ДИФФУЗНАЯ ФОРМА РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ: ЭПИДЕМИОЛОГИЯ, КЛИНИКА И МЕТОДЫ ДИАГНОСТИКИ (ОБЗОР ЛИТЕРАТУРЫ)

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ДИФФУЗНАЯ ФОРМА РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ: ЭПИДЕМИОЛОГИЯ, КЛИНИКА И МЕТОДЫ ДИАГНОСТИКИ (ОБЗОР ЛИТЕРАТУРЫ). ЖКМП.-2024.-Т.3.-№3.-С

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Аннотация: Диффузные формы рака молочной железы вызывают значительные клинические проблемы из-за обширной инфильтрации тканей молочной железы и зачастую агрессивного течения заболевания. В обзорной статье литературы мы попытались обобщить последние данные по эпидемиологии, клиническим проявлениям и методам диагностики диффузных подтипов рака молочной железы за последние 15 лет.

Ключевые слова: *диффузный рак, рак молочной железы, эпидемиология, диагностика, маститит.*

SUT BEZI SARATONI DIFFUZ SHAKLI: EPIDEMIOLOGIYASI, KLINIKASI VA TASHXISLASH USULLARI (ADABIYOTLAR TAHLILI)

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Annotatsiya: Sut bezi saratonining diffuz shakllari ko‘krak to‘qimalarining keng tarqalgan infiltratsiyasi va kasallikning ko‘pincha agressiv kechishi tufayli sezilarli klinik muammolarni keltirib chiqaradi. Ushbu maqoalda biz so‘nggi o‘n besh yil ichida diffuz sut bezi saratoni kichik turlarining epidemiologiyasi, klinik ko‘rinishi va diagnostika usullari bo‘yicha so‘nggi ilmiy izlanishlarni umumlashtirishga harakat qildik.

Kalit so‘zlar: *diffiz saraton, sut bezi saratoni, epidemiologiya, tashxislash, mastit.*

DIFFUSE FORM OF BREAST CANCER: EPIDEMIOLOGY, CLINICS AND DIAGNOSTIC METHODS (REVIEW OF LITERATURE)

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Annotation: Diffuse forms of breast cancer cause significant clinical challenges due to the widespread infiltration of breast tissue and the often aggressive course of the disease. In this literature review article, we tried to summarize the latest findings on the epidemiology, clinical manifestations, and diagnostic methods of diffuse breast cancer subtypes in the last 15 years.

Keywords: *diffuse cancer, breast cancer, epidemiology, diagnosis, mastitis.*

Introduction: Diffuse forms of breast cancer, often referred to as diffuse infiltrating or diffuse invasive breast cancer, are less common than other types of breast cancer, such as ductal or lobular carcinoma. It is characterized by the cancer cells spreading throughout the breast tissue rather than forming a distinct lump. This form can be more challenging to detect and diagnose early because it does not always present as a typical palpable mass and may instead cause a general thickening or change in the texture of the breast tissue.

Material and research methods: When writing this article, a systematic search of relevant articles published in PubMed, Scopus, Web of Science, eLibrary, and CyberLeninka databases was conducted in the last 15 years. Keywords such as «diffuse breast cancer», «epidemiology», «classification» and «diagnostic methods» were used to narrow the search results. Articles published in English and Russian are accepted for review.

Results: Breast cancer is the most common cancer among women in most countries of the world. According to the report of GLOBOCAN (a joint project of the World Health Organization and the International Agency for Research on Cancer), the most influential cancer research organization, in 2022 the number of cases of first-time cases of cancer in the world will increase from 19.98 million was high. Among them, 2,296,840 (11.5%) new cases of breast cancer were recorded. The world Of the total number of newly diagnosed cases, 684,996 (6.9%) women died. According to this report, breast cancer is the leading cause of death in most countries (159 out of 185 countries) and in 110 countries. The highest incidence rates are observed in Australia and New Zealand - 23,277 (10.41), North America - 281,591 (9.71), and European countries - 158,708 - 169,016 (6.28 - 9.69). Low incidence rates have been reported in Asian and African countries [11,16].

