiation, and drug therapy [4].

The study aimed to demonstrate the results of surgical treatment and typical changes in clinical and morphological manifestations of male breast cancer under chemotherapy and surgery.

Materials and methods: The article describes a clinical case of a male patient diagnosed with "Cancer in the right breast St III (T4NxM0), edematous-infiltrative form with an intraductal component, upper outer localization. Immunohistochemically luminal subtype B without Her2neu expression"; the condition – after six neoadjuvant chemotherapy courses. [5].

The clinical case description

Patient information: The patient, A., a male born in 1958, condition – after six neoadjuvant chemotherapy

courses administered at "Kazakh Institute of Oncolo-gy and Radiology" JSC (completion of chemotherapeutic treatment – July 2022) [5], second clinical group. From April to July 2022, after the performance of adequate diagnostics and establishing a clinical diagnosis, the patient underwent six preoperative chemotherapy courses according to the "AS" scheme Doxorubicin 60 mg/m² (DD 120 mg) + Cyclophosphamide 600 mg/m² (DD 1200 mg).

Relevant instrumental examinations were routinely scheduled to assess the treatment outcomes.

Clinical data:

Locally: During the follow-up examination in May 2022, the right areola was compacted, the pre-areolar skin was thickened, and the nipple was fixed. A pronounced glandular component remained in both mammary glands. In the right mammary gland, at the upper quadrants' border, a formless subareolar formation had slightly decreased in size, 5.0 cm locally (initial dimensions according to the mammography of May 2022 were 6.8×6.1 cm). In the right axillary region, an intramammary lymph node of about 1.3 cm was palpated (the previous lymph node size was about 2.0 cm). Gynecomastia remained on the left side (Figure 1).

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Figure 1 - Cancer of the right breast in a man, St III (T4pN0M0), edematous-infiltrative form with an intraductal component, upper outer localization. Immunohistochemical luminal subtype B without Her2neu expression.

Condition – after six courses of neoadjuvant chemotherapy: A – front view, B – side view

Diagnostics: After six courses of chemotherapeutic treatment, the patient underwent preoperative diagnostics using appropriate instrumental examination methods.

Contrast-enhanced brain MRI, August 2022: A lacunar cyst was detected in the area of the basal nuclei on the left side.

Ultrasonography of the mammary glands, August 2022: The condition after six courses of chemotherapy. A hypoechoic formation, centralized, with fuzzy, uneven contours, 52.5×48.2×46.1 mm in size, V=60.98 cm³. Compared to March 2022 (the presence of a formation in the right breast craniolateral quadrant, with precise uneven contours, 9.0 cm in size, with infiltrating growth), the tumor formation decreased. Gynecomastia of the mammary glands on both sides. US BI-RADS R6, L2.

Ultrasonography of the axillary lymph nodes on both sides, August 2022: a heterogeneous hypoechoic node with clear uneven contours was visualized at the border with the axillary region on the right, 13.2×10.9×12.1 mm in size, V=0.91 cm³. The formation slightly decreased compared with the presented ultrasound examination of the axillary lymph nodes of March 2022 (previous size – 2.0 cm³).

Follow-up bilateral mammography of both mammary glands in 2 projections, August 2022: Compared to May 2022, the asymmetric pronounced glandular component of the density type C remained in both mammary glands. The formless formation of high intensity with fuzzy contours in the right mammary gland, in the sub-areolar region, at the upper quadrants' border decreased to 5.0 cm in diameter (previous size – 6.8×6.1 cm). More evident signs of stromal edema were observed. In retro mammograms, the intensive formation of 1.3 cm in diameter (intramammary lymph node) remained. BI-RADS VI. Gynecomastia on the left side was noted.

Neck ultrasonography, August 2022: No focal changes were revealed in the neck on both side.

Contrast-enhanced abdominal cavity and chest CT scan, August 2022: Small calcifications in the liver and both lungs and microliths in kidneys were detected.

Contrast-enhanced pelvic MRI, August 2022: The picture of prostatic hyperplasia (Pi-Rads1).

Treatment: Breast cancer treatment requires a multimodal approach. After six neoadjuvant chemotherapy courses and an assessment of the treatment effectiveness based on the instrumental examinations, further treatment was discussed jointly with the heads of the 24/7 Chemotherapy Day Hospital and the Center of Breast Tumors and resident doctors of the Kazakh Institute of Oncology and Radiology (Almaty, Kazakhstan). Based on the protocol for diagnostics and treatment of malignant neoplasms in the Republic of Kazakhstan, the data from current literature sources, international standards, and considering the effectiveness of previously conducted chemotherapy courses, the consensus decision has been made to perform the surgery to the extent of radical mastectomy by Madden on the right and simple mastectomy on the left. In August 2022, within the approach to surgical treatment in aseptic conditions after intubation and treatment of the operating field in the patient's position on the back, the skin bordering the mammary gland (left/ right) was incised.

