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Fascin-1 as a novel diagnostic marker of triple negative breast cancer in Pakistani women

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Introduction: Breast cancer is the most common malignant tumour and the fifth most cause of death in females due to cancer worldwide. The incidence in Pakistani women is 2.5 times higher than in other countries of Asia. Triple-negative breast cancer is a sub-type that does not express hormone receptors Oestrogen, Progesterone, and Human Epidermal Growth Factor Receptor-2. It has a highly detrimental clinical outcome and poor survival. Fascin-1 is a critical protein that leads to cell migration, invasion, and metastatic spread in these tumours. By evaluating the expression of Fascin-1 in TNBC, we primarily evaluated its diagnostic utility and predictive role in these tumours.

Objective: To study the frequency of Fascin-1 expression among TNBC (triple negative receptors) cases by immunohistochemistry.

Methodology: 130 cases of TNBC diagnosed between January 2019 and January 2020 at our laboratory were reviewed and stained immunohistochemically with Fascin-1 stain. Demographic data were obtained from pathology reports.

Results: Patients' mean age was 46.5 years (SD±13.7). The mean tumor size was 4.6cm (SD±2.3cm). 76 cases were incisional biopsies and 54 were excisional biopsies. 94/130 (72.3%) showed positive Fascin-1 expression with cytoplasmic staining in 69% and both cytoplasmic and membranous staining in 31%. Higher frequency of Fascin-1 expression was observed in age group <40 (83.7%), metaplastic carcinoma (79.9%), invasive ductal carcinoma (71.9%), grade 2 tumours (48.3%), grade 3 tumours (79.2%), presence of necrosis (86.1%), and T2 & T3 stage tumours (90 and 84.2%).

Conclusion: Fascin-1 is expressed in a large percentage of TNBC cases, frequently in the cases with features such as metaplastic histology, younger age group (less than 40 years), histologic grade 3, and necrosis.

Keywords: Fascin-1, triple-negative breast carcinoma

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