In the Russian Federation, in 2019, 73,918 cases of breast cancer were detected in women, which accounted for 11.6% of all malignant tumors in the population, and 21,720 women died. Breast cancer ranks first among all malignant tumors in the Republic of Uzbekistan [36,37]. In 2022, 4,407 people in our country were diagnosed with breast cancer for the first time in their lives, which was 12.7 per 100,000 population. Breast cancer incidence and mortality rates in the neighboring Republic of Tajikistan showed that in 2016, 462 patients were registered, and in 2018, 468 patients were registered, then in 2019 506 cases were identified. From 2016 to 2019, the annual increase in the incidence of breast cancer was 1.0-1.1 times. The analysis of breast cancer deaths among patients registered at the end of each year's report showed that breast cancer deaths in the Republic are decreasing year by year. At the end of 2016, 312 of the 2,008 women registered with breast cancer died, which was 15.5%. As of the end of 2019, 2,489 women with breast cancer were registered, of whom 291 passed, which is 11.7 percent [34]. In recent years, the number of patients detected in stages I-II has been increasing year by year, primarily due to the mammography screening system established in developed countries. In developed countries, the percentage of patients diagnosed at stages I-II exceeds 70%. According to the cancer registry of the Republic of Korea (South Korea), in 2017, the percentage of newly diagnosed patients with stage I-II breast cancer was 72.5%, stage III - 7.8%, and stage IV - 0.8% [24]. In 2019, 73% of women in the Netherlands were diagnosed with stage I-II breast cancer, 8% with stage III, and 5% with stage IV [15]. In the Russian Federation in 2019, the percentage of patients with Stage I-II was 71.8%, stage III - 20.2%, and Stage IV - 7.5% [28]. The GLOBOCAN report, which provides key breast cancer data from 2009 to 2014, focuses on the rate of late-stage (stages III-IV) breast cancer, which in 2009 was 23, was 7% and increased to 24.4% in 2013 and slightly decreased to 21.7% in 2014 [1]. There are several clinical forms of breast cancer: nodular, diffuse (swollen-infiltrative, erythematous, mastitis-like, and armored), as well as breast cancer - Paget's cancer. Diffuse breast cancer belongs to the clinical group of locally advanced breast cancer, which includes stage III tumors (T3N1M0, T03N23M0, and T4N03M0) and stage IV tumors, in which metastatic lesions are only in the ipsilateral supraclavicular lymph nodes observed [27,32]. Axenal lymph node metastases are very common. In some cases, it is necessary to distinguish between mastitis and rheumatism [35]. The share of diffuse forms of breast cancer is about 15-17%. Most of the diffuse forms of breast cancer are swollen forms [34]. According to many authors, the variants of «diffuse cancer» include infiltrative-tumorous, armored, rosy, and mastitis-like forms of breast cancer. Specific features characteristic of these forms of breast cancer are: rapid progression of the disease, spread to the tissues surrounding the mammary gland,

poor process, and intensity of the location of the tumor through the lymphatic vessels, the prognostic results for such patients are very unfavorable [17,31,34].

