

APPLICATION OF IMMUNOPEROXIDASE TECHNIQUE FOR DETECTION OF OESTROGEN RECEPTORS IN BREAST CANCER TISSUE

Pages with reference to book, From 64 To 66

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Abstract

Oestrogen receptors (ER) status of 50 cases of carcinoma breast was determined with peroxidase antiperoxidase (PAP) technique, on paraffin embedded tissue. 30/50 cases were ER +ve and 20/50 were ER-ve. After an 18 months follow up there was a significant difference in the survival of ER+ve and ER-ve cases with the former doing much better. This has prognostic significance. Routine use of ER detection by this method can be of great assistance to the clinician treating carcinoma breast (JPMA 36: 64 ,1988).

INTRODUCTION

Carcinoma of the breast is the commonest malignant tumour among the females in Pakistan^{1,2}. The presence of oestrogen receptors in tumour cells is of prognostic significance and important in planning therapy³. Uptil now the methods for the demonstration of oestrogen receptors were biochemical. These methods are costly, cumbersome and require expensive laboratory set up.^{4,5} With the introduction of Immunoperoxidase technique an alternate method of demonstration of oestrogen receptors in formalin fixed paraffin embedded tissue has been shown to be successful. By comparative studies it has been proven that this new method has several advantages over the biochemical assay technique. It is claimed that immunoperoxidase method is simpler, easier to perform, less time consuming and cheaper as compared with the assay method.⁴⁻⁶

PURPOSE OF STUDY

The purpose of this study was to demonstrate the applicability of immunoperoxidase staining technique for demonstration of oestrogen receptors in formalin fixed paraffin embedded breast carcinoma tissue under local conditions.

MATERIALS AND METHOD

The material of this study consisted of paraffin blocks of 50 diagnosed cases of breast carcinoma. Normal female breast tissue was taken as control. Carcinoma cases were from age 25 to 78 years and of various histological types. The tissue was formalin fixed and paraffin embedded after routine processing. The staining for oestrogen receptors detection was done with immunoperoxidase kit provided by Orthodiagnosics. Only those cases were considered positive for oestrogen receptors which showed reddish brown, granular staining present in the cytoplasm or intranuclear or both. The intensity of staining was graded from + to ++++. Area of positively stained cells was roughly calculated as percentage of the total area of the section. After eighteen months the follow up status of these 50 cases was taken from the files of the patient in the department of Radiotherapy. The results were calculated with life table method as described in the WHO Handbook for Reporting Results of Cancer Treatment

(1979)7. The significance of the difference (p value) between ER +ve and ER — ye cases was calculated by the “Z” table method.

OBSERVATIONS AND RESULTS

Out of 50 cases, 30 were stained positive for oestrogen receptors and 20 were negative. The positive cases included 21 invasive ductal, 4 invasive lobular, 2 mucinous and one each from medullary, papillary and scirrhous carcinoma. Out of 50 carcinoma cases 31 were premenopausal and 19 postmenopausal. 14/31 premenopausal were oestrogen receptor positive while 16/19 postmenopausal were oestrogen receptor positive. More cellular tumours were less oestrogen receptor positive and vice versa. In 30 cases, ER was positive. During the 18 months interval 8 had died and 18 were lost to follow up after variable periods. Of the 4 who survived for 18 Months, one had disease while the other 3 were disease free. In 20 cases, ER was negative. During the 18 months interval 7 had died and 11 were lost to follow up after variable periods. Of the 2 cases who survived for 18 months one had disease and one was disease free. The cumulative proportions of surviving at each follow up interval are shown in figure.

