

# Could the Breast Prognostic Biomarker Status Change During Disease Progression? An Immunohistochemical Comparison between Primary Tumors and Synchronous Nodal Metastasis

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Abstract:

**Background:** Prognostic biomarkers in breast cancer are routinely investigated in the primary tumors to guide further management. However, it is proposed that the expression may change during the disease progression, and may result in a different immune profile in the metastatic nodes. This work aimed to investigate the expression of breast prognostic biomarkers in primary tumors and in its axillary nodal metastasis, to estimate the possible discordant expression. **Materials and Methods:** 60 paired primary and axillary nodal metastasis samples were collected from patients with primary breast cancer with positive nodal deposits, diagnosed at the Maadi Military Hospital, Cairo, Egypt, during the year 2013. ER, PR and HER2 expression was assessed by immunohistochemistry in all samples. **Results:** 48.3% of the included cases showed concordant results for both ER and PR receptors between the primary tumor and its nodal metastasis while 51.7% showed discordant results and the discordance level was statistically significant. On the other hand, 70% of the cases showed concordant Her2 results between the primary tumors and the nodal deposits, 30% showed discordant results and the difference was significant. **Conclusions:** The study indicated that the discordance in ER and PR receptor expression between the primary breast tumor and their nodal metastasis may be significant. The possible switch in the biomarker status during the disease progression is worth noting and may change the patient therapeutic planning. So, whether the treatment selection should be based on biomarkers in the lymph node is a topic for further studies and future clinical trials.

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