A Safe, Effective Algorithm for Recurrent/Persistent Papillary Thyroid Cancer

Papillary thyroid cancer (PTC) accounts for 75 percent of thyroid cancer cases in the United States; it is treated primarily with total thyroidectomy with or without neck dissection. Though the incidence of well-differentiated thyroid cancer is on the rise, mortality rates are not—they have remained the same for 30 years. The majority of cases responsible for this increase in incidence are those of tumors that are less than 2 cm in size.

The reported incidence of recurrent/persistent thyroid papillary thyroid cancer is increasing as well, chiefly due to increasingly sensitive follow-up tests. Compared to primary thyroidectomy, though, re-operative thyroid bed surgery (RTBS) has a significantly higher frequency of operative complications, especially in recurrent laryngeal nerve (RLN) injury and hypocalcemia. Physicians are faced with an evolving clinical management dilemma, says Johns Hopkins head and neck surgeon Ralph Tufano.

"Increasingly sensitive diagnostic tests in the surveillance for recurrent or persistent cancer have driven us to treat all disease, macroscopic or microscopic," says Tufano. "The dilemma centers on the question, Are we overdiagnosing and treating recurrent/persistent cancers that are of no clinical significance? When do the risks outweigh the benefits of treatment?" Until physicians are better able to identify patients who should be treated aggressively versus those who should be monitored carefully, surgeons must continue to operate on all of them.

To conquer that challenge, Tufano and his team of researchers have created an algorithm for safe and effective RTBS for recurrent/persistent thyroid cancer. In a retrospective study of 33 patients, Tufano's team evaluated treatments and outcomes to define a management algorithm that includes three main components:

- Detection of recurrent/persistent PTC with high-resolution neck ultrasound examination
- Pre-RTBS high-resolution neck ultrasound examination to map location and size of suspicious lesions within the thyroid bed and neck
- Guidelines for operative technique, including using recurrent laryngeal nerve monitoring

Electrodes located within the endotracheal tube allow recurrent laryngeal nerve activity to be monitored during complex thyroid and parathyroid surgeries.

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"Safe and effective RTBS is based on a multidisciplinary approach that enables the identification and localization of recurrent/persistent PTC," Tufano explains. "The surgical algorithm described provides a pathway that all head and neck surgeons can comfortably utilize to treat this complex and challenging patient population to prevent disease progression."

In the future, Tufano says, nonsurgical techniques such as ultrasound-directed radiofrequency ablation may enhance treatment while reducing morbidity. He and his colleagues plan to start a pilot study to determine safety and feasibility of this technique later this year.

FULL ARTICLE

Farrag T, **Agrawal N**, **Sheth S**, **Bettegowda C**, **Ewertz M**, **Kim M**, **Tufano R**. An algorithm for safe and effective re-operative thyroid bed surgery for recurrent/persistent papillary thyroid carcinoma. *Head and Neck* 2007; (epub ahead of print).