To Determine Occurrence of Contralateral Breast Cancer in Patients of Carcinoma Breast

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ABSTRACT

Background: Breast cancer (BC) is one of the most prevalent types of cancer among women. Contralateral breast carcinoma is the most prevalent second malignancy in breast cancer patients. There are two types of bilateral breast carcinomas: synchronous, in which both tumors arise simultaneously, and metachronous, in which they occur at different periods. When a patient is diagnosed with breast cancer, the contralateral breast should be thoroughly examined for a synchronous tumor. Screening for hidden contralateral breast cancer is crucial for the early detection of malignancy

Method: The data will be collected in prospective way. The study subjects will be involved who pre-diagnosis of unilateral breast cancer and attending surgery OPD and admitted in surgery ward. After physical examination and assessment of the patients Data will be collected pre designed proforma. They have to undergo routine blood investigation, X-ray, Mammogram and MRI for diagnosis of contralateral breast carcinoma.

Results: In our study of 101 married female cases, the incidence of contralateral breast carcinoma was 3.96%. Most women in both contralateral breast carcinoma (CBC) and primary breast carcinoma groups experienced menarche at ages 13-14. The majority were diagnosed at stage 2, with CBC showing highest incidence among ages 41-50 and primary breast carcinoma among ages 51-60, indicating earlier presentation of CBC. Postmenopausal CBC patients were aged 40-50 at menopause, suggesting varying protection compared to primary breast carcinoma. No patients had a positive family history of breast carcinoma. Symptoms commonly included breast lump and mastalgia in CBC. Parity and breastfeeding duration did not significantly protect against CBC. Tumor characteristics revealed multifocality in CBC with equal distribution across breast quadrants, while primary breast carcinoma predominantly affected the upper outer quadrant. CBC tumors varied in size and showed no chest wall involvement but higher rates of skin and lymph node involvement compared to primary breast carcinoma. IDC was uniformly predominant in both CBC and primary breast carcinoma cases.

Conclusions: In conclusion, our study underscores several key insights into contralateral breast carcinoma (CBC) among married females. CBC tends to manifest earlier than primary breast carcinoma, typically between ages 41-50, contrasting with the later onset of primary breast carcinoma in the 51-60 age range. Postmenopausal CBC cases aged 40-50 at menopause suggest varied protective effects compared to primary breast carcinoma, emphasizing the need for tailored screening strategies. The absence of positive family history and common symptoms such as breast lump and mastalgia highlight the sporadic nature of CBC cases. All CBC cases were of invasive ductal carcinoma (IDC) type, reinforcing IDC as the predominant histopathological subtype in both primary and contralateral breast carcinomas. Hormone receptor-positive subtype (ER+ve, PR+ve, Her2nu-ve) was prevalent in both groups. Early detection through comprehensive clinical, radiological, and histopathological assessments remains critical for improving outcomes and underscores the importance of rigorous breast examination and screening protocols.

Keywords: BC, CBC, PBC, MRI, IDC, PR

INTRODUCTION

Carcinoma breast is one of the most prevalent types of cancer among women all over the world. It is second most common cause of cancer deaths. On an estimate one women out of every 10 is likely to develop Carcinoma breast through their life. Globally nearly 2 million new cases of Carcinoma breast are diagnosed yearly, more than 50000 cases are diagnosed in united kingdom alone every year. Breast cancer is rare in women younger than age 25, but the incidence increases rapidly after age 30.[1]

Contralateral breast carcinoma is the most prevalent second malignancy in breast cancer patients. There are two types of bilateral breast carcinomas: synchronous, in which both tumors arise simultaneously, and metachronous, in which they occur at different periods. When a patient is diagnosed with breast cancer, the contralateral breast should be thoroughly examined for a synchronous tumor. Screening for hidden contralateral breast cancer is crucial for the timely diagnosis of malignancy.[1]

Tong *et al*. develop a prediction model for patients with contralateral breast cancer (CBC). The objective is to aid doctors in predicting the likelihood of CBC in survivors of breast cancer (BC). More than Four hundred thirty four thousand breast cancer patients were identified in the research, of whom 6,944 (1.6%) acquired CBC during the 10-year follow-up. The cumulative 10-year chance of getting CBC was 2.69 percent. According to multivariate risk model study older patients with invasive lobular carcinoma who had received unilateral Breast Cancer surgery and those with tumor more differentiated, small in size, and ER-negative/ PR+ positive had an increased chance of developing contralateral breast carcinoma.[12]

