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Case Report

Bilateral Breast Cancer with Clinical Response to Chemotherapy: A Case Report

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Abstract:

Back ground: Breast cancer is the most common cancer among women counting about 125 per 100000 per year new case in United States and about 1.4milion new cases worldwide. In the last twenty years early diagnosis, neoadjuvant and adjuvant systemic treatment that targeted to specific molecular targets have significantly reduced the mortality from breast cancer. Distant metastasis accounts for the vast majority of deaths in patients with cancer. Breast cancer exhibits a distinct metastatic pattern commonly involving bone, liver, lung, and brain. Breast cancer can be divided into different subtypes based on gene expression profiles, and different breast cancer subtypes show preference to distinct organ sites of metastasis.

Bilateral breast cancer (BBC) is rare and is associated with unfavorable prognosis. riple-negative breast cancer (TNBC) has been associated with a more aggressive histology, poorer prognosis, and no responsiveness to hormone therapy. It is imperative that cancer research identify factors that drive disparities and focus on prevention.

We report A case of metastatic bilateral breast cancers, A 58-year-old female presented with bilateral breast masses of 8-years duration. On examination. she had bilateral fungated breast masses, which were hard, mobile, and irregular. On the right side, there was skin tethering and palpable axillary lymph nodes. Ultrasound examination showed a heterogeneous, irregular, ill-defined, mass-like lesion, seen in the upper outer quadrant of the right breast along with a hypoechoic. irregular mass 12*13mm in the upper outer quadrant of the left breast. FNA showed bilateral invasive ductal carcinoma. Right axillary lymph nodes were positive for adenocarcinoma. She received 4 sessions of NACT which was followed by right-side mastectomy with axillary lymph node dissection and left-side mastectomy with sentinel lymph node biopsy

Key words: bilateral breast cancer; invasive ductal carcinoma; prognosis; metastatic breast cancer; triple negative ;hormonal therapy

Introduction

Breast cancer is the most commonly diagnosed cancer and ranks the fifth cause of cancer death among females worldwide, with an estimated 2.3 million new cases (11.7%) and 685 thousand deaths (6.9%) in 2020[1]. It has become the major reason for mortality in women in the age group of 40 to 59 years, the premenopausal women based in Central, America, Africa, and South America are more prone to be affected with breast cancer [31]

The occurrence of bilateral breast cancer is increasing nowadays with reported incidence ranging in between 1.4%-12%. [2,3]. however, in recent literature, patients with BBC showed significantly worse distant relapse -freesurfival as coped to those with unliteral breast cancer as distant metastasis were frequently reported in patients with BBC. [3,4] BC can metastasize to several organs, the most frequent metastatic sites include bone, lungs, liver and skin[5] The incidence of bilateral breast cancer has been reported to be 4.4% (2.1% synchronous and 2.3% metachronous.[6].

Case report

Patient information

A 51-year-old female presented with bilateral breast masses for 5-yeras duration. She was G1P1, lactated for 2 years, she is divorced. She had regular menstrual cycles in the past. She didn't have any chronic disease. She had bilateral breast mass but she neglected this due to social sham and financial status of patient.

On clinical examination, there was bilateral palpable breast masses, hard, mobile and irregular and crusted. On the right side, there was skin tethering and palpable axillary lymph nodes.

Diagnostic assessment on October10,2022 **Ct scan** chest and abdomen and pelvic there was bilateral areola-nipple proliferative soft tissue lesion with diffuse skin thicking and underlying asymmetrical breasts parenchymal infiltrative hyper density. More evident in left side with deep calcification and shrinking left breast size.

An ill defined soft tissue density in left axilla encasing vessels.lymphiod process.

Focal chest wall muscle enhancement in anterior aspect of teras minor and latissimus dorsi muscles is seen.

Bilateral pleural effusion.moderat in left side,nopulmonary or mediastinal lesion

Solitary hepatic benign looking focal cystic lesion and splenic small focal lesion .

Multiple uterine masses of variable size (subserous and intra mural degenerated fibroids)

Diffuse abdominal wall subcutantanouse fat edematous congestion.

***on 25May2022** left breast mass true cut biopsy report show invasive ductal carcinoma(N

**** on6 July2022** Immunohistochemistry Estrogen reports 0/8

Progesterone reports 0/8

HER-2/neu protein 0 negative FISH is not required. Therapeutic intervention

****on 6,July2022** She received 4 cycles AC then 4cycles finish in 9Augest,2022

Evaluation done by Ct scan chest and abdominopelvic 25/8/2022 show: mild, bilateral breast edema with left side areoleo-nipple thiching , bilateral pleural effusion, massive in left side ,minimal ascites ,tiny cystic lesion in liver 1.5cm between segment V/VI .pedunculated myomas up to 3.5x3.7cm,diffuse abdominal wall and sub cutaneous fat edema. In comparing with CT report date 10/5/2022 there is mild increase in the pleural effusion with nearly decreased rest of the finding and no deposits in the axilla or muscles as it were previously reported (.figure1)

