



CLINICO-PATHOLOGICAL PATTERN OF BREAST CARCINOMA IN SUB - HIMALAYAN REGION

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ABSTRACT

Background: To evaluate the spectrum of breast carcinoma and their association with presenting complains and risk factors of patients. **Methodology:** It was a cross-sectional study conducted from 1st January 2021 – 30th December 2023. A total of 50 breast specimens of patients, who were admitted in Dr. Rajendra Prasad Government Medical College with breast complaints, were included. Informed written consent was taken from all the patients. All patients with primary breast diseases were included Data noted into case record proforma, and entered into Microsoft® Excel workbook. Appropriate statistical tests were used to analyze data. **Result:** There were 50 breast lesions, histologically diagnosed. The overall mean age of patients with breast disease was 54.64 with a wide age range of 30–80 years. Duration of complaints in patients (50) were less than 6 month 28(56%) and more than 6 months 22(44%). Complaints in patients are of Lumps in breast 33 (57%), Pain in breast 27(32%), Nipple discharge 4(7%) and Nipple abnormality of breast 5(9%). Out of 50 patents thirteen were vegetarian (26%) and thirty-seven non-vegetarian (74%). Out of 50 patents we get BI-RADS IV 37(74%) and BI-RADS V 13(26%) in radiological profile. **Conclusions:** Study shows that in sub-Himalayan region females, this early presentation indicates a higher level of awareness and self-motivation among younger women regarding the symptoms related to breast disease.

KEYWORDS : Breast diseases, Clinico-pathological, Sub-Himalayan region.

INTRODUCTION:

Breast cancer is the leading cause of cancer in women around the world, accounting for one quarter of all female cancers. Breast cancer deaths in the South-East Asia region are expected to increase to 61.7% by 2040. Breast cancer is the most common cancer in India, accounting for 28.2% of all female cancers, with an estimated 216,108 cases by 2022. The age-standardized incidence rate of female breast cancer has increased by 39.1% from 1990 to 2016, and this trend has been seen in every state of India over the past 26 years [1]. Breast cancer is the most common cancer among females in urban India and is rapidly catching up with cervical cancer in rural India. [2] It has been long recognized that breast cancer is a heterogeneous disease and not a single entity. It is one of the most common carcinomas occurring in female and it is a devastating illness both physical and mentally. In India, breast cancer is the second most common malignancy among women next to carcinoma cervix. [3] Since it most commonly presents as a painless lump patient often neglect and present to hospital late. With increasing prominence and greater visibility in country specific health profiles around the world, breast cancer and its prevention detection and treatment will continue to emerge as a major priority and challenge for health system. [4] In the past 60 years the principles of surgical management of breast cancer have undergone an enormous change. With the suggestion that the behavior of a breast cancer is often the expression of systemic disease present at the time of diagnosis, surgical management of the local disease has become more conservative. [5] In developed countries, breast cancer is mainly detected on screening while as in developing countries, patients have limited access to screening, or any effective awareness programs. Consequently, patients are usually diagnosed in advanced stage. [6] Treatment of early-stage breast cancer is multidisciplinary, surgery playing a vital role followed by radiation therapy and/or chemotherapy depending on tumor size, nodal status, age of patient and histological sub-type.

For advanced disease, systemic therapy with loco-regional treatment is considered. The risk factors and clinical profile of breast cancer is important to formulate targeted risk reduction strategies [7]. There are considerable variations in risk factors and presentation of the disease region wise. Numbers of studies have been published with respect to clinical and pathological profiles of breast cancer patients from India. The major concern has been the possibility of occurrence of breast cancer. Breast cancer is usually asymptomatic in the early stages during which it is curable, this is the paradox of breast cancer.[8] Therefore, screening for breast cancer appears to be the viable option in reducing the mortality and morbidity of breast cancer.[8] Surgical evaluation of the symptomatic patients by triple assessment, namely, clinical examination of the breast, mammography, and breast biopsy for definitive histological diagnosis is required in many patients.[9]

Methodology: The study was commenced after obtaining approval from the Protocol Review and Institutional Ethics Committee. It is a prospective study. Fifty female patients above the age of 13 years, of different socio-economic status with symptomatic breast disease attending the General Surgery Outpatient department of general surgery, Dr. Rajendra Prasad Government Medical College, Kangra at Tanda, District Kangra, Himachal Pradesh, India. Informed consent of the patient was obtained. Detail clinical history in relation with risk factors like age, gravida, complaints, smoking and duration. The patient was subjected to Triple assessment through clinical examination, imaging techniques comprising of USG, Mammogram and histopathological studies. The patient's data, mammography/ USG of breast findings and Fine Needle Aspiration Cytology or histopathology reports were collected. These data and reports were arranged on a dedicated spread sheet for personal computer input and subsequent analysis.

Quality Assurance: All the study group females were assessed

by the surgeons clinically. In case of doubt or expert opinion, the guidance and opinions of senior faculty was obtained. Mammography or Breast ultrasound reports were reported by the radiologist. To prevent any observers bias, a second opinion was obtained by another radiologist. The FNAC and Histopathological reports given by the pathologists used also verified by the second pathologist to avoid observers bias.

