



Canadian
Cancer
Society

Thyroid Cancer

Understanding your diagnosis



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Thyroid Cancer

Understanding your diagnosis

When you first hear that you have cancer, you may feel alone and afraid. You may be overwhelmed by the large amount of information you have to take in and the decisions you need to make.

“ *All I could hear was ‘cancer.’ I heard my doctor say something like, ‘We’re going to try and get the surgery done as soon as possible.’ I didn’t hear one word after that.* ”

The introductory information in this brochure can help you and your family take the first steps in learning about thyroid cancer. A better understanding may give you a feeling of control and help you work with your healthcare team to choose the best care for you.

For more information

The information in this brochure provides an introduction to thyroid cancer. More in-depth information is available on cancer.ca. You can also call our Cancer Information Service at 1-888-939-3333 to learn more about cancer, diagnosis, treatment, support and the services we offer.

Check out our video series on common cancer topics. These short, simple videos cover subjects like *What is cancer?* and *Coping when you’re first diagnosed*.

Find the series at cancer.ca/cancerbasics.

What is cancer?

Cancer is a disease that starts in our cells. Our bodies are made up of trillions of cells, grouped together to form tissues and organs such as muscles and bones, the lungs and the liver. Genes inside each cell order it to grow, work, reproduce and die. Normally, our cells obey these orders and we remain healthy.

But sometimes the instructions in some cells get mixed up, causing them to behave abnormally. These cells grow and divide uncontrollably. After a while, groups of abnormal cells form lumps, or tumours.

Tumours can be either benign (non-cancerous) or malignant (cancerous). Benign tumour cells stay in one place in the body and are not usually life-threatening. Malignant tumour cells are able to invade nearby tissues and spread to other parts of the body. It's important to find and treat malignant tumours as early as possible. In most cases, finding cancer early increases the chances of successful treatment.

Cancer cells that spread to other parts of the body are called metastases. The first sign that a malignant tumour has spread (metastasized) is often swelling of nearby lymph nodes, but cancer can spread to almost any part of the body.

Cancers are named after the part of the body where they start. For example, cancer that starts in the thyroid but spreads to the lungs is called thyroid cancer with lung metastases.

What is thyroid cancer?

Thyroid cancer starts in the cells of the thyroid. The thyroid is a small gland at the front of your neck below the voice box (larynx). It is shaped like a butterfly. It has 2 parts, called lobes. One lobe sits on each side of the windpipe (trachea). The lobes are connected by a thin piece of tissue called the isthmus. Normally you cannot see or feel your thyroid through your skin.

The thyroid makes hormones that help your body work the way it is supposed to.

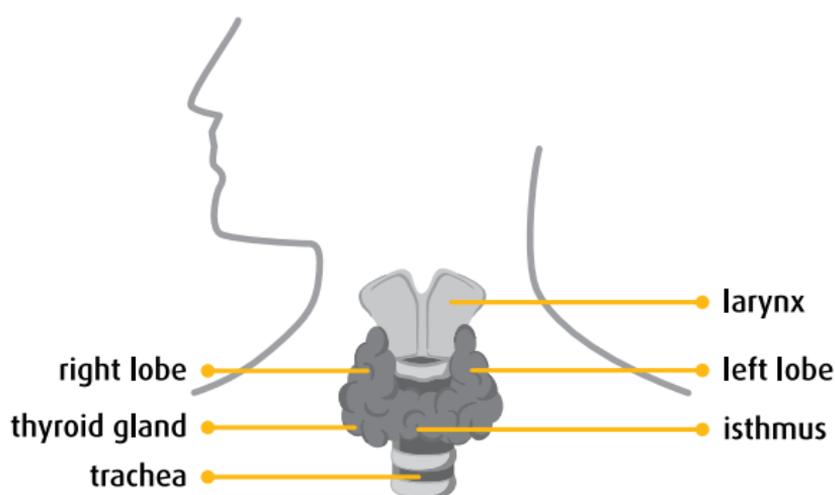
- Thyroxine (T₄) and triiodothyronine (T₃) are hormones that help control body functions, such as your heart rate, blood pressure, body temperature and weight. To make T₃ and T₄, the thyroid needs iodine. It gets iodine from the food you eat.
- Calcitonin is a hormone that helps control the level of calcium and phosphate in your blood.

Cells in the thyroid sometimes change and no longer grow or behave normally. These changes may lead to non-cancerous, or benign, conditions such as hypothyroidism, hyperthyroidism, thyroiditis or thyroid nodules. In some cases, changes to different types of thyroid cells can cause thyroid cancer.