Figure 1(A+B): Appearance of the bilateral breast cancers at pre- chemotherapy 2/6/2022

Patient Taxol given weekly for 12weeks start in 30/8/2022 finished in 9/11/2022. (Figure 2+3)

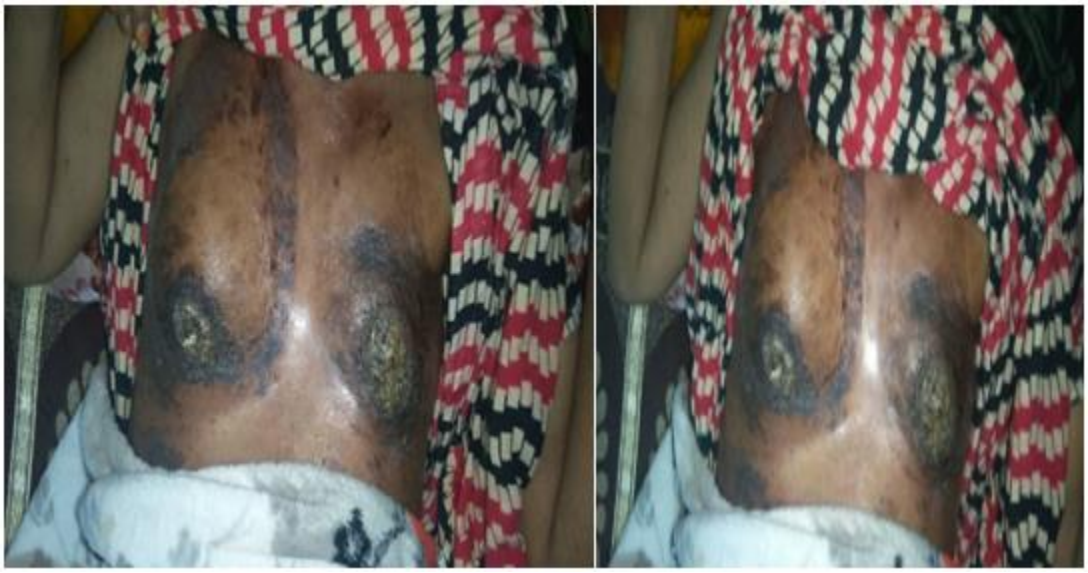
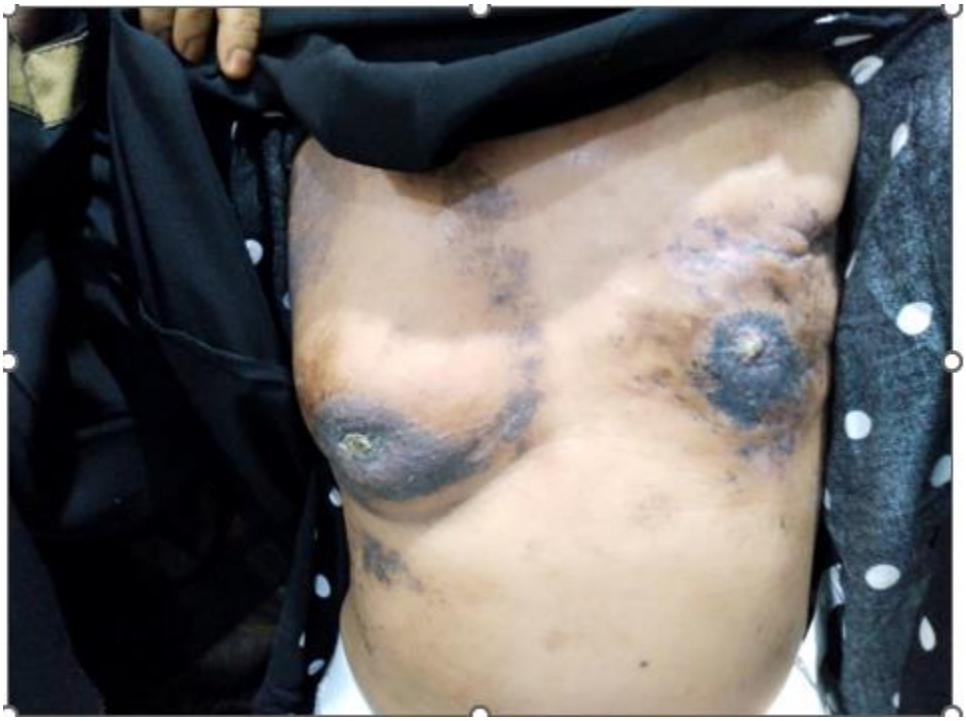


Figure 2(A+B): Appearance of bilateral breast cancers post 4cycles chemotherapy EC protocol (9/8/2022**)**



Figur 3: Appearance of bilateral breast cancer post 9 weeks monotherapy with paclitaxel (9/11/2022).

Patient complain lower limbe oedema, dopllar US done no signs of DVT, tumur marker : CA125:43.3,CA15.3:45,CEA:4.87.