The skin flaps were separated according to the general rules: upside - to the edge of the clavicular, medially - to the edge of the sternum, downside - to the edge of the costal arch, laterally - to the edge of the broadest muscle of the back. The right mammary gland, along with the fiber of the subclavian, subscapular, and axillary regions, has been removed by Madden. The left mammary gland was also removed as a prophylactic (Figure 2).



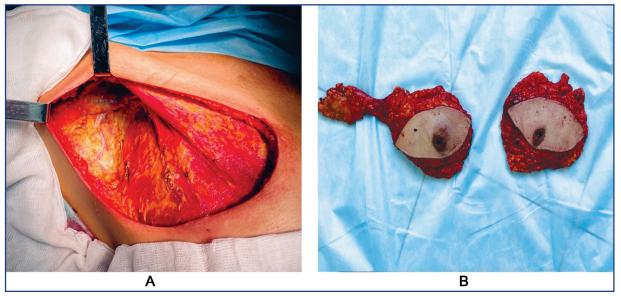


Figure 2 – Patient A., 64 years old. Surgery in the volume of radical mastectomy by Madden on the right side and prophylactic removal of the left mammary gland: A - the surgical field view, mastectomy by Madden on the right side, B – the back-table examination

The postoperative histological conclusion, August 2022: 1) The residual tumor was an infiltrating ductal carcinoma of the right mammary gland G II, 5.0×4.2 cm in size, with tumor embolisms in vessels, invasion into the skin dermis. The intraductal component composes 15% of the tumor, nGII solid crib Rosic type. Tumor cellularity – 40%. The tumor metastases were not found in eight examined lymph nodes of the axillary tissue on the right side.

The therapeutic pathomorphosis: index RCB-2.233, class RCB-II. The skin-pigmented seborrheic keratosis of the right mammary gland. 2) The apparent stroma fibrosis and hyalinosis were identified in the left mammary gland tissue.

In September 2022, the multidisciplinary group recommended radiation therapy with adjuvant endocrine therapy with tamoxifen for the next five years.

The timeline of the clinical case is presented in Figure 3.

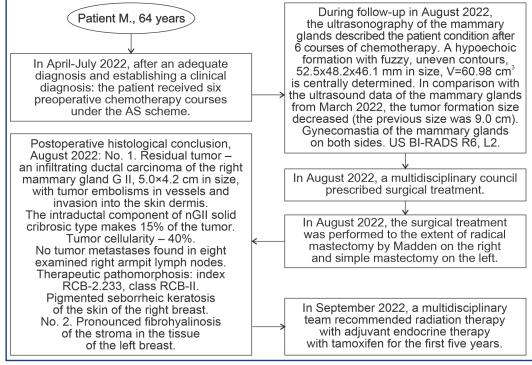


Figure 3 – Timeline of the described clinical case of right breast cancer treatment in a man

Results: Figure 4 shows the patient after the combined treatment involving six preoperative chemother-

apy courses by the "AS" scheme (Doxorubicin 60 mg/m² (120 mg per day) + Cyclophosphamide 600 mg/m² (1200 mg



per day)) and surgical treatment in the extent of radical mastectomy by Madden on the right and prophylactic mastectomy on the left. The patient presented no complaints throughout the treatment. The patient developed a moderate emetic syndrome during chemo-

therapy. The patient has started radiation therapy with consecutive adjuvant endocrine therapy with tamoxifen for the first five years. The long-term radiation and endocrine treatment results will be assessed after three months.

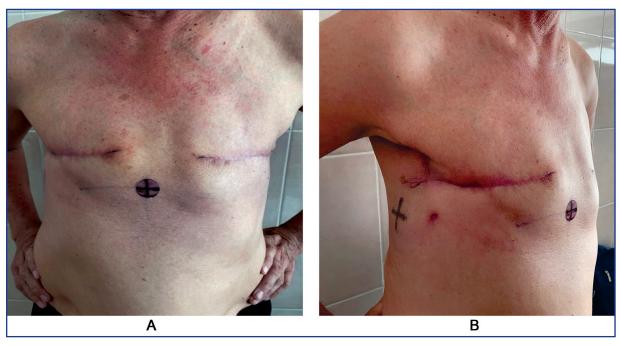


Figure 4 - Condition of the patient after combined treatment: A - front view, B - side view

Discussion: Breast cancer in men is very uncommon [6]. Due to the rare incidence of that disease in men, the literature sources, modern research, and development of new approaches for diagnostics and treatment, and the BC clinical protocols are primarily focused on female cancer. However, when making decisions about treatment in men, biological factors such as hormonal background should be considered [7].