There are 4 main types of thyroid cancer.* Each type looks different under a microscope, behaves differently and is treated differently.

- Papillary carcinoma is the most common type of thyroid cancer. It grows slowly.
- Follicular carcinoma also grows slowly. But it grows faster than papillary carcinoma.
- Medullary thyroid cancer is a rare type of thyroid cancer that grows faster than papillary or follicular carcinomas.
- Anaplastic thyroid cancer is also a rare type of thyroid cancer. It usually grows and spreads very quickly.

Location and Structure of the Thyroid Gland



* The information in this brochure is about the most common types of thyroid cancer. For information about rarer types of thyroid cancer (such as thyroid lymphoma and thyroid sarcoma), please contact our Cancer Information Service at 1-888-939-3333.

Diagnosing thyroid cancer

Your doctor may suspect you have thyroid cancer after taking your medical history and doing a physical exam. To confirm the diagnosis, your doctor will arrange special tests. These tests may also be used to “stage” the cancer and to help plan treatment.

Symptoms of thyroid cancer: Thyroid cancer often does not cause any symptoms in its early stages. As the cancer grows, signs and symptoms may include:

- a lump in the lower front part of the neck
- a hoarse voice
- trouble swallowing or breathing
- swollen lymph nodes in the neck
- an unexplained cough that doesn't go away
- an unexplained sore throat
- neck pain that doesn't go away

Other health problems can cause some of the same symptoms. The process of diagnosis may seem long and frustrating, but it's important for the doctor to make sure there are no other possible reasons for a health problem.

Your doctor will do one or more of the following tests to make a diagnosis.

Blood tests: You may have a blood test to check for abnormal levels of thyroid-stimulating hormone (TSH) in the blood. TSH is a hormone that makes the thyroid gland release thyroid hormones. Too much or too little TSH may mean your thyroid is not working properly.

Blood tests may also show certain tumour markers. Tumour markers are substances in the blood that may suggest that you have

thyroid cancer.

Imaging studies: Imaging studies let your healthcare team look at your tissues, organs and bones in more detail. Using x-rays, ultrasounds, CT scans, MRIs or bone scans, they can see the size of the tumour and if it has spread. These tests are usually painless, and you don't need an anesthetic (freezing). Ultrasound is the most common imaging study used to diagnose thyroid cancer.

Another test that may be done is a radionuclide scan (sometimes called a thyroid scan). You are given a small amount of radioactive substance to drink or as a capsule to swallow. Abnormal cells in the thyroid do not absorb the radioactive liquid as well as normal thyroid cells do. The scan is painless, and the radioactive substance usually has no harmful side effects.

Biopsy: A biopsy is usually needed to make a definite diagnosis of cancer. Cells are taken from the body and checked under a microscope. If the cells are cancerous, they will be studied further to see how fast they are growing. There are many ways to do a biopsy.

A fine needle aspiration (FNA) is the most common type of biopsy for diagnosing thyroid cancer. An FNA uses a thin needle to remove a small amount of tissue from the lump in the thyroid. The doctor may use an ultrasound to guide the needle to the suspicious area. A local anesthetic (freezing) may be used to numb the area.

A biopsy may also be done during or after surgery.

Further testing: Your doctor may order more tests to find out if the cancer has spread and to help plan your treatment.

Will I be OK?

Most people with cancer want to know what to expect. Can they be cured?

A prognosis is your doctor's best estimate of how cancer will affect you and how it will respond to treatment.

A prognosis looks at many factors including:

- the type, stage and grade of cancer
- the location of the tumour and whether it has spread
- your age, sex and overall health

Even with all this information, it can still be very hard for your doctor to say exactly what will happen. Each person's situation is different.

Your doctor is the only person who can give a prognosis. Ask your doctor about the factors that affect your prognosis and what they mean for you.

Staging

Once a definite diagnosis of cancer has been made, the cancer is given a stage. This information helps you and your healthcare team choose the best treatment for you.

The cancer stage describes the tumour size and tells whether it has spread.

Staging is different for each type of thyroid cancer because each behaves and grows differently. Thyroid cancer often behaves differently in people under age 45 than it does in people age 45 and older.

Papillary and follicular cancer (under age 45)

For papillary and follicular thyroid cancer, there are 2 stages for people under age 45.*

| Stage | Description |
|-------|--|
| 1 | The tumour can be any size and may have spread within the neck or upper chest and/or to nearby lymph nodes but not to other parts of the body. |
| 2 | The tumour can be any size and has spread to other parts of the body, such as the bones or lungs. It may also have spread to nearby lymph nodes. |

* This table summarizes the stages of thyroid cancer according to the Union for International Cancer Control (UICC). For more in-depth information, visit cancer.ca.