Advice new line chemotherapy with gemctabin+ Xeloda for three cycles than evualtion done by chest and abdomenand pelvic Ct scan in 19/3/2023 show regression course regarding bilateral plural effusion .stable regareding right adnexal and spleeinc and hepatic lesion.no bony lesion.complet resulation. of LLedoma but patient can not tolerated with gemctabin side effect tumur marker: CEA 2.5, CA15.3:26.5, CA:45. (figure5)

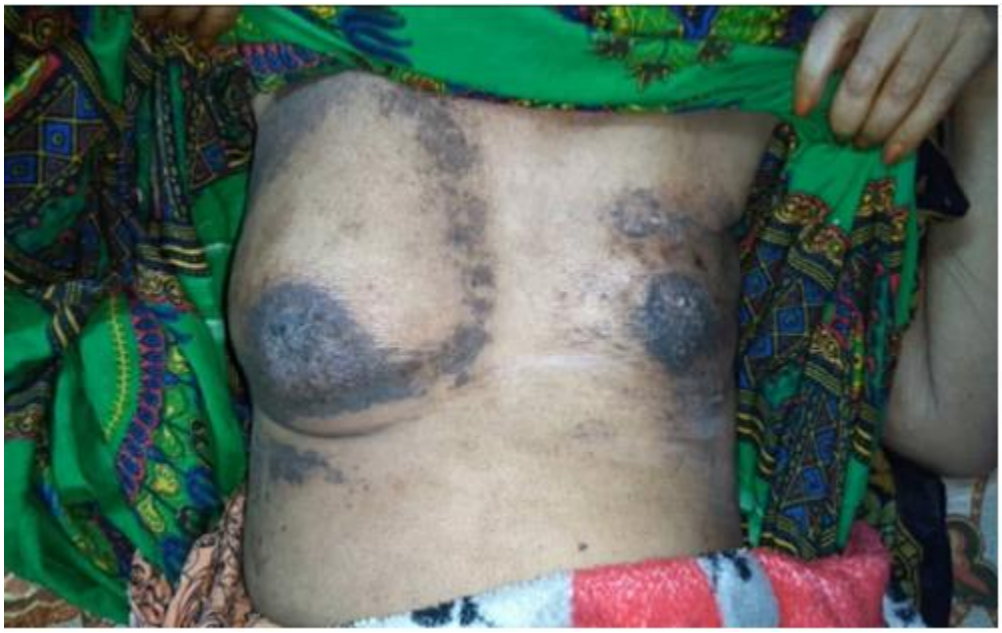


Figure 5: post 3 cycles gemcitabine + xeloda 19/3/2023 >>> resolve breast mass in left breast

Xeloda tab advice to continue for 3cycles ,patient tolarted and advice more three cycles + hormonal therapy Exemestan 25mg tab 13/6/2023.

Evualtion done in 26/9/2023show good respone, mild left side plural effusion, no ovarin mass. Tumur marker CEA :3, CA19.9:24.9, CA15.3:20.69, CA125:7.9. figure 6

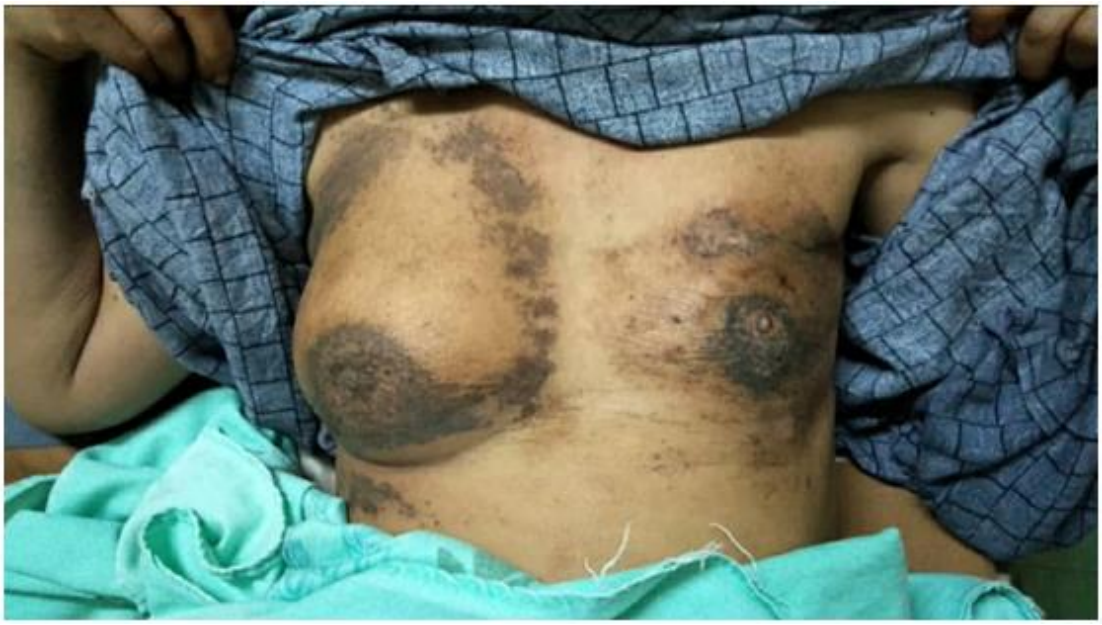


Figure 6: post 6 cycles xeolda (capecitabine) 26/9/2023; good respond

Advice continue three cycles xeloda and continue with hormonal therapy Exemestan (2/10/2023) (figure7)

