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Original Research Article

# Extensive Intraductal Component (EIC) Positive Carcinoma of Breast-Four Years' Experience at a Cancer Centre

**Dr. Noushad Aryadan[1], Dr. Sangeetha K Nayanar[1], Dr. Aswathi Krishnan[1], Dr. Sithara Aravind[1], Dr. K.J. Philip[1], Dr. Adarsh. D[2], Dr. Joneetha Jones[3]**
[1]Department of Oncopathology, [2]Department of Oncosurgery, [3]Department of Radiotherapy
Malabar Cancer Centre-Thalassery, Kerala, India

***Corresponding author**
Dr. Noushad Aryadan
Email: noushadaryadan@gmail.com

**Abstract:** Extensive intraductal component positive carcinoma (EICPC) of breast is a well defined entity. Nevertheless few data exist concerning their characteristics and prognostic behaviour. Our objective was to describe clinicopathological and prognostic features of EICPC. This is a retrospective single centre study. All the 26 patients with a histopathological diagnosis of EICPC listed in our institutional data base during the period of 2013 to 2016 were included in this study. Age of patients ranged from 30 to 67 years with median age of 48 years and 15 patients (58%) were postmenopausal. Most of the cases (69%) were negative for hormone receptor expression (ER, PR) and positive for HER2 (85%). Regarding pathological staging most of the cases were pT1a (58%) and pNo(77%). Invasive component was 10% or less of the total area of tumor in 19 cases (73%). Maximum size of invasive component was 1cm or less for 20 (77%) cases. Surgical margins were free in 24 cases (92%). Mean duration of follow up was 21months and with exception of 1 case, for which we lost follow up, all other cases are under regular follow up and are doing well.
**Keywords:** Extensive intraductal component (EIC), Breast carcinoma.

## INTRODUCTION

Carcinoma of the breast is the second most common carcinoma in females in India. It is conventional to subdivide carcinoma of the breast into two main pathologic categories, in situ carcinoma and invasive carcinoma. Ductal Carcinoma in Situ (DCIS) is defined as a proliferation of malignant epithelial cells in parenchymal structures of the breast and is distinguished from invasive carcinoma by the absence of microscopic stromal invasion across the limiting basement membrane. Invasive ductal carcinoma (IDC) is the most common type of malignancy arising from the breast parenchyma, comprising more than 70% of the invasive breast tumors [1]. Examination of invasive ductal carcinoma (IDC) reveals an intraductal component in 50% to 80% of pathologic studies and the assessment of its extent is highly subjective.

Extensive intraductal component positive carinoma (EICPC) is defined as [2]

**A.**

- ≥25% of the area within the invasive carcinoma is ductal carcinoma in situ (DCIS) and
- DCIS is also present outside the area of invasive carcinoma

**B.**

EICPC also include carcinomas in which DCIS is associated with a "small" (approximately 10 mm or less) invasive carcinoma or carcinomas

It has been postulated that in patients with infiltrating ductal breast cancer treated with conservative surgery and radiotherapy, the presence of an extensive intraductal component (EIC) in the initial excision specimen is highly associated with subsequent recurrence. EIC positive carcinomas represent almost 5% of breast cancer, but few data exists concerning their characteristics and prognostic behaviour.

In this study we aim to describe clinicopathological, immunophenotypical hormonal and survival features of EIC positive carcinoma of breast.

## MATERIALS AND METHODS

This is a retrospective single centre study. All patients with a histopathological diagnosis of EIC positive carcinoma of breast listed in our institutional data base during the period of 2013 to 2016 were

included in this study. All the other types of invasive carcinomas with or without in situ component which are not fitting to the definition of EIC positive cancer were excluded.

## OBSERVATIONS AND RESULTS

26 cases of EICPC from 2013 to 2016 were included in the study. Age of patients ranged from 30 to 67 years with median age of 48 years. 15 patients (58%) were postmenopausal. Most common mammogram finding was microcalcification (54%).Majority of the cases were clinical stage T2 (73%) and node negative - cN0 (77%).

**Table-1: clinical features of EIC positive carcinoma**

| Clinical features (n-26) | | |
|---|---|---|
| Age median, years(min-max) | | 48.15(30-67) |
| Menopausal women | | 57.7% |
| Mammogram | microcalcification | 53.8% |
| | irregular hypoechoic lesion | 30.8% |
| | irregular spiculation | 15.4% |
| Clinical stage | cT2 | 73.1% |
| | cT3 | 23.1% |
| | cT1 | 3.8% |
| Clinical node status | cN0 | 76.9% |
| | cN1 | 23.1% |

23 cases underwent radical surgery while rest 3 underwent conservative surgery. 2 cases received neoadjuvant chemo. The disease was bilateral in one case (synchronus disease). One of the cases was found to be arising from lactating adenoma.

Regarding pathological tumor size 15 cases (58%) were pT1a followed by pT2 (5 cases). 20 (77%) cases were pathologically node negative (pN0). Invasive component was less than 10% of the total area of the tumor in 24 cases (92%). Maximum size of invasive component was 1cm or less for 20 (77%) cases. In situ component was intermediate to high grade DCIS in almost all cases and solid pattern with comedo type necrosis was the most common pattern observed. Vascular invasion and perineural invasion was seen in one case each.