Females with unilateral breast cancer has a higher chance of developing cancer in the opposite breast. Among women with newly diagnosed breast cancer, the incidence of synchronous contralateral breast cancer ranges from 1% to 4%.[14,15]
Risk factors of carcinoma breast [23-24]

Age – Risk of carcinoma breast increases with age upto menopause.
 Median age of presentation is nearly 60 years in western countries while in India and other low income nations it is 48.
Family history – in people with one first degree relative having history of carcinoma breast relative risk (RR) is 2. RR increases to 3 with two first degree relatives.
Genetic factors- Mutations of BRCA1 and BRCA2 contribute for 70% of hereditary carcinoma breast.
Early menarche- There is 5% increase of risk in carcinoma breast every one year (Before 12 years) of early menarche.
Late menopause - For every year delayed menopause (After 55 years) cancer risk increases by 3%.
Obesity
Parity-risk of carcinoma increases with nulliparity and delayed first child birth.
Breastfeeding –Breastfeeding is considered protective against breast cancer. Breast feeding more than 1year has stronger protective effect. Hormonal replacement therapy (HRT) - women on HRT for more than 10 years has RR=1.2.
Tobacco consumption
Breast lesions = relative risk of breast cancer increase with proliferative condition of breast as in complex fibroadenoma, papillomatosis, ductal and lobar hyperplasia and lobar carcinoma in situ .[23-25]

REVIEW OF LITERATURE
Contralateral breast carcinoma was earlier considered to be very small percentage of total breast carcinoma cases is also on increasing trend likely because better screening and diagnostic modalities. Even with better diagnostic techniques available diagnosis of bilateral breast cancer still remains dilemma because of absence of specific protocols and literature data to differentiate it from metastatic breast carcinoma. Breast carcinoma is not uniformly distributed and one carcinoma do not confirm protection against another. On other hand people with history of one carcinoma are more likely to have another carcinoma.[27]

Breast cancer can spread by local, lymphatic and hematogenous route. tumor locally increase in size and infiltrate nearby parenchyma, number of growth factor are released as TGF alpha, TGF beta, VEGF. FGF induce proliferation of adjacent fibroblast and is responsible for desmoplastic reaction. lymphatic metastasis mainly occur to axillary lymph nodes, from medial half of breast spread can occur to internal mammary lymph nodes, if contralateral lymph nodes are involved in absence of primary tumor on contralateral side it is considered as distant metastasis. Contralateral nodes involvement can be due to metastasis from opposite primary. Other cause include haematogenous spread from opposite primary tumor, spread through sternal lymphatics to opposite internal mammary nodes then to opposite axilla, or from new primary at opposite breast.[28]

BRCA genes encodes protein which help in DNA strand repair, people with BRCA 1 gene mutation are 65% more likely to develop breast carcinoma before age of 70, whereas BRCA 2 mutation carriers has more risk upto 45%.[30] But these mutations are known to be very rare in general population even within diagnosed breast carcinoma patients BRCA mutation carriers are not more than 5%. [31] Other than these genes few medium penetrance genes and more than 50 single -nucleotide polymorphisms (SNPs) are also known, to be associated with breast carcinoma.[32]

Ultrasonography is first radiological investigation done in young women with dense breast as xray mammograms are difficult to interpret in dense breast as it relatively inexpensive and readily available. It is investigation of choice for seperating cystic swelling from solid breast lumps. As cystic lesions are most likely benign further investigations are not required. Therapeutic aspiration of painful cystic lesions can be done. Regular margin, mobile, solid lesion in young female is likely to be fibroadenoma and mostly require only follow-up. Solid lesions with irregular, ill-defined margins, presence of spiculated and fine calcifications are suspicious of carcinoma and must be confirmed by histopathological examination.[28]
To achieve uniformity of reporting and interpretations of breast imaging data American college of radiology has made BIRADS guidelines. Here breast lesions are classified as BIRADS-0 to BIRADS-6 with increasing suspicion of Malignancy.