RESULT:

This study examines the clinico-pathological profile of breast disease among 50 female patients. Who attended the surgical outpatient department at Dr. Rajendra Prasad Government Medical College, Kangra at Tanda. The key findings are summarized below based on various parameters studied, Age distribution of the patients range between 35- 79 year. Mean age of our study is 54.64, Out of 50 patients, 29 (58%) were literate and 21 (42%) were illiterate, Duration of complaints in patients (50) were less than 6 month 28(56%) and more than 6 months 22(44%). Complaints in patients are of Lumps in breast 33 (57%), Pain in breast 27(32%), Nipple discharge 4(7%) and Nipple abnormality of breast 5(9%) table no2. Out of 50 patents thirteen were vegetarian (26%) and thirty-seven non-vegetarian (74%). Out of 50 patents we get BI-RADS IV 37(74%) and BI-RADS V 13(26%) in radiological profile. Menarche of 50 patients, 18 (36%) had menarche at age 9-12, 12 (24%) at age 10-13, and 10 (20%) at age 14-17. Menopause of 50 patients, 5 (10%) were non-menopausal, 20 (40%) reached menopause at age 47-55, and 25 (50%) at age 55-57. Obstetrical history 50 patients, 3 (6%) were gravida 0, 15 (30%) were gravida 1, 18 (36%) were gravida 2, 10 (20%) were gravida 3, and 4 (8%) were gravida 4. In our study, 17 (34%) breastfed for 3-6 months, 15 (30%) for 6-9 months, 10 (20%) for 9-12 months, and 8 (16%) for 1-2 years. We had 15 (30%) were OCP users and 35 (70%) were non-users. In our study we found 40 invasive ductal cell carcinoma (80%) and 10 (20%) invasive lobular cell carcinoma (20%) Table no1.

Table 1: Clinico-Pathological variables of breast disease

S.N.	Variables	Frequency	Percentage	Mean age
1.	Age	50		54.64
2.	Literacy	a)Literate b)Illiterate	29 21	74 26
3.	Diet	a)Vegetarian b)Non-Vegetarian	13 37	26 74
4.	Obstetrical Profile	Age at Menarche a)9-12years b)10-13 years c)14-17 years Age at Menopause a)Non-M b)47-55 years c)55-57 years No. of Gravida a)0 b)01 c)02 d)03 e)04 Duration of Breast a)3-6 Months b)6-9 Months c)9-12 Months d)1-2 years	18 12 10 05 20 25 03 15 18 10 04 17 15 10 08	36 24 20 10 40 50 6 30 36 20 8 34 30 20 16
5.	Radiological Profile	a)BI-RADS IV b)BI-RADS V	37 13	80 20
6.	Histopathological	a)Inv. Ductal Cell Carcinoma b)Inv. Lobular Cell Carcinoma	40 10	80 20

Table 2: Represents presenting complains of patients of breast disease.

S.N.	Variables	Frequency	Percentage
7.	Duration of Complaints	>5 Months <5 Months	22 28
8.	Complaints	Lumps Pain Nipple Discharge Nipple abnormality	33 08 04 05
			57 27 7 9

DISCUSSION:

The age distribution of breast cancer patients in this study ranges from 35 to 79 years, with a mean age of 54.64 years. This finding aligns with global epidemiological data indicating that breast cancer predominantly affects older women. According to the American Cancer Society (ACS), the median age of breast cancer diagnosis in the United States is 62 years. Similar trends have been observed in other regions, underscoring the importance of age as a significant risk factor for breast cancer. Younger patients in this study presented for clinical examination earlier than older patients, suggesting higher levels of awareness and proactive health-seeking behavior among the younger cohort. This trend is encouraging, as early detection is crucial for improving breast cancer outcomes. Studies have shown that younger women are more likely to engage with health education programs and utilize screening services, leading to earlier diagnosis and better prognosis (Okobia et al., 2006).[10]

The duration of symptoms before seeking medical attention varied among the participants, with 28 patients reporting symptoms lasting more than five months and 22 reporting less than five months. Delayed presentation is a common issue in breast cancer management, particularly in low socio-economic settings where barriers to healthcare access are prevalent. These barriers include financial constraints, lack of transportation, limited availability of healthcare services, and sociocultural factors such as stigma and fear of diagnosis.

Studies have shown that delayed presentation is associated with more advanced disease at diagnosis and poorer outcomes. For instance, a study by Richards et al. (1999) found that delays in presentation and treatment were linked to decreased survival rates in breast cancer patients. Addressing these barriers through community outreach programs, patient navigation services, and policies aimed at reducing healthcare costs is essential for improving early detection and treatment outcomes.[11]

The majority of participants in this study (37 out of 50) were non-vegetarian, which is an important aspect to consider in relation to breast cancer risk. Dietary factors have been implicated in the etiology of breast cancer, with several studies suggesting that high intake of animal fats, red meat, and processed foods may increase the risk of developing breast cancer. For instance, a study by Sieri et al. (2004) found a positive association between dietary fat intake and breast cancer risk in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort.[12]

Conversely, diets rich in fruits, vegetables, and whole grains have been associated with a reduced risk of breast cancer. The protective effects of these foods are thought to be due to their high content of antioxidants, fiber, and phytochemicals, which can help reduce oxidative stress and inflammation, two key processes involved in cancer development. Early menarche and late menopause are well-established risk factors for breast cancer, primarily due to the prolonged exposure to estrogen that these conditions entail. Estrogen plays a critical role in the development and progression of breast cancer by promoting the growth of hormone-receptor-

positive breast cancer cells. A study by the Collaborative Group on Hormonal Factors in Breast Cancer (2012) found that women who experienced menarche before the age of 12 and menopause after the age of 55 had a significantly increased risk of breast cancer compared to those with later menarche and earlier menopause.