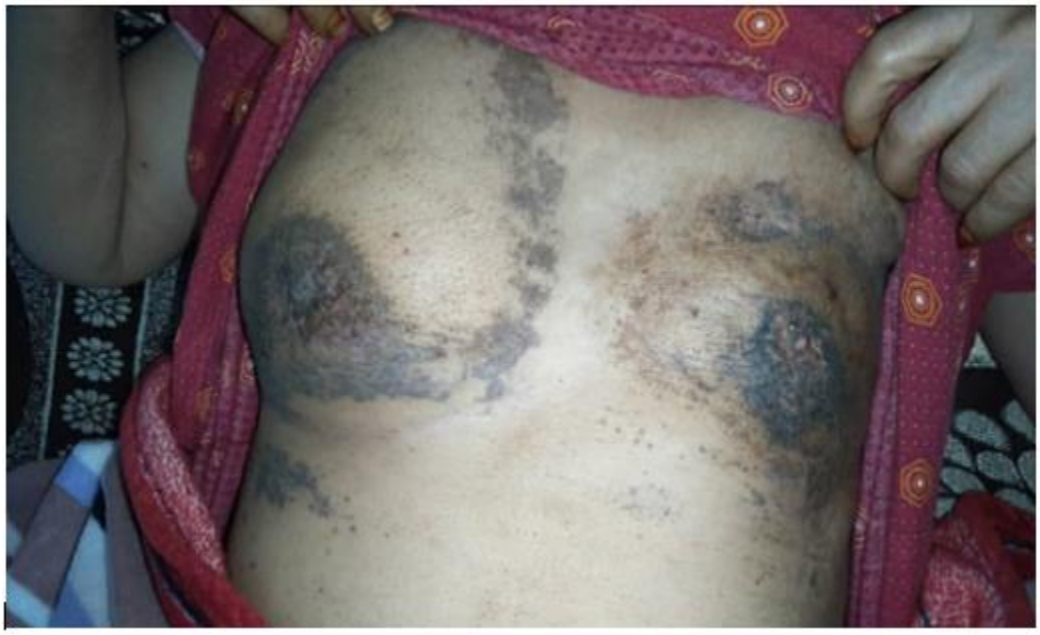


Figure 7: Post-10 cycles xeloda 2/10/2023

2.5. Follow up

*on5 Februy,2024: chest and abdomen CT scan show: Left beast not seen with clear surgical bed and free both axilla.

Left lung upper lobe well-defined enhanced pleural based soft tissue nodule 17x28mm.

No significant changes regarding hepatic cystic lesion ,uterine and splenic lesion in compare with study at 26/9/2023 current study show stable course .

- On 26July,2024: CT scan of chest with contrast show: clear surgical bed ,no local recurrence, sub -pleural nodule 25x13mm seen at level of lingula ,at pervious exam measured 28x15mm, relative decreased size of lesion in comparison with previous exam case is with relative decreased mass size.

Ct scan of abdomen and pelvic with contrast show : low attenuation, non hancing hepatic cyst 20x14mm.in comparison with last study case in 5/2/2024 is with stationary course..

Tumor marker: CA 35.75(0.00-39)

CA125 13.39(0.001-35)

CA15.326.36(0.00-25).advice her to fellow up and continue on hormonal therapy Anastrazol 1mg po daily .

On 20Septamber 2024: come patient for follow up ,complain new skin nodules(figure 10)

Advice : continue xeloda+ Armadax protocol

Post-chemotherapy period . She was followed up for two year.