In the Russian literature, the inflammatory-infiltrative form of breast cancer is divided into primary tumors and secondary tumors [21]. The primary form of swelling is called when there is swelling, infiltration of glandular tissue, and skin hyperemia without identifying the nodule in the mammary gland. The secondary tumor form has the same characteristic symptoms, but tumor nodes are also detected. With this form, first a knot appears, and then a tumor appears. In the English language literature and the international classification of malignant tumors according to the TNM system, this form of breast cancer is called inflammatory carcinoma (inflammatory cancer). Although the inflammatory form of breast cancer is different, it is included in the T4d category. It is distinguished from the usual nodular form by a higher temperature, bright red color, and warmth to the skin [40]. According to several authors, the true infiltrative-tumorous form of breast cancer is characterized by the diffuse spread of the tumor process throughout the gland tissue, the presence of a primary tumor node is not observed, and it is also characterized by a very unfavorable prognosis [8, 38]. However, breast enlargement, skin hyperemia, and swelling are observed in 87%, 93.6%, and 100% of cases, respectively [21]. In the general structure of newly identified forms of breast cancer, the frequency of infiltrative-tumorous forms of this pathology is about 1-5% [22, 26, 36]. The infiltrative-edematous form of breast cancer is characterized by high risk, with a high percentage of adverse outcomes, with an overall 5-year survival rate of 12% [28]. It was found that the swollen form of cancer is not associated with any histological variant of tumor formation, but may appear in typical and rare immunohistochemical forms of pathology [22, 38]. Etiological factors of mammary tumors include the rapid growth of the formation, against the background of disorders related to the release of metabolic products of tumor cells through capillaries [20, 28], as well as skin damage and lymph vessel growth. Their embolization with the SMA process, as a result of which the flow of lymph fluid from the breast tissues is disturbed and causes swelling [1]. Saribekyan E. K. (2012) based on the analysis of literature data and his observations, breast tissue infiltration and skin swelling are related to the biological characteristics of the tumor, as well as the characteristics of lymph and blood circulation in the perifocal zone of the tumor. Allowed to come to the conclusion that [15]. Mammography remains a mandatory screening method, although it is the least sensitive among the listed methods because it is less likely to detect a tumor on the background of a tumor. On the other hand, mammography is often difficult due to swelling and pain [5]. The information content of ultrasound in tumor-infiltrative breast cancer is 80-93% [25].

Contrast-enhanced MRI shows tissue changes and enlarged glands, skin thickening, swelling, and tissue density, which provides 90-100% information [24, 39]. The combination of PET and CT allows visualization of functional or metabolic changes in breast tissue and the subject of identified changes - [30]. The diagnosis of diffuse breast cancer relies on a combination of instrumental examination methods and histopathological evaluation. Magnetic resonance imaging (MRI) has emerged as a valuable tool for the detection of multifocal and multicentric diseases, especially in cases of suspected ILC [38]. In addition, molecular imaging techniques, including positron emission tomography (PET) and PET-CT, are highly informative to assess tumor grade and guide treatment decisions [39].

Conclusion: Epidemiology, classification, and diagnostic methods of diffuse breast cancer represent important aspects of its clinical treatment. An understanding of specific epidemiologic features and classification schemes is essential for accurate diagnosis and prognosis. In addition, the integration of advanced imaging techniques and molecular profiling techniques improves diagnostic accuracy and facilitates tailored therapeutic strategies for patients with diffuse breast cancer [36,37]. In summary, diffuse breast cancer poses unique challenges in terms of epidemiology, classification, and diagnostic evaluation. Recent advances in molecular profiling and imaging technology have revolutionized the understanding and management of this aggressive subspecies. Further research is warranted to identify new biomarkers and therapeutic targets to improve outcomes for patients with diffuse breast cancer. Despite the progress made in the diagnosis and prevention of breast cancer, the frequency of diffuse forms of breast cancer (DBC) in women remains high and determines the relevance of modern onomatology.

REFERENCES:

1.Alejandro Martin Sanchez. New challenges in the multimodal workout of locally advanced breast cancer/ Alejandro Martin Sanchez [et al.] //*The surgeon xxx* (2017) 1-7

2.Leithner, D., et al. (2018). Magnetic resonance imaging for breast cancer screening, diagnosis, and treatment. Current Opinion in Obstetrics & Gynecology, 30(1), 1-6.

3.Pankaj Kumar Garg. Current Definition of Locally Advanced Breast Cancer / Pankaj Kumar Garg [et al.] // *Current Oncology,* 2015, Vol. 22, No. 5. – 409;

4. Alikhassy A., Omranipour R., Alikhassy Z. et al. Congestive Heart Failure versus Inflammatory Carcinoma in the Breast. Case Rep. Radiol. 2014: 815– 896.

5.Aluni JP Imaging inflammatory breast cancer. Diagn. Interv. Imaging. 2012; 93 (2): 95–103.