**Table-2: Pathological features of EIC positive carcinoma**

| Pathological features | | | | |
|---|---|---|---|---|
| Pathological tumor size (pT) | pT1mi | 2 | Vascular invasion | Absent 25 |
| | pT1a | 15(57.7%) | | Present 1 |
| | pT1b | 2 | Perineural invasion | Absent 25 |
| | pT1c | 2 | | Present 1 |
| | pT2 | 5 | Surgical margins | Free of tumor 24 |
| Pathological node status(pN) | pN0 | 20(76.9%) | | Involved by the tumor 2 |
| | pN1a | 3 | Estrogen Receptor(ER) | Positive 8 |
| | pN2a | 2 | | Negative 18 |
| | pN3a | 1 | Progesterone receptor (PR) | Positive 8 |
| % of invasive component | <5 | 19(73%) | | Negative 18 |
| | 6-10 | 5 | Her2neu | Negative 1 |
| | >10 | 2 | | Equivocal 3 |
| % of in situ component | 25-50 | 2 | | Positive 22 |
| | >50% | 24 | | |
| Max. dimension of invasion | 10mm or less | 24 (92%) | | |
| | >10mm | 2 | | |

Most of the cases (69%) were negative for hormone receptors expression (ER, PR) and positive for HER2 (85%). Surgical margins were free in 24 cases (92%). Mean duration of follow up was 17 months and with exception of 1 case, for which we lost follow up, all other cases are under regular follow up and are doing good.

Fig-1, Gross photograph showing Growth with punctate necrosis

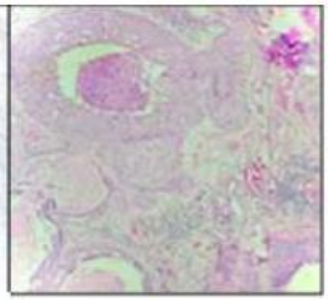

Fig-2, DCIS with microinvasion

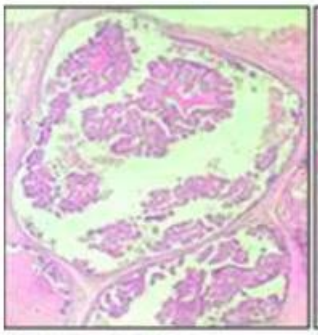

Fig-3, Micropapillry DCIS

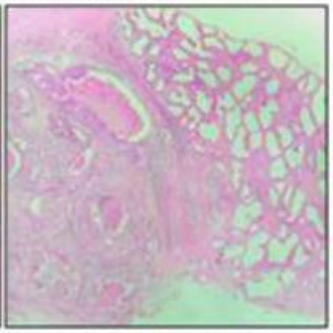

Fig-4,DCIS with lactating adenooma

## DISCUSSION

In this study we analyzed 26 cases of EICPC reported from our institution during 2013 to 2016.Median age at diagnosis was 48 years and most of our patients were postmenopausal. This is in contrast to previous studies in which it was found that premenopausal women with invasive breast cancer have a markedly higher rate of tumor with EIC [3].

Most common mammogram finding was microcalcification. Similar results have been reported in previous studies by E.A Healey *et al*. [4].

Majority of our cases were clinically cT2 while pathologically pT1a. This discrepancy is well explained because pathological tumor size is only for invasive component, which was less than 10mm for majority of the cases. Studies have shown that higher tumor stage associated with less pronounced intraductal component.

In situ component was intermediate to high grade DCIS in almost all cases. Though we got all types of intraductal components, solid pattern with comedo type necrosis was the most common pattern observed.

Invasive component was less than 10% of the total area of the tumor and maximum size of invasive component was 1cm or less for majority of cases. That is majority of cases belongs to second part of definition (B) of EICPC.

Lymphnode metastasis was seen only in very few cases. This is as expected because lower the stage of the disease lesser will be the chance for nodal metastasis and most of our cases were pT1a.

Regarding ER PR and Her2, majority of our cases were ER PR negative and Her2 positive. X Jing *et al*. [5] in their study has shown that there is no major difference in ER positivity between EICPC and other invasive carcinomas. A high concordance of ER PR expression in intraductal and invasive areas was found in our study

It is very difficult to predict patient's prognosis by histological pattern alone because carcinoma of breast is biologically and morphologically heterogeneous. The presence of an intraductal component has been reported to be a very important risk factor for local recurrence after breast conserving therapy. So assessment of marginal intraductal component is crucial in these cases. EIC positive carcinomas are described to be associated with residual islands of intraductal carcinoma in the breast after conservative surgery [6, 7]. The 10-year local recurrence rate was reported to be 33-35% in patients with EIC and 3% to 8% in those without EIC [8-10]. Nevertheless, EIC-positive cancers have been described to be less aggressive, displaying similar rates of contralateral breast cancer and distant metastases than patients with EIC-negative cancers [11, 12]. Surgical margins were tumor free in majority of our cases and with exception of 1 case, for which we lost follow up, all other cases are under regular follow up and are doing good.

## CONCLUSIONS

Extensive intraductal component (EIC) positive carcinoma of breast is an uncommon entity with usually low pathological stage, lower rate of lymphnode metastasis, ER, PR negativity and Her2 positivity. Resection margin clearence is always a concern. Prognosis is good if adequate margin clearance is attained during surgery.

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