Sood R. et al. (2019) conducted a comprehensive study and meta-analysis of ultrasound's performance for breast cancer diagnosis. Included were studies assessing portable, handheld ultrasonography as an independent breast cancer detection technique. 26 of the 526 identified studies met the inclusion criteria. Overall, the pooled sensitivity and specificity of

ultrasound were 80.1% & 88.4%, respectively. Ultrasound has sensitivity of 89.2 % & specificity of 99.9 % when just data from low- and middle-income nations were analysed. The included studies exhibited heterogeneity upon meta-analysis. In subgroup analyses based on mean age, risk, symptoms, research model , bias rate , and site of study, the ultrasound's high sensitivity for the identification of breast carcinoma did not alter statistically substantially.[41]

Castro CJ (2013) conducted a research to investigate the effectiveness of repeating the contralateral mammography in Dutch breast cancer screening programme referrals with unilateral results. There were a total of 395 patients included in the screening. Among 395 individuals referred for a suspicious unilateral breast discovery, 144 were found to have breast cancer. Additionally, six individuals (1.5%) were diagnosed with breast cancer on the other side. One of these six contralateral cancers was not seen on the screening mammography, but was visible on the institution's mammogram. The other five instances were discovered in a retrospective blinded review by an expert radiologist and were deemed to have been missed by the screening radiologists. During the mean follow-up period of 27.8 months, no contralateral cancers were diagnosed. The conclusion of the research was that repeating the two-view mammography of the contralateral side in individuals with a single worrisome result was unnecessary.[25]

AIMS AND OBJECTIVES
Aim:
The aim of the study is "To determine occurrence of contralateral breast cancer in patients of carcinoma breast".
Objectives:
1.	Early detection of contralateral breast cancer in patients of carcinoma breast.
2.	To evaluate risk factors of contralateral breast cancer with regard to type and site of tumor.

MATERIAL AND METHODS
Study design:
This is a prospective study.
Study setting:
The study was carried out at the surgery department in tertiary of SGRD hospital. On diagnosed cases of carcinoma breast. Sample size: 100 cases of carcinoma breast.

Data collection procedure:
The data was collected in prospective way. The study subjects involved were pre-diagnosed cases of unilateral breast cancer attending surgery OPD for routine checkup or patients admitted in wards for surgery or chemotherapy. all patients were selected randomly. After physical examination and assessment of the patients.
Diagnosed cases of unilateral carcinoma breast were screened for contralateral breast carcinoma by clinical examination, mammography, HPE of mammographically detected lump was done to confirm the diagnosis.
Diagnosed contralateral breast carcinomas were further investigated and management was done as per protocol.

Parameter measured in all patients:-
1.	Routine blood investigations–(CBC, PTI, LFT, RFT, BLOOD GROUP, SERUM ELECTROLYTES).
2.	VITALS
3.	VIRAL MARKERS
4. -	(X-RAY CHEST PA VIEW)
5.	RADIOLOGICAL INVESTIGATION-MAMMOGRAPHY
6.	USG ABDOMEN
7.	SPECIAL INVESTIGATIONS -MRI, CT CHEST, CT ABDOMEN, PET SCAN.
8.	HPE- By core needle biopsy or excision biopsy.
9.	MOLECULAR MARKERS- ER, PR, HER2NU STATUS.

Diagnosed contralateral breast carcinoma was evaluated by mammography and characteristic's of lumps were noted. together with histopathological findings and molecular studies data was compiled and compared with related studies.

Exclusion criteria
•	Already diagnosed cases of bilateral carcinoma breast.
•	Presence of edema usually affects the result of the study, as MRI cannot distinguish malignancy and edematous tissue.
•	Confirmed cases of benign breast lesion.
•	Patients with breast abscess.

DISCUSSION
In a study of 101 breast cancer cases, 4 cases were contralateral breast carcinoma (CBC). The primary breast cancer group showed the highest incidence (29.9%) in the 51-60 years age group. Other age distributions were 23.71% (41-50 years), 19.59% (30-40 years), 17.53% (61-70 years) and 9.28% (>70 years). Among CBC cases, 75% were in the 41-50 years age group, and 25% were over 70 years old. These findings are consistent with previous studies. The American Cancer Society (2023) also found a peak in breast cancer incidence among women aged 50-60 years.[28] The higher incidence of CBC in the

41-50 years age group aligns with Huo et al.[43] (2019), who reported that younger women have an elevated risk of CBC, possibly due to genetic factors and tumor biology. The persistence of CBC in older women (>70 years) supports the findings of Youlden et al.[44] (2014), emphasizing the need for ongoing surveillance across all age groups.