6.Eijkelboom A. Borstkanker in Nederland trends 1989–2019 based on figures from the Netherlands Kankerregistratie [Internet]. 2020.// *A.Eijkelboom* [et. al.] © IKNL, October 2020. https://borstkanker. NL/sites/default/files / 2020–10 / Rapport Borstkanker in The Netherlands. Pdf.

7.Fernandez, SV Inflammatory breast cancer (IBC): clues for targeted therapies / SV Fernandez et al. // *Breast Cancer Res*. Treat. – 2013. – Vol. 140 (1). – P. 23–33.

8.Globocan 2012, cancer incidence y mortality en el mundo: IARC Base cáncer No. 10 [Internet] / J. Ferlay [et al.] // *Lyon, rancia: Agencia International para la Investigation Del Cancer*: http:// globocan.iarc.fr.

9.Gofur-Akhunov, MA "A Comparative Analysis of Disability Indicators and the State of Medical and Social Rehabilitation of Disabled People as a Result of Malignant Neoplasms of Childhood in Tashkent." *American Journal of Pediatric Medicine and Health Sciences* (2993-2149) 2.2 (2024): 15-17.

10.Groheux D., Giacchetti S., Delord M., et al. 18F-FDG PET/CT in staging patients with local advanced or inflammatory breast cancer: comparison to conventional staging. J. Nucl. Med. 2013; 54 (1): 5–11.

11.Groheux, D., et al. (2016). Tumor metabolism assessed by FDG-PET/CT and tumor proliferation assessed by genomic grade index to predict response to neoadjuvant chemotherapy in triple-negative breast cancer. European Journal of Nuclear Medicine and Molecular Imaging, 43(9), 1410-1418.

12.Jana Hornova. Locally advanced breast cancer in elderly patients / Jana Hornova [et al.] //*Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub*. 2017 Wool; 161(2):217-222.

13.Kang SY Breast Cancer Statistics in Korea 2017: Data from a Breast Cancer Registry./ / *SY Kang* [et. al.] J Breast Cancer. 2020 April; 23 (2):115–28.

14.Mayer, IA, et al. (2016). Molecular classification of breast cancer: implications for selection of adjuvant chemotherapy. *Nature Reviews Clinical Oncology*, 13(5), 335-346.

15.Rakha, EA, et al. (2017). Invasive lobular carcinoma of the breast: response to hormonal therapy and outcomes. *European Journal of Surgical Oncology*, 43(4), 657-663.

16.Sikora, MJ, et al. (2016). Invasive lobular carcinoma of the breast: patient response to systemic endocrine therapy and hormone response in model systems. Steroids, 111, 131-141.

17.Sinclair, S. Primary systemic chemotherapy for inflammatory breast cancer / S. Sinclair, SM Swain // *Cancer.* – 2010. – Vol. 116 (11). – P. 2821–2828.

18.The Global Cancer Observatory - All Rights reserved December, 2022.

19.TNM: Классификация злокачественных опухолей / Под ред. Дж.Д. Брайерли и др.; пер. с англ. и научн. ред. Е.А. Дубовой, К.А. Павлова. 2-е изд. на русском языке. — М.: Логосфера, 2018. — 344 с. Перевод изд. TNM Classification of Malignant Tumours, 8th ed.

20.Wang L., Wang D., Fei X., et al. A Rome- Enhanced Mass with Central Cystic Changes on MR Imaging: How to Distinguish Breast Cancer from Inflammatory Breast Diseases? PLoS One. 2014; 9 (3): 90355.

21.Wong, SM, et al. (2018). Invasive lobular carcinoma of the breast: patterns of presentation, treatment, and survival. *Breast Cancer Research and Treatment,* 167(2), 549-556.

22.World Health Organization. Estimated number of cases in 2020, worldwide, for both sexes and all ages.

23.Yamauchi, H. Inflammatory breast cancer: what we know and what we need to learn / H. Yamauchi et al. // *Oncologist*. – 2012. – Vol. 17 (7). – P. 891–899.

