UTILITY OF CALCITONIN ESTIMATION IN SYRINGE ASPIRATE FLUID IN THE EVALUATION OF METASTATIC THYROID CANCER. P M Gault, D A McClain, D Abraham

Lymph nodal metastasis occurs in approximately 50% of patients with medullary thyroid cancer. Unfortunately, accurate detection of lymph nodal metastasis is difficult. We have assayed calcitonin in syringe washings following fine needle biopsy of three lymph nodes from two patients in order to aid in the diagnosis of metastasis. The patients are members of a pedigree carrying the RET proto-oncogene mutation 609Y. Each underwent total thyroidectomy and central neck lymph node dissection revealing medullary thyroid carcinoma with lymph nodal metastasis. Despite appropriate surgical resection by total thyroidectomy and central neck dissection with clear surgical margins, the postoperative calcitonin remained elevated in both patients (Patient 1 had preoperative serum calcitonin of 1837 pg/ml and postoperative calcitonin of 395 pg/ml. Patient 2 had a preoperative serum calcitonin of 399.2 pg/ml and postoperative calcitonin of 25.6 pg/ml). Standard imaging with MRI of the neck, CT of the chest/abdomen/pelvis and bone scan failed to localize the site of residual disease. Neck ultrasound was performed on both patients and revealed a total of four apparently normal lymph nodes (the mean size of nodes was 0.39 +/- 0.27 cm3) In the absence of identifiable secondary deposit by other imaging modalities fine needle aspiration of each node was performed. After preparing slides for cytological examination, the biopsy syringes were rinsed and the fluid was sent for calcitonin estimation (chemiluminescent immunoassay performed by Associated Regional University Pathologists, Salt Lake City, Utah). Out of the four lymph nodes that were sampled from the two patients, three had very low levels of calcitonin (6 and <1.0 pg/ml), one had a calcitonin of 79,118 pg/ml. Only in this latter case was there histopathologic evidence of disease. The calcitonin level corresponded very well to the presence or absence of metastatic carcinoma as determined by histopathology after surgical resection. However, in one case the fine needle cytology result was potentially misleading with an initial interpretation of reactive lymphocytes in a node in which calcitonin was elevated and ultimately was shown at surgery to harbor metastatic disease. The utility of serum calcitonin in the diagnosis and surveillance of patients with medullary thyroid cancer has been well documented. To our knowledge, there are no published reports of calcitonin levels being tested in the syringe washings following lymph node aspiration biopsy. This form of testing is technically simple, readily available, and may provide increased diagnostic accuracy. It’s utility deserves to be confirmed by larger studies.