



## THYROID CANCER

# Treatment with surgery, external-beam radiation, and chemotherapy improves survival for selected patients with anaplastic thyroid cancer

### BACKGROUND

Anaplastic thyroid cancer comprises less than 2% of all thyroid cancers. While the other 98% of thyroid cancer types have an excellent prognosis, anaplastic thyroid cancer is extremely aggressive, with an average overall survival of less than 6 months. In up to half of cases, anaplastic thyroid cancer may arise from preexisting differentiated thyroid cancer.

Because of their poor prognosis, all anaplastic thyroid cancers are considered stage IV. Surgical treatment is performed when possible in patients with cancer confined to the thyroid, followed by external-beam radiation with or without chemotherapy. Patients with cancer that cannot be surgically removed and those with distant spread are usually treated non-surgically with palliative radiation and chemotherapy. The current study evaluated the effectiveness of different treatment methods for anaplastic thyroid cancer. It also examined the association between the genetic profile of the cancer and clinical outcomes.

### THE FULL ARTICLE TITLES:

Rao SN et al. Patterns of treatment failure in anaplastic thyroid carcinoma. *Thyroid*. January 9, 2017 [Epub ahead of print].

### SUMMARY OF THE STUDY

This was a review of 54 patients treated at the University of Texas MD Anderson Cancer Center between January 2013 and October 2015. Staging was used: stage IVA, limited to thyroid gland; stage IVB, gross local invasion; and stage IVC, distant spread at the time of diagnosis. Cancers were analyzed for genetic mutations. The primary outcomes were time to treatment failure and site of cancer progression (local vs. distant). Overall survival was also assessed.

Half of the patients presented with stage IVC disease (the majority with spread to the lung), while 19% were stage IVA and 32% were stage IVB. In 10 patients (19%) who had a history of differentiated thyroid cancer, anaplastic thyroid cancer subsequently developed. An additional 31

patients (57%) had differentiated thyroid cancer detected at the time of anaplastic thyroid cancer diagnosis.

Surgery, consisting of thyroidectomy with or without lymph node removal, was performed in 23 patients. Importantly, in 21 of the 23 surgically treated patients, anaplastic thyroid cancer was diagnosed only with surgical pathologic results. In other words, surgery was undertaken with a needle biopsy diagnosis of a more differentiated thyroid cancer. External beam radiation therapy was given to 22 patients following surgery and to an additional 27 patients as first-line treatment. Almost all patients underwent chemotherapy at the time of radiation therapy. An additional 18 patients were treated with chemotherapy as treatment for disease progression.

The average time to treatment failure was 3.8 months, and the average overall survival was 11.9 months. Cancer progression most commonly occurred in distant spread sites. Predictors of treatment failure and overall survival included advanced stage at presentation, male sex, and specific pathologic findings. Patients who were treated with surgery, radiation, and chemotherapy had improved median survival as compared with those treated with radiation and chemotherapy alone, leading the authors to conclude that complete surgical resection was the most important determinant of survival.

In genetic testing, there was no significant association found between the presence or number of mutations and clinical outcomes.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Anaplastic thyroid cancer has a very poor prognosis both because it is locally aggressive and because of its early spread to distant sites. Despite multiple treatment methods, the average survival in the current study was less than 2 years for patients who underwent surgical excision and only 6 months for those who underwent radiation and chemotherapy alone. Surgery for anaplastic thyroid cancer may extend survival and

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should be considered for patients in whom complete surgical removal may be possible. Though surgery may be helpful, it is also possible that this study is looking at a specially selected patients. More studies are needed to develop improved treatments.

— Ronald B. Koppersmith, MD, FACS

**ATA THYROID BROCHURE LINKS**

Thyroid Surgery: <http://www.thyroid.org/thyroid-surgery/>

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

**DEFINITIONS**

**Anaplastic thyroid cancer:** a very rare (<2%) but very aggressive type of thyroid cancer. In contrast to all other types of thyroid cancer, most patients with anaplastic thyroid cancer die of their cancer and do so within a few years.

**Differentiated thyroid cancer:** the most common type of thyroid cancer. The two main subtype are papillary and follicular thyroid cancer.

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

**Genes:** a molecular unit of heredity of a living organism. Living beings depend on genes, as they code for all proteins and RNA chains that have functions in a cell. Genes hold the information to build and maintain an organism's cells and pass genetic traits to offspring.

**Mutation:** A permanent change in one of the genes.