

## Benign Thyroid Nodules

Thyroid nodules are very common, especially in women over the age of 40. Needle biopsy of a thyroid nodule is about 99% accurate in differentiating between benign and cancerous nodules. When the needle biopsy returns benign, which the majority do, follow up is necessary to ensure that the nodule behaves in the benign manner that is expected. This means to check it periodically to be sure it is not enlarging and to perform one or two follow up needle biopsies if the nodule persists over the next few years.

Many doctors feel that shrinking the thyroid nodule with medication is helpful as it can avoid further enlargement of the nodule which can be both concerning, unsightly and cause symptoms leading to the need for surgery. If medication resolves the nodule there is also no need for follow-up biopsies that sometimes are read as inconclusive which may lead to a recommendation for thyroid surgery.

To understand how the medication shrinks the nodule it is necessary to understand a little bit about how the body works. The thyroid gland produces Thyroid Hormone which regulates the body's metabolism. The pituitary gland in the brain produces a hormone called Thyroid Stimulating Hormone or TSH which, as its name implies, stimulates the thyroid gland, and thyroid nodules, to grow. The pituitary produces more TSH if the Thyroid Hormone levels in the blood are low and less TSH if Thyroid Hormone levels in the blood are higher. Fortunately modern medicine has learned to manufacture *levo*-thyroxine which chemically is exactly the same as the thyroid hormone the body makes. This medication comes in a pill form and is absorbed through the stomach although it should be taken with the stomach empty. Because *levo*-thyroxine is the same thing the body makes there are no true side-effects of the drug, other than those related to receiving too much of it.

To shrink the nodule we like to lower the TSH down to low normal or perhaps slightly below the normal levels. To accomplish this it is necessary to keep the Thyroid Hormone levels on the high normal side or slightly higher than normal. It is also necessary to periodically check blood test to see what the Thyroid Hormone and TSH levels are. Although uncommon to receive too much Thyroid Hormone, the patient should be aware of symptoms suggesting too much hormone and the possible need for a blood test. These symptoms include weight loss, rapid heart beat, nervousness or jitteriness, difficulty sleeping, and being warm when everyone else is comfortable. Of course some of these symptoms are hard to differentiate from those of menopause. Should you develop some of these symptoms stop taking your medicine and call the office to see if the doctor feels a blood test is needed. Higher levels of Thyroid Hormone can lead to increase calcium absorption from bones decreasing bone density. Although this usually is not a problem, it is probably best to take a calcium supplement with vitamin D (not a bad idea anyway). If you have bone density problems make sure your doctor is aware of this.

When you first start taking your thyroid hormone it is best to take it every *other* day for *two* weeks to let the medication build up a little more slowly in the blood. It actually takes about six weeks for the blood levels of Thyroid Hormone to level off after you start taking the medication or change doses. Therefore a blood test is checked about 8 weeks after you start the medication. You'll be given a prescription for this test which does NOT need to be fasting. It is best to take your medication at the same time every day, usually before breakfast as it should be taken on an empty stomach either ½ hour before or 2 hours after a meal. If you forget to take it in the morning, simply take it as soon as you remember.

You should be seen in the office about 3 months after starting the medication to review the blood tests and check the nodule. It takes about 6 months to note significant shrinkage of the nodule. The nodule may resolve altogether over a year or more or may just remain a significantly smaller size. Failure to shrink the nodule may prompt another needle biopsy to confirm the benign nature of the nodule. Typically one remains on the medication for life which is not much of a burden given the lack of side effects and relative low price of the medication especially if it helps avoid surgery or the development of other thyroid nodules.

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