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Multinodular Goiter

The thyroid gland makes hormones that set the rate of our metabolism – the process by which we make and use energy. Our brain and pituitary gland control the thyroid with thyroid stimulating hormone (TSH). So stimulated, the thyroid gland makes a pre-hormone, T4. The cells in our body "choose" whether to activate T4 to T3 for more energy – or to break it to RT3 and put us in a low-energy state.

Thyroid glands often get problems; you probably know someone who needs treatment for low-thyroid. Many people, though, have a lumpy or bulging thyroid gland but have been told by their doctor there is no problem. This does not reassure people who also have many symptoms of low thyroid function.

So, if they feel badly, why does their doctor tell them their thyroid has no problem? First, the test for TSH is usually normal, after which most docs disregard thyroid symptoms and maybe even the gland itself. Secondly, most doctors treat with T4 only and research shows that alone can give these patients unsatisfactory results. Operations can be recommended but few people want their entire gland removed.

So, what is going on in these thyroid glands? Ultrasound imaging shows us: The gland has multiple nodules – it is a multinodular goiter (MNG). What caused them to form? In the U.S., the usual answer is recovery from autoimmune thyroiditis. This kills thyroid cells, leaving scar tissue (fibrosis). As cells grow back, they are compressed within the fibrosis, making lumpy nodules. There are various other causes, including a mutation that keeps some thyroid cells permanently stimulated, and iodine-deficiency.

It is easy to see why people with a big lumpy gland have discomfort in their neck and on swallowing. But why do they feel symptoms of low thyroid (hypothyroidism)? Autoimmune inflammation, still active in over a third of MNG patients is a likely explanation. This reduces the activation of T4 to T3, leaving people with excess RT3, inappropriately low energy and feeling hypothyroid. It is called "Non-thyroidal illness" (though of course, these thyroid glands are indeed ill) and is easy to diagnose with blood tests.

A few multinodular goiters "go rogue." Remember the mutation that keeps thyroid cells continuously stimulated? Nodules made of these cells produce hormones non-stop. That's no big deal when the nodules are tiny but when they get big enough, they produce too much hormone. This condition is called a "toxic multinodular goiter" because it creates damagingly high levels of hormones (hyperthyroidism).

Let's recap: Multinodular goiters cause problems three ways. First, they can bother people by their bulk, getting in the way of swallowing, causing discomfort and simply by looking bad. Secondly, they are associated with ineffective processing of thyroid hormones and symptoms of low thyroid function – even though the TSH is normal. Thirdly, they can run out of control and cause hyperthyroidism.

Each of these problems can be treated successfully.

- A bulky gland will usually shrink when you take enough thyroid hormone to suppress TSH but remember: You've got to take both T4 and T3, not just levothyroxine (T4)!
- Ill-effects of hormone-processing problems can also be overcome by taking balanced T3 and T4.
- Anti-thyroid drugs slow down a toxic goiter but unfortunately, can't cure it. In most cases, the gland must be removed, by operation or more recently, by radio-iodine ablation.

Finally, these nodules can occasionally hide a cancer. No, this doesn't happen often but it can. It is wise to evaluate such a goiter carefully in the beginning and follow it along as the years go by. Physicians increasingly perceive that multinodular goiter is an important health issue.