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**Incidence of Breast Cancer in Patient Presented with Breast Pain**

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**Abstract**

This retrospective cohort study reviews the number of GP referrals for breast pain to the ELM ward breast clinics at King George Hospital, Ilford, between 1st February 2023 and 1st May 2023, who were proven to have breast cancer .

**Aim of the study:** We aimed to evaluate the prevalence of breast cancer diagnoses among these referrals, Data was collected from the multidisciplinary team outcomes, GP letters, and consultant's letters. In total, 1,721 patients were referred with breast pain, and 17 new breast cancer diagnoses were made during this period. The findings suggest a low incidence of breast cancer among patients presenting with breast pain.

**Introduction**

Breast pain (mastalgia) is experienced by  $\leq 70\%$  of women during their lifetime[1] and may be considered a physiological symptom rather like painful menses, but remains a common presentation in primary care. Despite an absence of evidence suggesting that mastalgia alone is associated with breast cancer, it is still commonly referred to secondary care breast units — in one study it accounted for 41% of referrals.[2]

Breast pain is a common complaint among patients presenting to primary care, but it is not always indicative of a serious underlying condition. Contributing factors such as caffeine, iodine deficiency, and dietary fat intake have been suggested, but no link definitively proven.[3]

Non-cyclical breast pain accounts for around one-third of patients with true mastalgia [4]. This study investigates the number of GP referrals to the ELM ward breast clinics at King George Hospital for the presentation of breast pain and the subsequent diagnosis of breast cancer. Understanding this relationship is important for improving clinical decision-making and patient care. This paper explores the incidence of breast cancer diagnoses in this cohort and analyses the clinical and radiological investigation methods employed.

**Materials and Methods**

**Study Design:** This retrospective observational study analysed the breast cancer diagnoses among patients presented with breast pain who were referred to the ELM ward breast clinics at King George Hospital, Ilford, between 1st February 2023 and 1st May 2023.

**Patient Selection:** A total of 1,721 patients were referred with breast pain during the study period. All patients underwent clinical breast examinations and were evaluated with radiological investigations, including mammography and ultrasound, either alone or in combination.

**Data Collection:** The data were sourced from patient records, including GP referral letters, consultant letters, and multidisciplinary team (MDT) outcomes. All diagnoses of new breast cancer were confirmed via MDT outcomes. Symptoms, such as breast pain, were identified from the referral and consultant

letters.

**Statistical Analysis:** Descriptive statistics were used to analyse the data, with specific attention paid to the number of breast cancer diagnoses, age distribution, and cancer grade. The total number of referrals, diagnoses, and other outcomes were tallied and reported.

## Results

### Patient Demographics

A total of 8,039 patients were seen in the breast clinics during the study period. Of these, 1,721 patients (21.4%) were referred with breast pain.

### Breast Cancer Diagnosis

A total of 17 new breast cancer diagnoses were made in this cohort, representing a 1% cancer detection rate in patients presenting with breast pain.

### Age and Cancer Diagnosis

The mean age of patients diagnosed with breast cancer was 52.6 years.

Of the 17 cancer cases, 6 were under the age of 50, with a mean age of 40.6 years. The breakdown of these cases included:

- 1 case of Ductal Carcinoma In Situ (DCIS)
- 2 cases of Grade 2 cancer
- 2 cases of Grade 3 cancer (one aged 31, the other 40)
- 1 case of Grade 1 cancer

### Other Diagnoses

In addition to breast cancer, 5 other diagnoses were made, although these were non-cancerous. The full range of diagnoses is detailed in the supplementary data.

## Discussion

This study aimed to explore the incidence of breast cancer in patients referred with breast pain to a dedicated breast clinic. With 1,721 referrals over a 3-month period, the cancer detection rate of 1% aligns with previous studies suggesting that the majority of patients with breast pain do not have cancer.

Notably, 6 out of the 17 new cancer diagnoses were in patients under the age of 50, which is relatively high given the overall low incidence of breast cancer in younger patients. This emphasizes the importance of continued vigilance and investigation in younger women presenting with breast pain, particularly since breast cancer in younger patients can sometimes be more aggressive.

The presence of both DCIS and various cancer grades in this cohort highlights the diverse spectrum of breast cancer that may present with non-specific symptoms like breast pain. These findings further underline the importance of comprehensive screening, including clinical examination and imaging, even in cases where cancer seems unlikely.

## Strengths and Limitations

The strength of this study lies in the relatively large sample size and its ability to focus on a specific patient group (i.e., those referred for breast pain). However, the study's retrospective nature and reliance on existing medical records may limit its generalizability. Additionally, we only analysed patients who attended the clinic, which may exclude some individuals who were referred but did not follow through with the referral.

## Conclusion

This review highlights the low incidence of breast cancer in patients referred for breast pain, with 17 new diagnoses out of 1,721 referrals. This study shows that referring women with breast pain to a breast diagnostic clinic is an inefficient use of limited resources.

Patients presenting with pain as an isolated symptom, having been carefully assessed in Primary Care, may yield little benefit in repeat clinical examination by a Breast Specialist. Direct to test with mammography could be safe, effective and efficient alternative practice

Future studies could further explore the role of specific radiological or clinical features in predicting malignancy in patients presenting with breast pain, with a focus on refining referral criteria to optimize early cancer detection.

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