In our study, among the primary breast carcinoma group, 60.82% of cases were postmenopausal, 36.08% were premenopausal, and 3.09% were post-hysterectomy patients. For the contralateral breast carcinoma (CBC) group, 50% of patients were premenopausal and 50% were postmenopausal. These findings are consistent with existing literature. The higher proportion of postmenopausal women in the primary breast cancer group aligns with the American Cancer Society (2023)[28], which highlights an increased risk of breast cancer post-menopause due to prolonged estrogen exposure. The equal distribution of CBC cases between premenopausal and postmenopausal women echoes the study by Huo et al.[43] (2019), indicating that younger, premenopausal women have a significant risk for CBC, likely due to genetic factors and aggressive tumor types. The presence of CBC in postmenopausal women underscores the ongoing risk across different hormonal statuses, suggesting the need for continuous surveillance.

In our study, among the primary breast carcinoma group, 46.39% of patients were classified as P2L2 (having two pregnancies and two live births), and 40.21% were P3L3 (three pregnancies and three live births). In the contralateral breast carcinoma (CBC) group, 50% of patients were P2L2, and 50% were P3L3.

These findings are supported by previous studies that highlight the relationship between parity and breast cancer risk. Research indicates that multiparity, or having multiple full-term pregnancies, generally reduces the overall risk of breast cancer but might influence the risk of developing CBC differently. Studies such as those by Lord et al.[45] (2008) have shown that parity has a complex role in breast cancer etiology, with the protective effect against primary breast cancer not necessarily extending to the risk of CBC.

The similar distribution of P2L2 and P3L3 among CBC patients in our study suggests that parity does not significantly differentiate between those at risk for primary breast cancer versus those at risk for contralateral occurrences. This aligns with findings by Nichols et al.[46] (2011), which report that while increased parity is protective against initial breast cancer, the factors influencing CBC risk may involve other elements such as genetics and hormonal changes post-pregnancy.

In our study, among the primary breast carcinoma group, 72.63% of patients had their first child between ages 20-30, and 27.37% were under 20 years at first childbirth. In contrast, all contralateral breast carcinoma (CBC) cases were among those who had their first child between ages 20-30.

These findings are consistent with existing research on the relationship between age at first childbirth and breast cancer risk. Studies have shown that early age at first childbirth generally reduces the long-term risk of breast cancer. For instance, Rosner et al.[47] (1994) noted that women who have their first child before age 20 have a lower risk of developing breast cancer compared to those who give birth later. This might explain the lower percentage of primary breast carcinoma cases among women who had their first child before 20 years of age.

The fact that all CBC cases were in women who had their first child between 20-30 years suggests that while this age range is protective against primary breast cancer, it may not confer the same level of protection against CBC. This could be due to various factors, including the longer duration of exposure to risk factors post-childbirth and genetic predispositions. Nichols et al.[46] (2011) discuss how reproductive factors like age at first birth interact differently with the risks for primary and contralateral breast cancers, emphasizing the complexity of these relationships.

In our study, 93.33% of primary breast carcinoma cases occurred in women who experienced menopause between ages 40-50, while 6.67% were aged 50-60 at menopause. Among the contralateral breast carcinoma (CBC) group, both cases (100%) experienced menopause between ages 40-50. These findings align with previous research indicating that the timing of menopause influences breast cancer risk. Early menopause generally lowers the risk of breast cancer due to reduced lifetime exposure to estrogen. Colditz et al.[48] (1995) found that earlier menopause is associated with a decreased risk of breast cancer. The high proportion of CBC cases among women who experienced menopause between 40-50 years may suggest that this age range represents a critical period for hormonal changes influencing the risk of secondary cancers. Nichols et al.[46] (2011) emphasize the need for continued research into the effects of menopausal age on CBC risk.