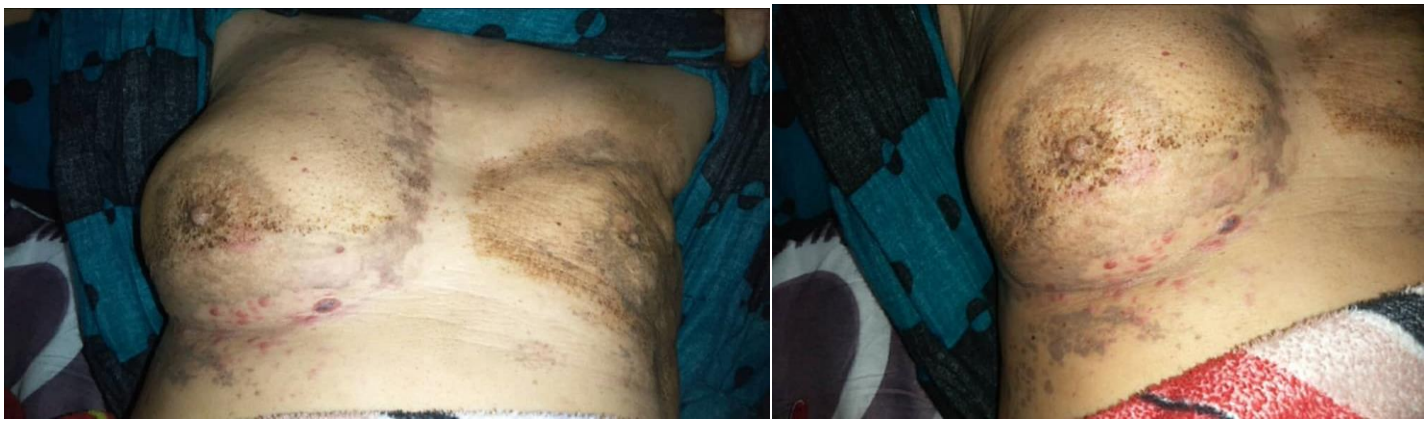
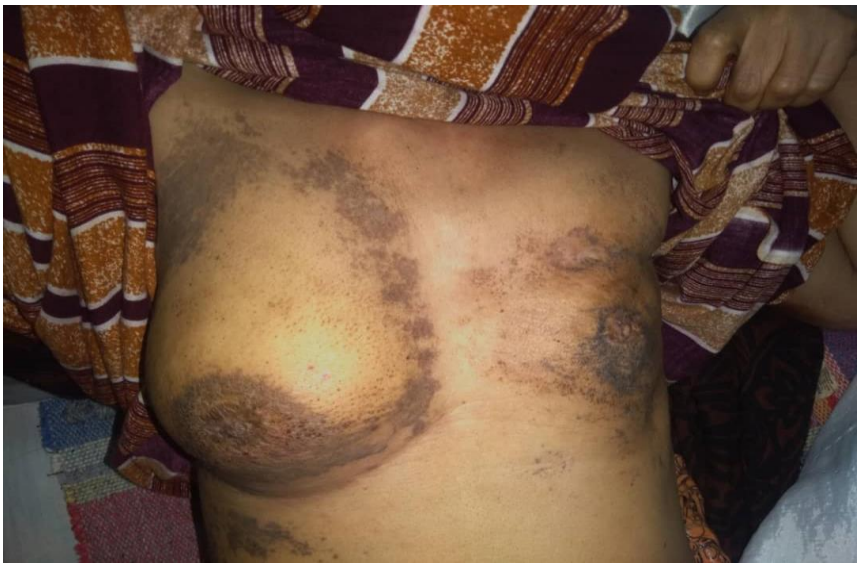


Figure 10: skin nodules in bilateral breast cancer

Patient condition improve skin nodules and advice to continues on Capecitabine and Anastrozole



Figur 8: post 13 cycles xeloda 12/12/2023

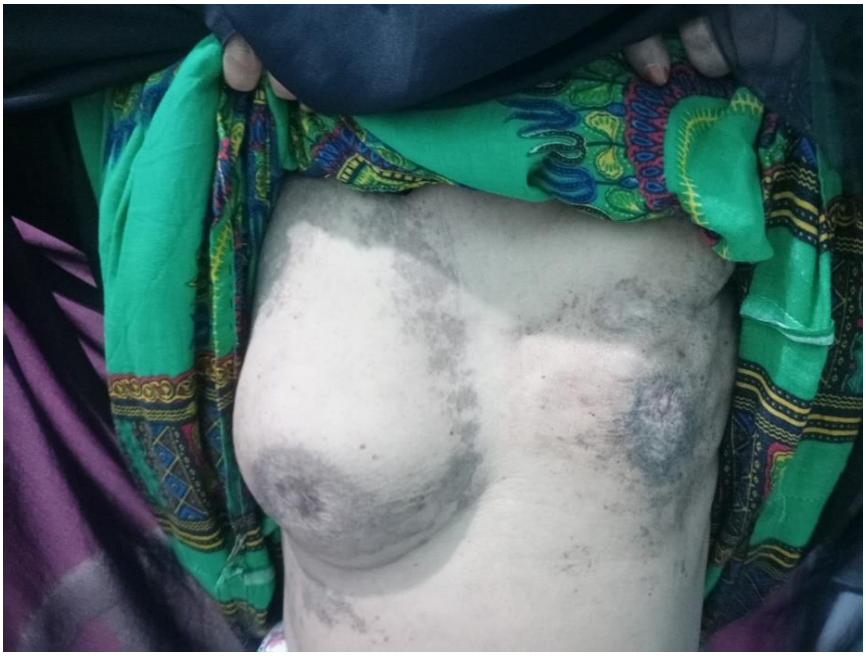


Figure 9: On hormonal therapy 16/4/2024 complete resolution of left breast mass+ right breast shows good response

Discussion:

Breast cancer is the most common site-specific cancer in women and is the leading cause of death from cancer for women aged 20–59 years. It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of the cancer-related deaths in women [32].

