EX VIVO SENTINEL LYMPH NODE MAPPING IN COLON CANCER: IMPROVING THE ACCURACY OF PATHOLOGIC STAGING?

J. Smith, H. Hwang, K. Wiseman, D. Filipenko, P.T. Phang
Department of Surgery – University of British Columbia, Vancouver, BC, Canada

Introduction: A subset of patients with colon cancer staged by conventional methods have occult micrometastases and do not receive adjuvant chemotherapy. Sentinel lymph node (SLN) mapping and staining by immunohistochemistry (IHC) is a technique that may identify such occult micrometastases, thereby upstaging patients with positive findings. The purpose of this study was to determine whether ex vivo SLN mapping in colon cancer could be successfully applied to patients at our institution.
Methods: Fourteen patients with intraperitoneal colon tumors undergoing resection were studied prospectively. Two patients with histologically confirmed villous adenomas were subsequently excluded; the 12 remaining patients were included in the analysis. Specimens were processed immediately following standard surgical resection. SLNs were identified as the first blue stained node(s) after ex vivo peritumoral injection of isosulfan blue dye. Additional lymph nodes were harvested in accordance with standard pathological evaluation for colon cancer. All nodes were subject to routine processing and staining by hematoxylin and eosin (H&E). SLNs that were negative on H&E were further analyzed by multilevel sectioning and IHC staining using anti-cytokeratin monoclonal antibody.
Results: Of the 12 study patients, 2 were stage 0, 5 stage I, 4 stage III and 1 stage IV. SLNs were identified in 11 (92%) cases. The average number of SLNs harvested was 1.5 (range 0-3). The average number of nodes retrieved in total was 18.9 (range 4-54). The SLN was the only positive node in 1 patient. An identified SLN was positive (by H&E) in all patients with associated positive non-SLN nodes. In 1 patient with negative nodes by H&E, subsequent IHC staining of the SLN was positive; in 1 other patient, IHC staining was equivocal. In 8 (67%) patients the SLN correctly predicted the status of the lymph node basin.
Conclusions: The ex vivo technique of SLN mapping for colon cancer is feasible. In the current study, SLN mapping accurately reflected the status of the lymph node basin in 67% of patients. Furthermore, this technique may have upstaged 2 (17%) patients based on IHC staining. Whether this upstaging will ultimately affect overall survival has yet to be determined.