In our study, among the primary breast carcinoma group, 57.89% breastfed for 1-2 cumulative years, 35.79% breastfed for 3-4 years, and 6.32% breastfed for 5-6 years. Among the contralateral breast carcinoma (CBC) group, 75% breastfed for 3-4 cumulative years, and 25% breastfed for 1-2 years. These findings are consistent with existing research indicating that breastfeeding can influence breast cancer risk. A meta-analysis by Jordan et al[49] (2006) found that longer duration of breastfeeding is associated with a modest reduction in breast cancer risk. The higher proportion of CBC cases among women who breastfed for 3-4 years suggests that longer duration of breastfeeding might confer greater protection against primary breast cancer but may not fully mitigate the risk of developing CBC. This highlights the need for further investigation into the specific mechanisms by which breastfeeding duration influences breast cancer risk, as emphasized by studies like those by Collaborative Group on Hormonal Factors in Breast Cancer (2002).[50]

In our study, among the primary breast carcinoma group, the most frequent site (50.52%) for the origin of breast carcinoma was the upper outer quadrant, followed by the lower outer quadrant (16.49%). The upper inner quadrant, retroareolar, and whole breast were involved in 14.43%, 8.25%, and 3.09% of cases, respectively. Among the contralateral breast carcinoma (CBC) group, the lower outer quadrant, upper inner quadrant, upper outer quadrant, and whole breast were involved in 25% of patients each. These findings align with previous research indicating that the upper outer quadrant is the most common site for breast cancer development. Studies such as those by Fentiman et al.[51] (2006) and Gajdos et al.[52] (2003) have reported similar distributions of breast cancer by quadrant. The involvement of different quadrants in CBC cases suggests that the risk of contralateral disease may not be limited to a specific anatomical region, underscoring the importance of comprehensive surveillance and treatment strategies.

In our study, among the primary breast carcinoma group, 73.20% of diagnosed tumors were of size 21-50mm (T2), 19.59% were of size Up to 20mm (T1), and 7.22% were of >50mm (T3). Among the contralateral breast carcinoma (CBC) group, 50% were 21-50mm (T2), 25.00% were Up to 20mm (T1), and 25% were >50mm (T3). These findings align with previous studies indicating that the majority of breast tumors are diagnosed at sizes between 21-50mm. Research by Harris et al.[53] (2005) and Fisher et al.[54] (2002) has similarly shown that T2 tumors are the most common presentation in breast cancer cases. The distribution of tumor sizes in the CBC group reflects the variability in tumor characteristics seen in contralateral disease, underscoring the importance of thorough evaluation and management of both primary and secondary breast tumors.

In our study, among the primary breast carcinoma group, chest wall involvement was observed in 2.97% of cases. However, among the contralateral breast carcinoma (CBC) group, chest wall involvement was not seen in any case. These findings are consistent with previous research suggesting that chest wall involvement is less common in contralateral breast carcinoma compared to primary breast carcinoma. Studies such as those by Mureau et al.[55] (2007) and Criscitiello et al[56] (2012) have reported similar trends, emphasizing the distinct clinical characteristics between primary and contralateral breast cancer presentations. The absence of chest wall involvement in CBC cases underscores the need for tailored treatment approaches based on tumor location and extent of disease spread.

In our study, among the primary breast carcinoma group, skin involvement was observed in 8.25% of cases. However, among the contralateral breast carcinoma (CBC) group, skin involvement was seen in 50% of cases. These findings suggest a higher likelihood of skin involvement in contralateral breast carcinoma compared to primary breast carcinoma. Studies such as those by Singletary et al.[57] (2002) and Kim et al.[36] (2011) have reported similar trends, indicating that CBC may exhibit more aggressive local manifestations, including skin involvement. The increased incidence of skin involvement in CBC underscores the importance of thorough clinical evaluation and consideration of treatment strategies tailored to the specific characteristics of contralateral disease.

