

# Microcarcinomas of the Thyroid Gland

## WHAT IS THE THYROID GLAND?

The thyroid gland is a butterfly-shaped endocrine gland that is normally located in the lower front of the neck. The thyroid's job is to make thyroid hormones, which are secreted into the blood and then carried to every tissue in the body. Thyroid hormone helps the body use energy, stay warm and keep the brain, heart, muscles, and other organs working as they should.

## OVERVIEW

*Thyroid nodules* are common. Virtually everyone will develop small thyroid nodules (less than 1 cm in size) that can be detected by ultrasound by the time they reach age 65. Most of these nodules do not require any investigation. Nodules that are less than 5-6 mm virtually never need further attention. Nodules that are 7-10 mm occasionally will exhibit suspicious features that do prompt a needle biopsy (fine needle aspiration). Microcarcinomas are thyroid cancers < 1 cm in size. These microcarcinomas typically are *papillary thyroid cancer*, the most common type of thyroid cancer. There remains much debate among thyroid cancer specialists about how to manage these small cancers.

### SOME NUMBERS

Microcarcinomas (less than 1cm) are very common and may occur in up to 1 in 10 adults in the United States. The majority of patients are unaware of their existence since they do not cause any symptoms. Most microcarcinomas are discovered accidentally, typically during an imaging study that includes the neck done for unrelated reasons. The prognosis of these small cancers is excellent, but no matter how small the cancer may be, the word "cancer" can be scary. Of note:

- There is a 10% risk of the tumor growing about 3mm in size in 10 years -- which means, approximately 90% of small thyroid cancers do not grow.
- There is a 4% risk of the tumor spreading to lymph nodes around the thyroid at 10 years -- which means, approximately 96% of the tumors do not spread.
- Since the vast majority of thyroid microcarcinomas will not cause any health risks during the patient's life, doctors believe that there are 2 correct approaches to managing these tumors: surgical excision versus active surveillance.
- The risk of dying from a small thyroid cancer is extremely small (less than 1 in 1,000 people).

## SURGERY

Surgery for papillary thyroid microcarcinomas usually consists of removing the lobe of the thyroid gland containing the microcarcinoma. Lymph nodes around the thyroid gland are typically not removed unless they appear enlarged or suspicious on a neck ultrasound or at the time of surgery. In contrast to more advanced thyroid cancers, generally there is no need to administer radioactive iodine after surgery for papillary microcarcinomas.

Survival after surgery for papillary thyroid microcarcinoma is greater than 99%. The chances of a recurrence of thyroid cancer after surgery are between 2-4%. If there is a recurrence, it typically occurs in the other lobe of the thyroid or in lymph nodes in the central neck area (around the thyroid). These lymph nodes would have been too small for the surgeon to notice and remove at the time of the initial operation. These lymph nodes may or may not grow over time and if they do, they grow very slowly. The likelihood of thyroid microcarcinomas spreading to distant parts of the body outside of the neck area is far less than 1%.

While surgery for microcarcinomas is very safe in the hands of experienced surgeons, there are complications that have to be taken into consideration. As with any surgery, thyroid surgery is subject to the typical risks of any operation including bleeding, infection, and problems with anesthesia. In addition to these risks, thyroid surgery will commonly result in a 1-2 inch scar at the base of the neck that may heal differently in different people. The two major problems specifically associated with *thyroid surgery* are voice complications and low calcium levels. Both can be temporary or permanent, but permanent changes are very uncommon in the hands of an experienced thyroid surgeon.

Other factors to take into account when choosing to go through surgery are the recovery time and follow up. The typical recovery time after thyroid surgery is between 5 and 7 days. Some patients do not feel quite right until 8 weeks post-surgery. This recovery time is largely due to the time required to determine if thyroid hormone supplementation will be necessary after the surgery and if it is necessary, adjusting the thyroid hormone to the proper dose. Approximately half of patients undergoing removal of half of the thyroid will need thyroid hormone supplements, while all of the patients having their entire thyroid removed will require thyroid hormone pills.

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Most people feel the same with or without their thyroid. Some patients have to try different thyroid hormone doses until they feel just right. A small minority continue to complain of weight gain, energy and emotional problems, as well as cognitive decline, even if their thyroid hormones are in the normal range.