24.Добровольская Н.Ю. Лекарственная и лучевая терапия в лечении местнораспространенного и диссеминированного рака молочной железы. http://vestnik.rncrr.ru/vestnik/v7/papers/dobro_v7.htm

25.Каприн А.Д. Злокачественные новообразова- ния в России в 2019 году (Заболеваемость и смертность) //*Под ред. А.Д. Каприна, В.В. Старинского, А.О. Шахзадовой*, Москва 2020. – 252 с.

26.Каприн А.Д. Состояние онкологической помощи населению России в 2019 году/Под ред. А.Д. Каприна, В.В. Старинского, А.О. Шахзадовой − М.: МНИОИ им. П.А. Герцена − филиал ФГБУ «НМИЦ радиологии» Минздрава России, 2020. − илл. – 239 с.

27.Колесник А.Ю. Молекулярно-биологические свойства отечно-инфильтративной формы рака молочной железы / А.Ю. Колесник и др. // *Вопросы онкологии.* – 2016. – Т. 62, №4. – С. 485–489.

28.Колесник А.Ю. Новые подходы к диагностическому алгоритму отечно–инфильтративной формы рака молочной железы / А.Ю. Колесник и др. // *Медицинская визуализация.* – 2014. – №5. – С.124–129.

29.Кубанцев К.Б. «Хирургическое лечение больных с местнораспространенными опухолями молочной железы с одномоментной пластикой грудной стенки TRAM-лоскутом» Диссертация на соискание ученой степени кандидата медицинских наук Волгоград – 2010. 156 с.

30.Пак Д.Д., Сарибекян Э.К. Опухоли молочной железы //*Руководство по онкологии* / под ред. В.И. Чиссова, С.Л. Дарьяловой. М.: ООО «Медицинское информационное агенство», 2008. С. 382-40

31.Расулов С.Р. Динамика заболеваемости и смертности от рака молочной железы в Республике Таджикистан за 2016-2020 гг. / С.Р. Расулов, Д.Ф. Ганиев // *Вестник последипломного образования в сфере здравоохранения,* 2022.2 – С. 52-56

32.Расулов С.Р. Динамика заболеваемости и смертности от рака молочной железы в республики Таджикистан за 2003-2013гг. // *Сборник тезисов 1-го Российского онкологического научно-образовательного форума с международным участием* «Белые ночи – 2015». – 8-10 июня 2015г. - С. 393-394.

33. Рахимова М.Н., Уразаева С.Т., Уразаев О.Н., Бегалин Т.Б. Эпидемиология рака молочной железы в странах СНГ и Республике Казахстан (литературный обзор). West Kazakhstan Medical journal 2019;61(1):46–55.

34.Сарибекян Э.К. Отечная форма рака молочной железы / Э.К. Сарибекян // *Российский онкологический журнал,* №2, 2012. – С. 4-8

35.Сарибекян Э.К. Факторы прогноза лечения отечно-инфильтративного рака молочной железы / Э.К. Сарибекян и др. // *Онкология. Журнал им. П.А. Герцена*. – 2014. – Т. 2, №1. – С. 10–13.

36.Федоров В.Э., Ласкано М., Чебуркаева М.Ю. Характеристика распространения рака молочной железы зарубежом (обзор литературы) / Международный научно-исследовательский журнал №4 (46), Часть 5, Апрель. С. 138-141. DOI: 10.18454/IRJ.2016.46.293

37.Чхиквадзе В.Д. Отечно-инфильтративный рак молочной железы: целесообразность разделения на первичную и вторичную формы / В.Д. Чхиквадзе [и др.] Онкология. Журнал им. П.А. ГЕРЦЕ- НА,1, 2015. – С. 21-24.

38.Шкурников М.Ю. Экспрессионный профиль воспалительной формы рака молочной железы / Шкурников М.Ю. и др. // *Бюллетень экспериментальной биологии и медицины*. – 2013. – Т. 155 (5). – С. 619.

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