Papillary and follicular cancer (age 45 and over) and medullary cancer

For papillary and follicular thyroid cancer, there are 4 stages for people age 45 and over. For medullary thyroid cancer, there are 4 stages for people of all ages.*

| Stage | Description |
|-------|--|
| 1 | The tumour is smaller than 2 cm and is found only in the thyroid gland. |
| 2 | The tumour is between 2 and 4 cm, or is a medullary tumour larger than 4 cm, and is found only in the thyroid gland. |
| 3 | The papillary or follicular tumour is larger than 4 cm and is found only in the thyroid gland. Or it may be any size and has spread just outside the thyroid and/or to nearby lymph nodes. |
| 4 | <p>Stage 4A: The tumour can be any size and may have spread to the surrounding areas of the neck and/or to lymph nodes in the neck and upper chest.</p> <p>Stage 4B: The tumour can be any size and has spread to neck tissues near the backbone or around blood vessels in the neck or upper chest. Cancer cells may have spread to lymph nodes.</p> <p>Stage 4C: Cancer cells have spread to other parts of the body, such as the lung or bone.</p> |

* This table summarizes the stages of thyroid cancer according to the Union for International Cancer Control (UICC). For more in-depth information, visit cancer.ca.

Anaplastic cancer

Anaplastic thyroid cancer is extremely rare and develops most often in older women. It grows quickly, and when diagnosed it has usually spread within the neck. It is always diagnosed at stage 4.

It is important to know the stage of the cancer. This information helps you and your healthcare team choose the best treatment for you.

Treatments for thyroid cancer

Your healthcare team considers your general health and the type and stage of the cancer to recommend the best treatments for you. You'll work together with your healthcare team to make the final treatment choices. Talk to them if you have questions or concerns.

Talk to your doctor about your fertility options before starting treatment

Some treatments for thyroid cancer can affect your ability to have children. Loss of fertility may be temporary or permanent. And you may have to wait up to a year after certain treatments before trying to get pregnant. Talk to your doctor before starting treatment about ways to maintain your fertility.

For thyroid cancer, you might receive one or more of the following treatments.

Surgery: Surgery is the most common treatment for thyroid cancer. During the operation, all or part of the thyroid is removed. Surgery is done under general anesthetic (you will be unconscious). You may stay in the hospital for several days or longer after the surgery.

There are different types of surgery depending on your age and the type and stage of thyroid cancer you have. Nearby lymph nodes in the neck may also be removed. If thyroid cancer hasn't been diagnosed yet, surgery may be used to remove tissue for testing (biopsy).

- **Thyroidectomy:** The surgeon removes the entire thyroid. Thyroidectomy can be done for all types of thyroid cancer.
- **Hemithyroidectomy (lobectomy):** The surgeon removes the entire lobe on the side of the thyroid where the cancer was found. If a biopsy confirms cancer, the surgeon may also remove the other lobe.

After surgery you may have some bleeding, pain or hoarseness. You may find it painful to swallow at first, and you may need to eat soft food while you recover. These side effects are temporary and can usually be controlled.

Radioactive iodine therapy: Radioactive iodine (also called iodine-131 or I-131) is commonly used to treat thyroid cancer. It is given either as a drink or as a capsule. Thyroid cells and cancer cells absorb the radioactive iodine. It destroys any cancer cells and normal thyroid cells that may still be in your body after surgery. The amount of radiation given, and when and how it is given, is different for each person.

You will usually be given radioactive iodine treatment in isolation (in a private room) at the hospital, where you may stay for 2 to 3 days. The isolation protects others from radiation exposure. During this time, it's important to

drink lots of fluid to flush the body of excess radioactive iodine. Any I-131 not absorbed by the thyroid leaves the body through urine, feces, saliva and sweat, so careful hygiene is important. Most of the radiation is gone from the body within a few days. Only tiny amounts of I-131 remain in the body after 3 weeks.

Side effects of radioactive iodine treatment include fatigue, nausea, pain and dry mouth. These side effects are temporary and can usually be controlled.

After radioactive iodine therapy, you will take thyroid hormone replacement therapy to replace the hormone that was made by your thyroid cells.

Thyroid hormone treatment: Thyroid hormone therapy is sometimes used to treat papillary or follicular thyroid cancer. It is given as pills. The hormone thyroxine (T₄) slows the growth of thyroid cancer cells that may be left in the body after surgery.

