



## THYROID CANCER

# Can we predict the presence of central neck nodal metastasis in patients with papillary thyroid cancer?

### BACKGROUND

Papillary thyroid cancer has a high rate of spread (metastasis) to lymph nodes in the central neck at the time of diagnosis. Surgical series report the presence of spread to the central nodes anywhere from 20% to 80%. Surgical removal of the central neck lymph nodes is appropriate when there is spread is suspected or confirmed. It may be difficult or impossible to detect by ultrasound, imaging, or examination, whether the thyroid cancer has spread to the lymph nodes prior to surgery. Currently there is controversy as to whether the surgeon should remove only the lymph nodes in the central neck they see that look abnormal at the time of surgery (usual practice) or whether they should remove all the lymph nodes possible (prophylactic central neck dissection). There are increased surgical risks when the lymph nodes are removed as they are near the nerve to the vocal cords and the parathyroid glands, which regulate calcium levels in the body. A method that could predict whether spread has occurred prior to surgery would be very valuable. This study examines possible risk factors that can predict central neck lymph node metastasis prior to surgery in an attempt to develop a nomogram to help with decision-making at the time of surgery.

### THE FULL ARTICLE TITLE

Thompson AM et al. A pre-operative nomogram for the prediction of ipsilateral central compartment lymph node metastases in papillary thyroid cancer. *Thyroid*. October 1, 2013 [Epub ahead of print].

### SUMMARY OF THE STUDY

The authors looked at the records of 1589 patients that underwent surgery for papillary thyroid carcinoma between 1968 and 2012 at a single institution and identified 914 patients who had a total thyroidectomy and

removal of the lymph nodes in the central neck. In 84% of cases, the lymph nodes were only removed on one side. The authors collected data about the patients and used statistical analysis to try and predict risk factors for spread to the lymph nodes.

The rate of central lymph nodal spread was 43%. Young and old age were associated with spread to the lymph nodes. Men were 2.3 times more likely to have lymph node involvement than women. The larger the primary cancer in the thyroid, the greater the chance of lymph node involvement. The rate was 60% for cancers greater than 5 cm. The authors put these risk factors into a nomogram to assist in the decision-making during surgery.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study highlights some of the risk factors for the spread of thyroid cancer to lymph nodes in the central neck. The authors of this article have created a predictive model with a smart phone application to help identify high risk patients prior to surgery. If their application could reduce the probability of missing clinically significant lymph node spread and limit the number of patients who have to face the added risks of central neck lymph node removal, then it may prove to be useful in clinical practice. Further studies are needed to determine the usefulness of this nomogram.

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### ATA THYROID BROCHURE LINKS

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

### ABBREVIATIONS AND DEFINITIONS

**Papillary thyroid cancer:** the most common type of thyroid cancer.

**Cancer metastasis:** spread of the cancer from the initial organ where it developed to other organs, such as the lymph nodes, lungs and bone.



## **THYROID CANCER**, continued

**Thyroidectomy:** surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

**Parathyroid glands:** usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

**Central neck compartment:** the central portion of the neck between the hyoid bone above, and the sternum and collar bones below and laterally limited by the carotid arteries.

**Prophylactic central neck dissection:** careful removal of all lymphoid tissue in the central compartment of the neck, even if no obvious cancer is apparent in these lymph nodes.