In our study, among the primary breast carcinoma group, ipsilateral (left or right) axillary lymph node involvement was observed in 41.24% of patients, while ipsilateral internal mammary lymph node involvement was seen in 2.06% of patients. However, among the contralateral breast carcinoma (CBC) group, axillary lymph node involvement was seen in 75% of patients. These findings align with previous research indicating that axillary lymph node involvement is common in both primary and contralateral breast carcinoma. Studies such as those by Edge et al.[58] (2010) and Giuliano et al.[59] (2017) have reported similar trends, highlighting the significance of axillary lymph node status in breast cancer staging and treatment planning. The higher incidence of axillary lymph node involvement in the CBC group suggests a potentially more aggressive disease process in contralateral breast cancer, necessitating comprehensive evaluation and tailored management approaches.

In our study, among the primary breast carcinoma group, 94.84% of diagnosed cases were of invasive ductal carcinoma (IDC), with 3.09% being lobular carcinoma and 1.03% showing a combination of lobar and mucinous carcinoma types. Consistent with these findings, all cases (100%) of contralateral breast carcinoma were of IDC type. These results align with previous studies emphasizing IDC as the most common histopathological type of breast carcinoma. Studies by Li et al.[60] (2017) and Lakhani et al.[61] (2012) have similarly reported IDC as the predominant subtype in breast cancer cases. The uniformity of IDC type in contralateral breast carcinoma suggests a consistent histopathological pattern across primary and contralateral disease, highlighting the importance of targeted therapeutic strategies based on tumor subtype.

In our study, among the primary breast carcinoma group, 85.57% of cases exhibited hormone receptor positivity with ER+ PR+ HER2NU-VE status. Additionally, 5.15% were ER- PR- HER2NU-VE, 5.15% were ER- PR- HER2NU+VE, and 3.09% were ER+ PR+ HER2NU+VE. A smaller proportion, 1.03%, showed ER+ PR- HER2NU-VE status. Notably, all cases (100%) of contralateral breast carcinoma were characterized by ER+ PR+ HER2NU-VE status. These findings align with previous studies indicating the prevalence of hormone receptor-positive breast cancer, particularly ER+ PR+ HER2NU-VE subtype. Research by Early Breast Cancer Trialists' Collaborative Group (EBCTCG)[62] and Dowsett et al.[63] (2010) has highlighted the significance of hormone receptor status in guiding treatment decisions and predicting prognosis in breast cancer patients. The consistent hormone receptor status observed in contralateral breast carcinoma underscores the importance of hormone receptor-targeted therapies in managing both primary and contralateral disease.

In our study, among the primary breast carcinoma group, 31.96% of tumors were classified as BIRADS 5, indicating a high suspicion of malignancy, while 23.71% were BIRADS 4b, 20.62% were BIRADS 4c, and 14.43% were BIRADS 4, all suggesting suspicious findings. Additionally, 3.09% were BIRADS 3, indicating a probably benign finding, and 4.12% were BIRADS 4a, indicating a low suspicion of malignancy. Only 1.03% were classified as BIRADS 2, indicating benign findings. Contrastingly, among the contralateral breast carcinoma group, tumors were evenly distributed across BIRADS categories, with 25% each classified as BIRADS 3, 4c, 5, and 6. These results align with the BIRADS classification's utility in stratifying breast lesions based on their likelihood of malignancy. Studies such as those by Berg et al.[64] (2008) and American College of Radiology[65] (ACR) have demonstrated the effectiveness of BIRADS in standardizing breast imaging reporting and aiding in clinical decision-making. The diverse distribution of BIRADS categories in contralateral breast carcinoma underscores the variability in lesion characteristics in secondary breast tumors, emphasizing the importance of comprehensive imaging evaluation in managing contralateral disease.

In our study, among the primary breast carcinoma group, 55.67% of patients were diagnosed with carcinoma in the left breast, while 44.33% had carcinoma in the right breast. Conversely, among the contralateral breast carcinoma group, all four cases presented with carcinoma in the left breast. These findings align with previous research indicating a slightly higher incidence of breast cancer in the left breast compared to the right. Studies such as those by Lilleng et al.[66] (2001) and Lam et al.[67] (2000) have reported similar trends in breast cancer laterality. The consistent predominance of left-sided breast cancer in both primary and contralateral disease underscores the importance of understanding potential anatomical and environmental factors contributing to breast cancer development.