The recent data shows that men are diagnosed with breast cancer at an average age of 67, while the average age of women with BC is 62 years. As with many cancers, the risk of developing breast cancer increases with age. Primarily, the clinical manifestation of breast cancer is a palpable formation, discharge, or bleeding from the nipples and skin retraction with penetration [8]. The following recommendations were made given the rarity of breast cancer screening in men and based on current literature data: in suspected breast cancer as a differential diagnosis, in men with Klinefelter syndrome below 25 shall pass breast ultrasonography, men after 25 shall pass mammography or digital breast tomosynthesis [9]. Other genetic disorders have been associated with an increased risk of breast cancer in men with Cowden syndrome (PTEN tumor suppressor gene), Li-Fraumeni syndrome (TP53), and Lynch syndrome (PALB2 and nonconformance repair synthesis genes) [10, 11]. Men, like women, have a higher risk of developing breast cancer if there is a history of breast cancer in relatives of the first or second degree of kinship. Studies have shown that the presence of malignant breast disease in brothers, sisters,

or parents of either sex elevates the risk of breast cancer in both men and women. It was studied that the relative risk (RR) of breast cancer was the same in offspring when the father or mother was affected by the disease (RR=1.73 and 1.74, respectively), but the risk was slightly higher in women when a brother suffers rather than a sister (RR=2.48 and 1.39, respectively) [12]. In addition to a family history of breast cancer, having a BRCA mutation in men also increases the risk of breast cancer. Although the BRCA mutation is rare in men, carriers of the BRCA2 mutation have a 6% increased risk of developing the disease, and BRCA1 by 4% [11]. As in women, the standard instrumental examinations, thick-needle or fine-needle tumor aspiration biopsy (TAB), also apply to men.

About 90% of all breast tumors in men belong to invasive ductal carcinomas. Since there are no terminal lobules in the male breast unless exposed to high doses of endogenous and/or exogenous estrogens, the lobular histotype accounts for only 1.5% of invasive cancers, whereas in women, more than 10% of all breast carcinomas are lobular. Therefore, despite some of the differences with female cancer described above, men with breast cancer require systemic treatment (neoadjuvant, adjuvant, or metastatic), and the choice between chemotherapy or hormone therapy should be based on tumor biology [13, 14]. In the presented clinical case, at the 1st stage, the patient received six neoadjuvant chemotherapy courses. The local-regional approaches should include surgical and radiation treatment. In the 2nd stage, the operation to the extent of radical mastectomy by Madden



on the right and prophylactic removal of the left mammary gland have been performed [15, 16].

Conclusion: Breast cancer in men is rare, accounting for approximately 1% of all breast cancer cases and less than 1% of all neoplasia in men. The presented rare clinical case of breast cancer in a man is divided into two parts. The first article is devoted to the primary instrumental and laboratory diagnostics, clinical diagnosis, and performance of preoperative chemotherapy courses. The second part of the case demonstrates the results of the systemic treatment, surgery, and the degree of therapeutic pathomorphosis. Considering the clinical picture and anamnesis, literature data, and the clinical protocol, the multidisciplinary group recommended radiation therapy with adjuvant endocrine therapy with tamoxifen for an initial period of five years. The article shows the effectiveness of neoadjuvant chemotherapeutic and local surgical treatment. Due to the rarity of this disease, there is an urgent need for extensive studies, screening programs, and raising awareness of the male population for early detection and successful treatment of patients with that diagnosis.

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АҢДАТПА

ЕР АДАМДАР АРАСЫНДАҒЫ НАУҚАСТАРДА СҮТ БЕЗІ ОБЫРЫН ЕМДЕУ: КЛИНИКАЛЫҚ ЖАҒДАЙ*

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Өзектілігі: Сүт безі қатерлі ісігін анықтау, емдеу және бақылау барысында ерлер арасындағы сүт безі қатерлі ісігі әйелдерге қарағанда артта қалуда. Жалпы алғанда, сүт безі қатерлі ісігі ерлер арасында сирек кездеседі, бұл скринингтің пайдалылығын шектейді, бірақ ерлерде сүт безі қатерлі ісігінің жиілігі артып келеді.

Зерттеудің мақсаты – химиотерапия мен хирургиялық емнің әсерінен, ер адамда сүт безі обырының клиникалық және морфологиялық көріністерінің хирургиялық емдеу нәтижелерін, типтік өзгерістерін көрсету болып табылады.

