THE ASSOCIATION OF CYTOKERATIN-ONLY POSITIVE SENTINEL LYMPH NODES AND SUBSEQUENT METASTASES IN BREAST CANCER

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BACKGROUND: The clinical significance and optimal surgical treatment of breast cancer for patients with cytokeratin immunohistochemistry (IHC)-only positive lymph node metastases is controversial. The purpose of this study was to better characterize the clinical significance of cytokeratin-positivity of sentinel lymph nodes among patients with breast cancer.

METHODS: A retrospective registry review was completed on 334 patients who underwent sentinel lymph node (SLN) biopsy over a 53-month period from 1 February 1997 through 31 July 2001. SLN biopsies were evaluated using standard hematoxylin and eosin (H&E) techniques. If H&E was negative, cytokeratin IHC was performed to further evaluate the SLN specimen. We then evaluated the incidence of subsequent regional and distant metastatic disease in these patients.

RESULTS: Cytokeratin IHC was performed on 183 sentinel node biopsies from 180 patients comprising a total of 427 sentinel lymph nodes. The surgical procedures included lumpectomy and SLN biopsy (n= 83), mastectomy with SLN biopsy (n=7), lumpectomy with SLN biopsy and completion axillary dissection (n=80), and modified radical mastectomy with SLN biopsy and completion axillary dissection (n=13). Cytokeratin IHC was negative in 175 axillary specimens and positive in eight (4.4%) specimens from eight different patients. In these eight cytokeratin-positive specimens, deeper sections with subsequent H&E staining additionally identified micrometastasis in four patients. Three of these eight patients (37.5%) have developed distant metastatic disease compared with 1 of the 172 patients (0.6%) with negative cytokeratin IHC ($p<0.001$). Additionally, one of the cytokeratin-positive patients developed regional nodal metastasis compared to none of the 172 cytokeratin-negative patients.

CONCLUSIONS: Cytokeratin IHC provides a clinically relevant adjunct to H&E staining for evaluating sentinel lymph nodes in breast cancer. These data suggest that patients with cytokeratin-positive sentinel nodes may be at increased risk for subsequent development of regional and distant metastatic disease.