Nevertheless, the incidence of breast cancer in Western countries is about sixfold higher than the developing countries of Africa and Asia owing to demographic factors such as longer life expectancy, better and early reporting of cases and easy access to healthcare [9]. Bilateral breast carcinomas are very rare. They form 2–5% of all breast malignancies. About 2–11% of breast cancer patients develop cancer in the opposite breast in their lifetime with an incidence rate varying from 4 to 8 per 1000 people per year. *BRCA1* and *BRCA2* mutation carriers have an annual risk of 2%–6% of developing a second primary breast cancer[33]. In December 2013, the U.S. Preventive Services Task Force recommended risk assessment, genetic counseling, and genetic testing for *BRCA*-related cancer in those patients who may have an increased likelihood of a *BRCA* mutation. In addition to other factors, this included those patients with bilateral breast cancer[34].

Family history of breast cancer is a risk factor for the development of unilateral breast carcinoma; it wouldn't be an unreasonable hypothesis to think that it could be a risk factor for bilateral breast carcinoma. Some authors have submitted data supporting this hypothesis [7] . The risk factors associated with bilateral occurrence include: a positive family history of breast cancer in a first-degree relative, young age at diagnosis of primary breast cancer, histologically diagnosed invasive lobular carcinoma of the initial breast mass lesion, multicentricity and previous history of exposure to ionizing radiation [8].Triple-negative breast cancer

(TNBC) has been found to account for approximately 15% of all breast cancer cases, and is associated with aggressive histology, poorer prognosis, shorter survival, and unresponsiveness to usual hormone therapy[10].TNBC disproportionally affects younger women, women of African American descent, and women with Breast Cancer gene 1 (BRCA 1) mutation diagnoses [11-15]. The current diagnostic method takes multiple steps, is expensive, and does not diagnose TNBC promptly. TNBC is currently diagnosed in higher stages, with 12% of women diagnosed at stage 1, 11% diagnosed at stage 2, 52% diagnosed at stage 3, and 25% diagnosed at stage 4{16}.. Despite the more aggressive clinical behavior of TNBCs, several studies have now demonstrated that patients with these cancers more frequently evolve to pathologic complete response following neoadjuvant chemotherapy [17].In the metastatic setting, however, TNBCs remain lethal despite the recent US Food and Drug Administration (FDA) approvals of different modalities of therapeutic agents for patients with this disease[18-19].Treatment for TNBC depends on different factors, such as the stage and the grade of the cancer. It is usually a combination of surgery, radiotherapy and chemotherapy. Unlike most other types of BC, TNBC does not express estrogen, progesterone and HER2 receptors. Therefore, hormone therapy is largely ineffective for treatment purposes. Nevertheless, TNBC often responds very well to chemotherapy. [20-22].Neoadjuvant chemotherapy is the primary systemic treatment for TNBC, which improves pathologic complete remission, increasing surgical success, reducing the extent of surgery, and allowing assessment of treatment response[27].

Anthracyclines and taxanes are the main chemotherapeutic regimens against TNBC. Anthracyclines, such as doxorubicin, are molecules that inhibit topoisomerase II, blocking DNA replication and transcription and, consequently, arresting the cell cycle. Taxanes (e.g., paclitaxel and docetaxel) are antimitotic agents that inhibit cell division by affecting the stabilization of microtubules. Platinum-based compounds, such as carboplatin and cisplatin, interlink DNA strands, causing them to break and leading to cell apoptosis. This is particularly beneficial in the case of tumors that carry BRCA gene mutations, with underlying impaired DNA repairing mechanisms, and prevalent among TNBC patients. Other drugs, such as cyclophosphamide (causing DNA damage), fluorouracil, and capecitabine (blocking DNA synthesis) have also been used, particularly in combination or in sequential regimens with anthracyclines and/or taxanes or when the latter are contraindicated [23]However, TNBCs lack the benefit resulting from the use of targeted or hormonal systemic therapies in other subtypes. In this regard, a deeper knowledge of the molecular characteristics of TNBCs paved the way for the development of novel targeted therapeutics and patient stratification.[24]. Chemoresistance is a growing concern in TNBC therapy, with about 30–50% of patients undergoing neoadjuvant therapy evolving to resistant recurrences, resulting in poor outcomes[25]. Mechanisms of resistance arise when tumor cells are exposed to cytotoxic agents, as a means of maintaining their viability. Some of these mechanisms have been demonstrated for TNBC standard therapies, and strategies to overcome them have been proposed [26] Extended adjuvant metronomic capecitabine is well tolerated with good patient compliance. Due to our small sample size, these results need to be compared in a study with a control arm, a larger sample as well as longer follow-up. The need for higher doses of capecitabine can be evaluated when the results of current ongoing trials are available [28]. In recent years, some studies about capecitabine for therapy were also carried out in (neo)adjuvant therapy. They showed that addition of capecitabine to TNBC adjuvant treatment after anthracycline and paclitaxel combined adjuvant chemotherapy. shows that the DFS and OS have not been improved in addition, four cycles of sequential capecitabine after standard anthracycline and taxane regimens containing adjuvant chemotherapy, but DFS has a trend of improvement, which may be caused by the insufficient treatment cycles of capecitabine only four cycles, the insufficient number of cases, or the insufficient follow-up [29] one study show Androgen receptor (AR) status might be used to identify a subgroup of patients with ER negative tumours benefitting from adjuvant tamoxifen treatment. We interpret this to mean that patients with ER− tumors may have their tumors tested for AR and could be candidates for tamoxifen therapy. We also identified a subgroup of patients with TNBC who had AR+ tumors that may be treated with tamoxifen to improve outcome. These hypotheses generating observations need confirmation by further studies with larger number of ER− and TNBC patients in prospective cohorts [30].