In our study, out of a total of 101 cases screened, 3.96% or 4 patients were diagnosed with contralateral breast cancer. These findings align with previous research indicating a relatively low incidence of contralateral breast cancer compared to primary breast cancer. Studies such as those by Malone et al.[68] (2010) and Langballe et al.[69] (2016) have reported similar rates of contralateral breast cancer occurrence in breast cancer patients. The relatively small proportion of contralateral cases underscores the importance of vigilant surveillance and management strategies for detecting and treating contralateral breast cancer in breast cancer survivors.

SUMMARY AND CONCLUSION

- In our study incidence of contralateral breast carcinoma was 3.96%.
- Majority of females in both CBC and primary breast carcinoma group were 13-14 years of age at menarche.
- Among contralateral breast carcinoma cases highest incidence was seen among 41-50 years age group, whereas in primary breast carcinoma group highest incidence was seen at 51-60year age group, indicating earlier presentation of contralateral breast carcinoma.
- All postmenopausal contralateral breast carcinoma patients were 40-50 year aged at menopause, while this age range is considered protected for primary breast carcinoma, higher incidence at this age range indicates non uniform protection against CBC.
- As most breast cancers are sporadic no patient in our study (Primary or contralateral group) has positive family history for breast carcinoma.
- Majority of patients of CBC presented with complain of breast lump followed by Mastalgia as chief complain.
- Among contralateral breast carcinoma group 50% patients were postmenopausal at the time of presentation of while in primary breast carcinoma group 60.82% patients were postmenopausal at presentation.
- In our study 50% of contralateral breast carcinoma patients were P2L2 and other 50%were P3L3. On other hand in primary breast carcinoma group 46.39% patients were P2L2 and 40.21% were P3L3 highlighting that parity may not be very protective in case of CBC as in primary breast cancer and parity doesn't significantly differentiate between those at risk of developing contralateral breast carcinoma.
- Longer duration of breastfeeding may not be protective against CBC as in primary breast carcinoma.
- In primary breast carcinoma most common site involved by breast carcinoma was upper outer quadrant, where as in contralateral breast carcinoma upper outer quadrant, lower outer, upper inner, and whole breast were equally involved (25%), indicating that CBC may not be limited to one anatomical site.
- Among contralateral breast carcinoma cases 50% of tumors were 21-50mm (T2) at the time of diagnosis. Whereas Majority of primary breast carcinoma tumors (73.20%) were 21-50mm(T2) at the time of diagnosis. Indicating variability in tumor characteristic of contralateral breast disease.
- Chest wall involvement was not seen in any case of contralateral breast carcinoma. Whereas among primary breast carcinoma group incidence of chest wall involvement was 2.93%.
- Skin involvement was seen in 50% cases of contralateral breast carcinoma whereas among primary breast carcinoma group skin involvement was seen in 8.25%. indicating more aggressive local manifestations of contralateral breast carcinoma.
- In contralateral breast carcinoma group lymph node involvement was seen in 75% patients, whereas among primary breast carcinoma group lymph node involvement was seen in 41.24%, indicating more aggressive nature of contralateral breast carcinoma.

- All cases of contralateral breast carcinoma were of invasive ductal carcinoma (IDC) type, whereas 94.84% cases of primary carcinoma of breast were of IDC type, indicating IDC to be major and uniform histopathological type of both primary and contralateral breast carcinoma.
- In patient diagnosed for contralateral breast carcinoma both primary and CBC breast were of similar HPE type (IDC).
- All cases of CBC were of ER+ve, PR+ve, Her2nu-ve subtype, whereas among PBC group 85.52%cases were of ER+ve, PR+ve, Her2nu-ve subtype indicating hormone receptor positive breast cancer to be most common sub type in both PBC and CBC.
- BIRADS 4b and above lesions are strongly associated with risk of carcinoma, therefore further evaluation is must.

It is crucial to diagnose contralateral cancer after the first diagnosis of breast cancer in order to prevent a second round of cancer treatment. Clinically, mammographically, and with MRI we may identify concealed contralateral breast cancer. Combination of approach's including clinical examination, radiological investigation, histopathological examination are must for diagnosis of carcinoma breast. Early diagnosis is known to improve survival rate. As disease spread by lymphatic and hematological route leading to distant metastasis, survival decreases and caries poor prognosis. This indicates the importance of routine breast examination and screening programs.

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