

Complete Cervical Sonography Is Essential for Operative Planning in Differentiated Thyroid Cancer

Cord Sturgeon

O'Connell K, Yen TW, Quiroz F, Evans DB, Wang TS. The utility of routine preoperative cervical ultrasonography in patients undergoing thyroidectomy for differentiated thyroid cancer. Surgery. September 5, 2013 [Epub ahead of print]. doi: 10.1016/j.surg.2013.06.040.

SUMMARY • • • • •

Background

Lymph-node metastases are found in 30% to 80% of cases of papillary thyroid cancers (PTCs), are usually located in level VI (central compartment), and are a risk factor for disease recurrence. Cervical recurrence may be due to occult central neck metastases not detected or removed at the index operation. The ATA and the NCCN both recommend preoperative cervical ultrasound for all patients with biopsy proven differentiated thyroid cancer (DTC) (1,2). This study was designed to assess the impact of preoperative cervical ultrasound on the surgical approach during an index operation for thyroid cancer. The authors hypothesized that preoperative ultrasound of the neck would identify clinically occult metastatic lymphadenopathy that would alter the initial operative procedure in some patients with DTC.

Methods

This is a retrospective study of 70 patients with biopsy-proven DTC who underwent preoperative radiologist-performed ultrasound of the central and lateral nodal basins at a single high-volume institution in the midwestern United States. All patients underwent total thyroidectomy with appropriate lymph-node clearance. Data were collected on demo-

graphics, physical examination findings, preoperative sonographic findings, FNA results, extent of operation performed, number of lymph nodes retrieved, and final pathology.

Results

The authors found that 7% of their patients had results on physical examination that were consistent with palpable cervical adenopathy. In the remaining patients with no palpable lymphadenopathy, 22% had sonographic evidence of suspicious lymphadenopathy. Within this subgroup of patients with sonographically suspicious nodes, 92% were confirmed to have nodal metastases on final pathology. The sensitivity of ultrasound for lateral neck metastases was 93%. A preoperative ultrasound changed the operative management in 23% of patients with biopsy-proven DTC.

Conclusions

The results of this study underscore the importance of routine use of high resolution preoperative cervical ultrasound in patients with DTC. The sonographic findings changed the operative management in 23% (16 of 70) of patients. 13 of 16 patients had a more complete operation for pathologically confirmed, but clinically occult, lymph node metastases. 2 of 16 avoided an unnecessary modified radical neck dissection. 1 patient in 16 had false-positive US results.

ANALYSIS AND COMMENTARY • • • • •

Ultrasound is a key component of the preoperative workup and the postoperative surveillance for thyroid cancer. A preoperative cervical ultrasound including the thyroid and both central and lateral compartments is recommended by the ATA and NCCN guidelines (1,2). Both guidelines also recommend preoperative FNA biopsy of suspicious lymph nodes. In their continued on next page

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longitudinal care algorithms, both the ATA and NCCN guidelines recommend periodic ultrasound (1,2). Physical examination is not sensitive for the presence of cervical-node metastases, and postoperative patients will be subjected to rigorous surveillance, including cervical ultrasound. Therefore, it behooves the surgeon to have knowledge of sonographically detectable metastases prior to the index operation for thyroid cancer, so that a complete resection, including appropriate lymph-node clearance, can be performed. Theoretically, this should lead to better locoregional control of disease, and may decrease recurrence (3), and possibly the need for radioiodine or reoperation.

In a prior study, a group from MD Anderson Cancer Center found that cervical ultrasound detected additional sites of metastatic disease not found on physical exam in 20% of patients undergoing an index operation for thyroid cancer, in 32% undergoing reoperation for persistent disease, and in 68% undergoing reoperation for recurrent disease (4). The operation performed was altered by the sonographic data in 39% of these patients. In a study from the University of Miami, surgeon-performed preoperative

ultrasound identified nonpalpable metastatic lymph nodes in 24% of patients (5). In a study from the Mayo Clinic of over 700 patients with PTC, preoperative ultrasound detected nonpalpable nodal metastases in 32.9% (6). Preoperative ultrasound findings altered the operation in 40.5% of index cases and in 42.9% of reoperative cases.

In this contribution by O'Connell et al., 23% of the total group had findings from the preoperative ultrasound that changed the operative management. These findings are similar to those of other researchers who have studied the subject and underscore the importance of preoperative high-resolution sonographic imaging for patients with thyroid cancer. Taken together, these studies indicate that preoperative ultrasound has a high sensitivity for nodal disease and will detect nonpalpable nodal metastases in roughly 20% to 40% of patients with DTC and will alter the index operation in a similar percentage of patients. For these reasons, complete cervical sonography is an essential component of the preoperative workup and operative planning for patients with thyroid cancer.

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