Conclusion:

Although bilateral breast cancer is not frequent, MC breast cancer is different from SC breast cancer by having more advanced grade, stage, less ER expression, more frequent rates of local relapse and distant metastasis and better response to chemotherapy in case of relapse/metastasis. Bilateral carcinoma of the breast is very rare. Microscopically, the findings usually reveal infiltrative ductal carcinoma. The treatment of choice is bilateral modified radical mastectomy. TNBC is merely an operational term that stemmed from the fact that, in the mid-2000s, the only systemic therapy available for patients with ER-, PR-, and HER2-negative disease was chemotherapy.

Reference:

1. Sung, H · Ferlay, J · Siegel, RL (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries CA: *Cancer J Clin*; 71:209-249
2. Pan B, Xu Y, Zhou YD, et al (2019). The prognostic comparison among unilateral, bilateral, synchronous bilateral, and metachronous bilateral breast cancer: a meta-analysis of studies from recent decade (2008-2018). *Cancer med*. ; 8:2908-2918.
3. Mruthyunjayappa S, Zhang K, Zhang L, Eltoum IA, Siegal GP, Wei S (2019). Synchronous and metachronous bilateral breast cancer: clinicopathologic characteristics and prognostic outcomes. *Hum Pathol.* 92:1-9
4. Pinheiro J, Rodrigues D, Fernandes P, Pereira A, Trigo L (2018). Synchronous bilateral breast cancer patients submitted to conservative treatment and brachytherapy: the experience of a service. *Rep Pract Oncol Radiother* ;23:322-330.
5. Fauci AS, Hauser SL, Jameson JL, et al (2016). Harrison's Manual of Medicine, 19e. 19th ed. McGraw-Hill's AccessMedicine. New York, NY: McGraw-Hill Education LLC.
6. Kheirelseid EA, Jumustafa H, Miller N, et al (2011). Bilateral breast cancer: analysis of incidence, outcome, survival and disease characteristics. *Breast Cancer Res Treat* 126: 131-140.
7. Vuoto H.D., García A.M., Candás G.B., Zimmermann A.G., Uriburu J.L., Isetta J.A., Cogorno L., Khoury M., Bernabó O.L

(2010). Bilateral breast carcinoma: clinical characteristics and its impact on survival. *Breast J*;16(6):625–632