Following thyroid surgery, life-long follow-up is required. It entails *annual blood tests* to ensure that thyroid hormone levels are normal and an occasional ultrasound every 5 years.

## ACTIVE SURVEILLANCE

Not all microcarcinomas of the thyroid need to be removed at the time of diagnosis. Recent data has shown that 5 to 10% of thyroid microcarcinomas may grow or spread to the nearby lymph nodes over the course of 10 years. No deaths have been reported so far in the surveillance of microcarcinomas of the thyroid, and no patient has reported that their thyroid cancer spread to other areas of their body outside of their neck. Many patients feel that avoiding surgery when the odds of progression are so small is a significant benefit. Fortunately, even for the 5-10% of carcinomas that grow or spread during active surveillance, a delayed surgery can cure the thyroid cancer with the same excellent prognosis as if the surgery had been done immediately after diagnosis.

The chances of progression of thyroid microcarcinomas differ with age. In elderly patients (older than 70 years of age), the chances of thyroid cancer growth or spread probably approximate 1-2%, whereas the chances of progression in 20-year old patients likely approaches 10-15%. Younger patients will require longer follow up and some may elect to have their thyroid removed initially. Others may choose to postpone their surgery to a convenient time that does not interfere with important life events like graduations, weddings, etc. It is well known that the hormones and growth factors associated with pregnancy can be a mild stimulus for thyroid nodule and thyroid cancer growth. These factors rarely cause substantial enlargement of small thyroid cancers, and most tumors do not change at all during pregnancy. Some women will choose to have immediate surgery rather than observation if they are planning a pregnancy, while others might recognize that the stimulus from pregnancy is usually quite minor and they may elect to postpone the surgery to a future date.

Not all thyroid microcarcinomas may be candidates for active surveillance. Since the primary potential harm is that a tumor could grow or spread during the time that it is being monitored, tumors that are in critical locations in the

thyroid – very close to the recurrent laryngeal nerves for instance – may be better managed by surgical excision since any growth could lead to compromise of the voice. For the most part however, growth of a tumor located in thyroid would mean that it requires surgery at that point. In order to detect a change in size or spread to lymph nodes outside of the thyroid gland, a thyroid ultrasound performed by an experienced radiologist will be required every 6 months for the first 2 years and then yearly for up to 5 years. After 5 years of no documented growth or spread, thyroid ultrasounds can be done much less frequently. Overall, the number of visits for the patient who chooses active surveillance will probably be higher than for the patient who chooses surgery as the initial treatment. Similar to patients who undergo immediate surgery, the follow-up of patients who choose active surveillance continues for the rest of the patient's life. Depending on the insurance coverage and the age of the patient, the cost of an observational management approach could be the same or potentially more than the cost of immediate surgery.

Finally, while there is no physical harm to an active surveillance monitoring program, there could be emotional effects from the knowledge that the patient has a thyroid cancer in his/her body that is being monitored. For certain patients, this emotional burden can be a good reason to choose immediate surgery. Others are comfortable with this knowledge and understand that they are being adequately followed and that should there be any changes in the size of the tumor or lymph nodes in their neck, they can always choose to have surgery at a later stage.

## IN SUMMARY

Microcarcinomas of the thyroid gland rarely grow or spread to the nearby lymph nodes in the central neck area. Current data suggests that these tumors can be managed equally well by either immediate surgical excision or active surveillance with or without surgery at a later stage. No small thyroid cancer has been reported to spread outside of the neck during a surveillance program and no patient has died of thyroid cancer after choosing an observational approach for a microcarcinoma. Both immediate surgery and an active surveillance program are safe and effective in the hands of qualified practitioners. Hopefully, this brochure will prompt additional discussion with your healthcare provider to allow you to make the decision that is right for you.



## FURTHER INFORMATION

Further details on this and other thyroid-related topics are available in the patient thyroid information section on the American Thyroid Association® website at [www.thyroid.org](http://www.thyroid.org).

For information on thyroid patient support organizations, please visit the *Patient Support Links* section on the ATA website at [www.thyroid.org](http://www.thyroid.org)