Әдістер: Мақалада «Оң жақ сүт безінің St III обыры (Т4рN0M0), интрадуктальды компоненті, ісіну-инфильтративті түрі, жоғарғысыртқы локализациясы, Her2neu экспрессиясы жоқ иммуногистохимиялық люминальды В қосалқы түрі» диагнозы бар ер науқастың клиникалық жағдайы сипатталған. Негізгі жағдайы — химиотерапияның 6 неоадъювантты курсынан кейін.

Нәтижелері: операцияға дейінгі алты химиотерапия қурсынан кейін, сүт бездерінің УДЗ өлшемдері $52,5 \times 48,2 \times 46,1$ мм, V=60,98 см³, айқын емес жүйке контурлары бар орталықтан анықталған гипоэхогендік түзіліс бар екенін көрсетті. 2022 жылдың наурыз айындағы деректермен салыстырғанда (оң жақ сүт безінің жоғарғы сыртқы квадрантында орналасқан, контуры айқын біркелкі



емес 9,0 см инфильтрациялық өсүмен), ісік көлемінің US BI-RADS R6, L2. дейін төмендеуі байқалады. Мультидисциплинарлық кеңестің шешімімен хирургиялық ем жүргізу туралы шешім қабылданды. 2022 жылдың тамыз айында оң жақта радикалды Madden мастэктомиясы және сол жақта қарапайым мастэктомия жасалды. Операциядан кейінгі гистологиялық қорытындының нәтижесі бойынша емдік патоморфоз: индекс РКБ-2,233, РКБ-ІІ класы.

Қорытынды: Бұл мақалада сүт безі қатерлі ісігі бар ер адамда жүйелі және хирургиялық емдеудің нәтижелері көрсетілген. Клиникалық және анамнестикалық деректерді, әдеби деректерді, клиникалық хаттаманы ескере отырып, мультидисциплинарлық топтың шешімімен пациентке бастапқы бес жыл бойы тамоксифенмен адыовантты эндокриндік терапиямен біріктірілген сәулелік терапия

Түйінді сөздер: Клиникалық жағдай, ерлердің сүт безі қатерлі ісігі (БК), Her2neu экспрессиясы жоқ люминальды «В» субтипі, мастэктомия, терапевтік патоморфоз, сәулелік терапия, эндокриндік терапия.

АННОТАЦИЯ

ЛЕЧЕНИЕ РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ У ПАЦИЕНТА МУЖСКОГО ПОЛА: КЛИНИЧЕСКИЙ СЛУЧАЙ**

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Актуальность: В выявлении, лечении и последующем наблюдении рак молочной железы (РМЖ) у мужчин исторически отставал от РМЖ у женщин. В целом РМЖ менее распространен среди мужчин, что ограничивает полезность скрининга, однако заболеваемость РМЖ у мужчин растет.

Цель исследования – представить результаты хирургического лечения и типовые изменения клинических и морфологи-ческих проявлений РМЖ у мужчины под воздействием химиотерапевтического и хирургического лечения.

Методы: В статье описан клинический случай пациента мужского пола с диагнозом «Рак правой молочной железы St III (Т4рN0M0), отечно-инфильтративная форма с внутрипротоковым компонентом, верхне-наружная локализация. Имму-ногистохимический люминальный подтип B без экспрессии Her2neu». Состояние – после 6 неоадыювантных курсов химио-терапии.

Результаты: после шести предоперационных курсов химиотерапии УЗИ молочных желез показало, что центрально определяется гипоэхогенное образование, с нечеткими, неровными контурами, размерами $52,5 \times 48,2 \times 46,1$ мм, V=60,98 см 3 . В сравнении с данными от марта 2022 года (отмечается наличие образования правой молочной железы, лоцируемое в верх-ненаружном квадранте, с четкими неровными контурами размером 9,0 см с инфильтрирующим ростом) наблюдается уменьшение опухолевого образования до US BI-RADS R6, L2. Решением мультидисциплинарного консилиума было решено выполнить оперативное лечение. В августе 2022 года была произведена операция в объеме радикальной мастэктомии по Маддену справа и простой мастэктомии слева. Лечебный патоморфоз по результатам послеоперационного гистологиче-ского заключения: индекс RCB-2.233, class RCB-II.

Заключение: В данной статье продемонстрированы результаты проведенного системного и хирургического лечения у мужчины с РМЖ. Учитывая клинико-анамнестические данные, данные литературных источников, клинического протоко-ла, решением мультидисциплинарной группы пациенту была рекомендована лучевая терапия в сочетании с адъювантной эндокринной терапией препаратом тамоксифен в течение первоначального периода в пять лет.

Ключевые слова: Клинический случай, рак молочной железы (РМЖ) у мужчин, люминальный подтип «В» без экспрессии Her2neu, мастэктомия, лечебный патоморфоз, лучевая терапия, эндокринная терапия.

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