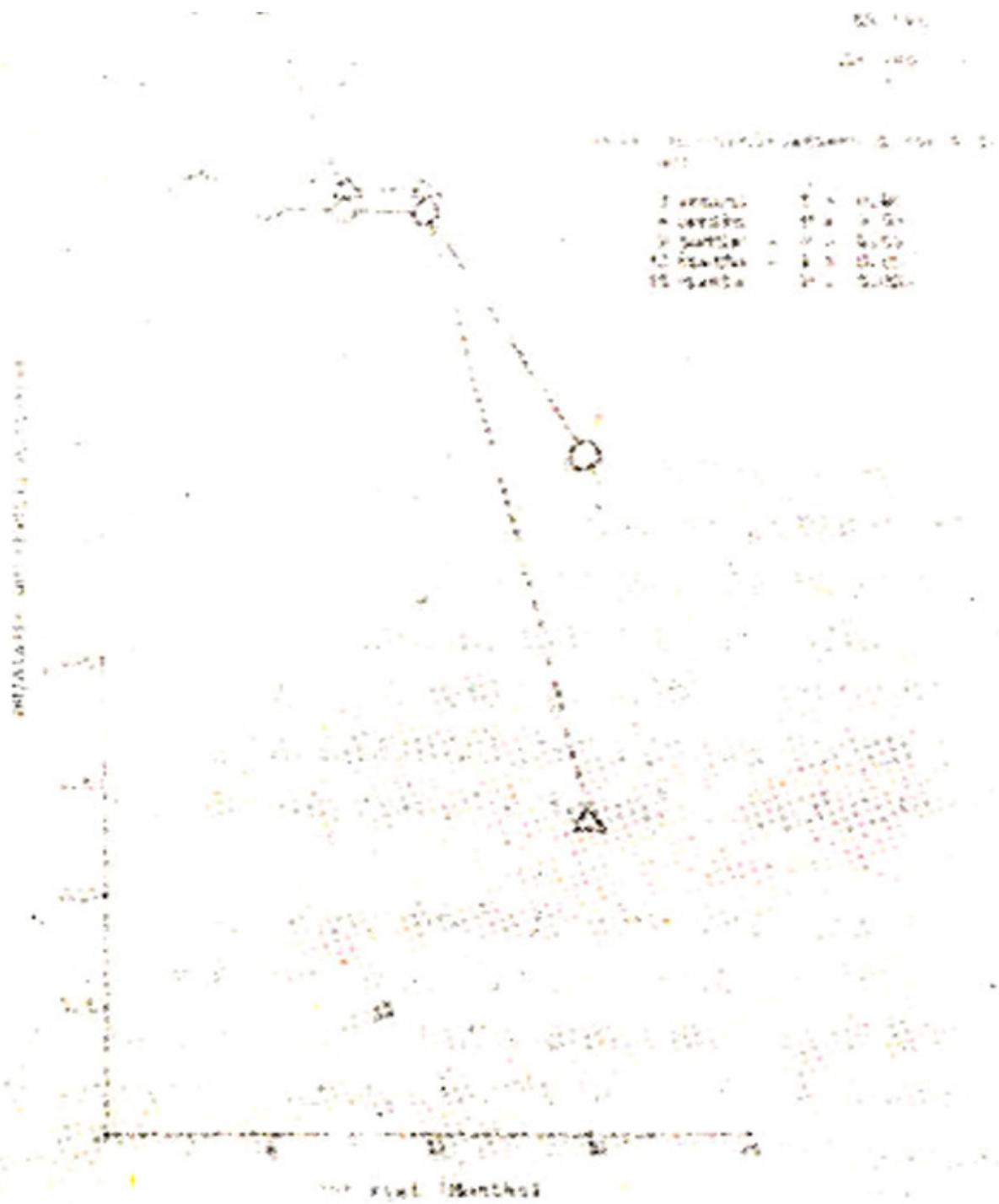


Figure. Difference between ER+Ve and ER-Ve at 3 months $P > 0.05$; 6 months $P > 0.05$; 9 months $P > 0.05$; 12 months $P > 0.05$; 18 months $P < 0.005$.

The survival rate of ER +ve cases was statistically better at 18 months ($P < 0.005$).

DISCUSSION

The presence of oestrogen receptors (ER) content of breast carcinoma is an important parameter for management and prediction to endocrine therapy⁸⁻¹³. The degree of this response depends upon the level of ER.¹⁴⁻¹⁶ The only methods so far available for determination of ER were biochemical assays which, being expensive and time consuming, have not been feasible in Pakistan. The immunoperoxidase (PAP) technique used in this study is easier, economical, simpler as well as swifter. The introduction of this method now makes E.R. estimation possible in all histopathology laboratories. A follow up of the 50 cases included in this study has shown that cases with oestrogen receptors had a significantly better prognosis than those without ER. Routine use of ER detection by this method can be of great assistance to the clinicians treating carcinoma breast.

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