



## THYROID CANCER

### Extension of thyroid cancer into the muscles in the neck does not affect survival or predict recurrence in papillary thyroid cancer

#### BACKGROUND

Papillary thyroid cancer is the most common type of thyroid cancer. The overall prognosis of papillary thyroid cancer is excellent and, for most patients, the concern is for cancer recurrence as opposed to death from cancer. Papillary thyroid cancer that grows out of the thyroid and invades the tissues and/or muscles in the neck (extrathyroidal extension) is considered a more advanced stage with a higher risk for cancer recurrence. However, if the extension is not visible to the surgeon at the time of surgery and only seen under the microscope, the outcomes are not changed significantly. Additionally, there are few studies looking at isolated visible invasion into the neck muscles laying over the outer edges of the thyroid in the front of the neck (the strap muscles). This study examined patients with these types of cancers to see if outcomes were worse than those cancers without invasion into the strap muscles.

#### THE FULL ARTICLE TITLE

Li G et al 2019 Implications of extrathyroidal extension invading only the strap muscles in papillary thyroid carcinomas. *Thyroid*. Epub 2019 Dec 13. PMID: 31830859.

#### SUMMARY OF THE STUDY

This study reviewed the medical records of 4045 patients between the ages of 18 and 80 with papillary thyroid cancer who had surgery at one hospital in Chengdu, China between 2011 and 2016. Patients were divided into groups based on thyroid cancer invasion outside the thyroid. This included no invasion, invasion into soft tissue around the thyroid (not muscle), invasion into the strap muscles laying over the thyroid, or invasion to even more neck structures beyond those muscles (the most invasive).

The average follow up time was almost 3 years (1-5 years) and the outcomes evaluated included overall survival and survival without evidence of any thyroid cancer. Evidence of cancer recurrence was defined by seeing it on imaging

studies or increased blood levels of the thyroid cancer marker thyroglobulin.

There were 9.2% of patients with thyroid cancer invasion into strap muscles. These cancers tended to be larger in size, be one of multiple cancers, involved lymph nodes more often and spread outside the neck more often than cancers without invasion outside the thyroid.

Cancer recurrence occurred in just over 20% of the patients with invasive cancers but there was no difference in thyroid cancer death compared to cancers that did not invade outside the thyroid. When controlling for other factors such as age, gender, lymph node involvement and other thyroid cancer features, the invasion into strap muscles did not seem to be related to increased risk of thyroid cancer recurrence. In contrast, the cancers that were the most invasive had worse outcomes for both recurrence and death from thyroid cancer.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that, when papillary thyroid cancer invaded into neck strap muscles, there was an association with other aggressive thyroid cancer features and an increased rate of thyroid cancer recurrence. However, overall survival was no different than for those patients whose cancer did not invade strap muscles. Also, when other thyroid cancer risk factors were similar across cases (male gender, larger cancer sizes and lymph node involvement), survival with no thyroid cancer recurrence was similar.

This study is important for patients in that it helps provide more understanding of the risk of thyroid cancer invasion into neck strap muscles and may decrease some fear of a worse outcome when this feature is seen under the microscope, especially when there are no other significant high risk features for cancer recurrence.

— Joshua Klopper, MD





## THYROID CANCER, continued

### ATA THYROID BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer:** the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

**Thyroglobulin:** a protein made only by thyroid cells, both normal and cancerous. When all normal thyroid tissue is destroyed after radioactive iodine therapy in patients with thyroid cancer, thyroglobulin can be used as a thyroid cancer marker in patients that do not have thyroglobulin antibodies.

**Lymph node:** bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

**Cancer recurrence:** this occurs when the cancer comes back after an initial treatment that was successful in destroying all detectable cancer at some point.