



ORIGINAL RESEARCH PAPER

Oncopathology

A STUDY OF PERINEURAL AND LYMPHOVASCULAR SPACE INVASION IN INVASIVE CARCINOMA BREAST PATIENTS

KEY WORDS: Breast carcinoma, perineural invasion, Lympho vascular space invasion, prognosis in carcinoma breast

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ABSTRACT

OBJECTIVES: To know the Perineural and lymphovascular space invasion in early operable breast cancer patients since these are prognostic factors in patient's invasive carcinoma breast.

Methods: In this present study, Perineural and lymphovascular space invasion was studied pathologically in post-mastectomy specimens in 134 patients.

RESULTS: In this study, 6 (4.48%) patients had perineural invasion and 2 (1.49%) patients had only perineural invasion without lymphovascular space invasion. 19(14.18%) patients had lymphovascular space invasion and 15 (11.2%) patients had lymphovascular space invasion alone without perineural invasion. 4(3%) patients had both lympho vascular space invasion alone and perineural invasion.

CONCLUSION: Lympho vascular space invasion, which impact the prognosis adversely, is present in 15% of the patients with invasive carcinoma breast.

INTRODUCTION:

Invasive breast cancer is the most commonly occurring cancer in female patients all over the world. Patients were presented for treatment in late stages in the past. Now with increasing awareness, they are coming treatment early. T (tumor), N (node), M (metastasis) classification is used now for staging in these patients. Lympho vascular space invasion (LVSI) (2, 3) is a poor prognostic feature in Invasive breast cancer. Perineural invasion (PNI), a sign of aggressive behavior potential in other tumor systems, is less frequently observed in mammary carcinoma and hence has been less well studied. This study was conducted to know the frequency of PNI and LVSI in mammary carcinoma and to describe the relationships between PNI, tumor characteristics like grade and nodal status.

MATERIALS AND METHODS.

Records of 134 Consecutive modified Radical Mastectomies were analyzed. These mastectomies were done for early operable breast cancer patients with mobile axillary lymph nodes or clinically node negative disease. Mastectomy after Neo-adjuvant chemotherapy, Palliative Mastectomy and Mastectomy in Stage 4 patients were excluded. After Mastectomy, careful Bench dissection of axillary nodes were done immediately after surgery by operating surgeon in the operation theatre itself with good light. With careful palpation and dissection of axillary fat, Breast tail, all palpable nodes were completely removed, put into the container with formalin and send to the pathologist with proper labeling, history and requisition.

RESULTS:

Incidence of LVSI and PNI

Out of 134 patients, 6 (4.48%) patients had PNI. Out of which, 2 patients had only PNI and 4 patients had PNI and LVSI. 19 (14.18%) patients had LVSI. Out of which, 15 patients had only LVSI. (table1).

Study by Soma Ghosh Karak et al (1) in 2010 (Table 2) showed, out of 1136 patients, 146(12.9%) patients had LVSI (our study 14.18%) and 13(1.14%) patients had PNI(our study 4.48%)

Table 1:- Incidence of PNI and LVSI

	PNI alone	PNI TOTAL	LVSI ALONE	LVSI TOTAL	BOTH PNI&LVSI
No of patients	2	6	15	19	4
TOTAL PTIENT STUDIED	134	134	134	134	134

% OF OCCURRENCE	1.49%	4.48%	11.2%	14.18%	3%
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Table 1:- Incidence of PNI and LVSI: This study Vs Soma Ghosh Karak et al 2010

	TOTAL PATIENTS	Present study POSITIVE	Present study %	TOTAL PATIENTS	Soma Ghosh Karak et al.	Soma Ghosh Karak et al. %
LVSI	134	19	14.18%	1136	146	12.9%
PNI	134	6	4.48%	1136	13	1.14%

LVSI and Age distribution

Out of 136 of patients, 13(72.4%) (Table 3) patients are in the age group of 40 to 60years. Only one patient is age below 40 years.

Table 3:- LVSI and Age distribution

Age	NO OF PATIENTS	PERCENTAGE
<40	1	5.26%
40-<50	6	35.60%
50-<60	7	36.80%
60-<70	2	10.52%
>70 AND MORE	3	15.79%
Total	19	100%

Table 4:- LVSI and Grade of tumor - comparison

Grade of tumour	No of Patients	Percentage
Grade 1	2	10.79%
Grade 2	16	84.21%
Grade 3	1	5.26%
Total	19	100%

Table 5:- LVSI and Nodal Stage - comparison

Nodal stage	No of Patients	Percentage
N0 disease	2	10.53%
N1 Disease	3	15.79%
N2 Disease	9	43.37%
N3 Disease	5	26.32%
Total	19	100%

LVSI and grade of tumor and Nodal stage

Out of 19 patients with LVSI, most of the patients, 16 (84.21%) patients had grade 2 tumor. 17(89.47%) patients had node positive disease

DISCUSSION:

Breast cancer peaks in the age of 50 - 60 Years and three fourth

of patients are 40-70 years old. Even though 40% present with NO disease, still 60 % of patients had Node positive disease. Significant percentage of Patients (37.3%) had TNM stage 3 disease indicating locally advanced breast cancer with poor prognosis. Patients with LVSI are associated with local recurrence and reduced survival [4]. Significant percentage (14.18%) (19 out of 136) of patients had Lympho-vascular space invasion indicating poor prognosis. In this, 17 out of 19 patients with LVSI had nodal metastases indicating LVSI is the predictor of Nodal metastases.

Perineural invasion (PNI) is infrequently observed in invasive breast carcinoma, occurring in approximately 1% of cases, perhaps in part because nerves of notable size are not numerous in mammary tissues. Tumor characteristics associated with PNI include higher T-stage, higher tumor grade and LVSI. In our study PNI was 4%. It tends to occur in high-grade tumors, where it is frequently associated with LVSI, but it has not been proven to have independent prognostic significance [5-8].

CONCLUSION:

LVSI is the predictor of Nodal metastases, so indicator of poor prognosis. PNI is a relatively rare histological feature in invasive breast carcinoma occurring 10 times less frequently than LVI, its role as an independent poor prognostic feature remains questionable. Our patients need early detection to improve prognosis and survival by way of health education, awareness regarding breast cancer and screening.

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CONFLICT OF INTERESTS

Declare none

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