8. Gong SJ, Rha SY, Jeung HC, Roh JK, Yang WI, Chung HC (2007). Bilateral breast cancer: differential diagnosis using histological and biological parameters. *Jpn J Clin Oncol* ; 37: 487–92.
9. Adebamowo CA, Ogundiran TO, Adenipekun AA, Oyesegun RA, Campbell OB, Akang EE, et al (2003). Waist-hip ratio and breast cancer risk in urbanized Nigerian women. *Breast Cancer Res* ; 5: R18–24.
10. Bauer KR, Brown M, Cress RD, Parise CA, Caggiano V (2007). Descriptive analysis of estrogen receptor (ER)–negative, progesterone receptor (PR)–negative, and HER2-negative invasive breast cancer, the so-called triple-negative phenotype: a population-based study from the California Cancer Registry. *Cancer*. ; 109: 1721-1728.
11. Lara-Medina, F.; Pérez-Sánchez, V.; Saavedra-Pèrez, D.; Blake-Cerda, M.; Arce, C.; Motola-Kuba, D.; Villarreal-Garza, C.; González-Angulo, A.M.; Bargalló, E.; Aguilar, J.L.; et al (2011). Triple-Negative Breast Cancer in Hispanic Patients High Prevalence, Poor Prognosis, and Association With Menopausal Status, Body Mass Index, and Parity. *Cancer-Am. Cancer Soc*. 117, 3658–3669.
12. Amirikia, K.C.; Mills, P.; Bush, J.; Newman, L.A (2011). Higher population-based incidence rates of triple-negative breast cancer among young African-American women: Implications for breast cancer screening recommendations. *Cancer-Am. Cancer Soc*, 117, 2747–2753
13. Giaquinto, A.N.; Sung, H.; Miller, K.D.; Kramer, J.L.; Newman, L.A.; Minihan, A.; Jemal, A.; Siegel, R.L (2022). Breast Cancer Statistics, 2022. *CA-Cancer J. Clin.* , 72, 524–541.
14. Scott, L.C.; Mobley, L.R.; Kuo, T.M.; Il'yasova, D (2019). Update on triple-negative breast cancer disparities for the United States: A population-based study from the United States Cancer Statistics database, 2010 through 2014. Cancer-Am. *Cancer Soc*, 125, 3412–3417.
15. Chen, B.; Zhang, X.; Liu, Y.; Wang, C (2023). Prognostic disparities in young patients based on breast cancer subtype: A population-based study from the SEER database. *Medicine*, 102, e33416.
16. Bayoumi, Y.; AbdelSamie, A.; Abdelsaid, A.; Radwan, A (2014). Locoregional recurrence of triple-negative breast cancer: Effect of type of surgery and adjuvant postoperative radiotherapy. *Breast Cancer* , 6, 151–158
17. Turner NC, Reis-Filho JS (2013). Tackling the diversity of triple-negative breast cancer. Clin. *Cancer Res* 19:6380–88
18. Savas P, Loi S [2020]. Metastatic breast cancer: TIL it is too late. Clin. *Cancer Res* 26:526–28 .
19. Cortes J, Cescon DW, Rugo HS, Nowecki Z, Im SA, et al(2020). Pembrolizumab plus chemotherapy versus placebo plus chemotherapy for previously untreated locally recurrent inoperable or metastatic triple-negative breast cancer (KEYNOTE-355): a randomised, placebo-controlled, double-blind, phase 3 clinical trial. *Lancet* 396:1817–28.
20. Fedele P., Orlando L., Cinieri S (2017). Targeting triple-negative breast cancer with histone deacetylase inhibitors. *Expert Opin. Investig. Drugs*. 26:1199–1206.
21. Saloustros E., Nikolaou M., Kalbakis K., Polyzos A., Christofillakis C., Kentepozidis N., Pistamaltzian N., Kourousis C., Vamvakas L., Georgoulias V., et al (2018). Weekly paclitaxel and carboplatin plus bevacizumab as first-line treatment of metastatic triple-negative breast cancer. A multicenter phase II trial by the Hellenic oncology research group. Clin. *Breast Cancer* ;18:88–94.
22. O'Brien M.E., Wigler N., Inbar M., Rosso R., Grischke E., Santoro A., Catane R., Kieback D.G., Tomczak P., Ackland S.P., et al (2004). Reduced cardiotoxicity and comparable efficacy in a phase III trial of pegylated liposomal doxorubicin HCl (CAELYX/Doxil) versus conventional doxorubicin for first-line treatment of metastatic breast cancer. *Ann. Oncol*. 2004 ;15:440–449.
23. Cardoso F., Kyriakides S., Ohno S., Penault-LlorcaF., Poortmans P., Rubio I. T., et al. (2019). Early breast cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Ann. Oncol*. 30 (8), 1194–1220.
24. Won K. A., Spruck C. (2020). Triple negative breast cancer therapy: Current and future perspectives (Review*). Int. J. Oncol.* 57 (6), 1245–1261.
25. Kim C., Gao R., Sei E., Brandt R., Hartman J., Hatschek T., et al. (2018). Chemoresistance evolution in triple-negative breast cancer delineated by single-cell sequencing. *Cell* 173 (4), 879–893.
26. O'Reilly E. A., Gubbins L., Sharma S., Tully R., Guang M. H. Z., Weiner-Gorzel K., et al. (2015). The fate of chemoresistance in triple negative breast cancer (TNBC). *BBA Clin.* 3, 257–275.
27. Chaudhary LN, Wilkinson KH, Kong A (2018). Triple-negative breast cancer: who should receive neoadjuvant chemotherapy? *Surg Oncol Clin N Am*. 2018;27(1):141–153.
28. Alagizy HA, Shehata MA, Hashem TA, Abdelaziz KK, Swiha MM (2015). Metronomic capecitabine as extended adjuvant chemotherapy in women with triple negative breast cancer. *Hematol Oncol Stem Cell Ther*. Mar;8(1):22-7.
29. Xi X, Huang X, Yuan H, Ni J, Yang F (2022). Efficacy of Sequential Capecitabine on Adjuvant Chemotherapy of Triple-Negative Breast Cancer. *J Healthc Eng*. 2022 Feb 28;2022:7430775.
30. Hilborn E, Gacic J, Fornander T, Nordenskjöld B, Stål O, Jansson A (2016). Androgen receptor expression predicts beneficial tamoxifen response in oestrogen receptor-α-negative breast cancer. *Br J Cancer*. 2016 Feb 2;114(3):248-55.
31. Franco-Marina F, Lazcano-Ponce E, Lopez-Carrillo L (2009). Breast cancer mortality in Mexico: an age-period-cohort analysis. *Salud Publica Mex* ;51(Suppl 2):s157–64.
32. emal A., Siegel R., Ward E., Hao Y., Xu J., Murray T (2008). Cancer statistics 2008. *CA Cancer J Clin* ;58:71.
33. Baker B, Morcos B, Daoud F, et al (2013). Histo-biological comparative analysis of bilateral breast cancer. *Med Oncol* ;30(4):711.
34. Bouganim N, Tsvetkova E, Clemons M, et al (2013). Evolution of sites of recurrence after early breast cancer over the last 20 years: implications for patient care and future research. *Breast Cancer Res Treat*;139(2):603–606.

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