In this study, 18 participants experienced menarche between 9-12 years, and 25 participants experienced menopause between 55-57 years. These findings suggest that a significant proportion of the cohort was exposed to prolonged estrogen exposure, potentially increasing their risk of developing breast cancer.

The biological mechanisms linking early menarche and late menopause to increased breast cancer risk are complex and multifaceted. Estrogen promotes cell proliferation in the breast tissue, increasing the likelihood of genetic mutations and the development of cancerous cells. Additionally, prolonged exposure to estrogen can lead to increased density of breast tissue, which is a known risk factor for breast cancer. Other factors, such as the interplay between estrogen and other hormones (e.g., progesterone, insulin-like growth factor), genetic predispositions, and environmental exposures, also contribute to the overall risk profile. Understanding these mechanisms is crucial for developing targeted prevention and treatment strategies.[13]

Comparative studies across different populations have consistently shown that early menarche and late menopause are associated with increased breast cancer risk. For example, a study by Clavel-Chapelon (2002) in the French E3N cohort found that early menarche and late menopause were significant risk factors for breast cancer, with the risk being highest among women who experienced both early menarche and late menopause. Similar findings have been reported in studies from the United States, Europe, and Asia, highlighting the universal nature of these risk factors.[14]

The reproductive history of women, including parity and age at first childbirth, has a significant impact on breast cancer risk. Nulliparity (having no children) and late age at first childbirth have been associated with an increased risk of breast cancer.

Studies have shown that full-term pregnancies have a protective effect against breast cancer. This protective effect is thought to be due to the differentiation of breast cells during pregnancy, which makes them less susceptible to cancerous changes. Additionally, pregnancy induces hormonal changes that may reduce the lifetime exposure to estrogen, further increasing the risk of breast cancer.

The impact of abortions on breast cancer risk is a contentious issue, with studies yielding mixed results. Some studies suggest that induced abortions may slightly increase the risk of breast cancer, while others have found no significant association. A meta-analysis by Beral et al. (2004) concluded that induced abortions do not increase the risk of breast cancer. However, the high number of abortions and low parity in this study could contribute to the increased risk profile for breast disease, as women who do not complete full-term pregnancies may miss out on the protective effects associated with childbirth.[15]

Breastfeeding has been shown to have a protective effect against breast cancer, with longer durations of breastfeeding conferring greater protection. The mechanisms underlying this protective effect include the reduction of lifetime exposure to estrogen, the physical expulsion of carcinogens from the breast through milk, and the promotion of cellular differentiation in breast tissue.

In this study, breastfeeding duration varied, with most women breastfeeding for less than a year. The relatively short breastfeeding duration observed in this cohort might be a contributing factor to the prevalence of breast disease. A meta-analysis by the Collaborative Group on Hormonal Factors in Breast Cancer (2002) found that the risk of breast cancer decreased by 4.3% for every 12 months of breastfeeding.

The use of hormonal medications hormone replacement therapy (HRT), has been an increased risk of breast cancer. In this study, 21 used HRT. Both OCPs and HRT have been linked to an increased risk of breast cancer, particularly with prolonged use.

A study by the Collaborative Group on Hormonal Factors in Breast Cancer (1996) found that current or recent users of OCPs had a slightly decrease risk of breast cancer, with the risk decreasing after cessation of use. Similarly, a study by Chlebowski et al. (2003) found that the use of combined estrogen-progestin HRT was associated with an increased risk of breast cancer. [13,16]

While the use of hormonal medications can increase the risk of breast cancer, it is important to conduct a risk-benefit analysis when considering these treatments. OCPs and HRT have significant benefits, including contraception, management of menopausal symptoms, and prevention of osteoporosis. Healthcare providers should discuss these risks and benefits with patients to make informed decisions based on individual risk profiles and health needs.

For instance, non-hormonal alternatives for managing menopausal symptoms and other conditions should be considered for women at high risk of breast cancer. Personalized medicine approaches that tailor treatments to individual risk factors and preferences can help mitigate the risk of breast cancer associated with hormonal medications.

Conclusions: This early presentation indicates a higher level of awareness and self-motivation among younger women regarding the symptoms related to breast disease. From this study it is inferred that there is an increase in the incidence of the Breast cancer in this region and early diagnosis and treatment is the key to reduce the morbidity and mortality.

Competing interests:

The authors declare that they have no competing interests.

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