Thyroid hormone pills rarely cause side effects once the correct dose is found.

Radiation therapy: External beam radiation therapy is used less often than radioactive iodine therapy. It may be used when medullary, papillary or follicular thyroid cancer is advanced or when anaplastic thyroid cancer can't be removed by surgery.

In external beam radiation therapy, a large machine is used to carefully aim a beam of radiation at the tumour. The radiation damages the cells in the path of the beam - normal cells as well as cancer cells.

Side effects of radiation for thyroid cancer include fatigue, nausea and skin reactions (your skin may be red and tender). You may also have a sore throat and dry mouth, making it difficult for you to swallow.

Chemotherapy: Chemotherapy is commonly used to treat anaplastic thyroid cancer but is rarely used to treat papillary or follicular thyroid cancer.

Chemotherapy uses drugs to treat cancer. Chemotherapy drugs may be given as pills or by injection (with a needle). They interfere with the ability of cancer cells to grow and spread, but they also damage healthy cells. Although healthy cells can recover over time, you may experience side effects from your treatment like a sore mouth, nausea, vomiting, loss of appetite, fatigue, hair loss and increased risk of infection.

For more information on treatment, you may want to read our booklets *Chemotherapy and Other Drug Therapies* and *Radiation Therapy*.

Biological therapy: Biological therapy (sometimes called immunotherapy) uses your immune system to fight cancer or to help control side effects of cancer treatments. Natural body substances or drugs made from natural body substances are used to boost

the body's own defences against illness. Biological therapy may be used to treat medullary thyroid cancer. Side effects of biological therapy may include diarrhea, skin rashes, nausea and vomiting.

Clinical treatment trials: Clinical treatment trials investigate new approaches to treating cancer, such as new drugs, new types of treatments or combinations of existing treatments. They are closely monitored to make sure that they are safe and effective for the participants. Ask your doctor if any clinical trials are available as a suitable treatment option for you. You may benefit and so may future cancer patients.

Our brochure *Clinical Trials* has more information, including how to find a clinical trial.

Complementary therapies: Complementary therapies - for example, massage therapy or acupuncture - are used *together with* conventional cancer treatments, often to help ease tension and stress as well as other side effects of treatment. They don't treat the cancer itself. More research is needed to understand if these therapies are effective and how they work.

Alternative therapies are used *instead of* conventional treatments. Alternative therapies haven't been tested enough for safety or effectiveness. Using alternative treatments alone for cancer may have serious health effects.

If you're thinking about using a complementary or alternative therapy, learn as much as you can about the therapy and talk to your healthcare team. It's possible that the therapy might interfere with test results or other treatments.

Side effects of treatments

Some cancer treatments cause side effects, such as fatigue, hair loss or nausea. Because treatments affect everyone differently, it's hard to predict which side effects - if any - you may have.

Side effects can often be well managed and even prevented. If you're worried about side effects, tell your healthcare team about your concerns and ask questions. They can tell you which side effects you should report right away and which ones can wait until your next appointment.

If you notice any side effects or symptoms that you didn't expect, talk to a member of your healthcare team as soon as possible. They'll help you get the care and information you need.

After treatment

Follow-up care helps you and your healthcare team monitor your progress and your recovery from treatment. At first, your follow-up care may be managed by one of the specialists from your healthcare team. Later on, it may be managed by your family doctor.

The schedule of follow-up visits is different for each person. You might see your doctor more often in the first year after treatment and less often after that. After treatment has ended, you should report new symptoms and symptoms that don't go away to your doctor without waiting for your next scheduled appointment.

Self-image and sexuality: It's natural to be concerned about the effects of thyroid cancer and its treatment on your sexuality. You may be worried about how your body looks after treatment, about having sex with a partner or that you may be rejected. It may help to talk about these feelings with someone you trust. Your doctor can also refer you to specialists and counsellors who can help you with the emotional side effects of thyroid cancer treatment.

Our booklet *Sex, Intimacy and Cancer* has more detailed information.

Thyroid hormone replacement therapy: After surgery and other treatments for thyroid cancer, you will likely need to take thyroid hormone pills for the rest of your life to replace the natural hormones made by your thyroid gland. Thyroid hormone replacement therapy rarely causes side effects. Your blood is tested to make sure you're getting the right dose of thyroid hormone. Too much thyroid hormone may cause you to lose weight and feel hot and sweaty. Not enough thyroid hormone may cause you to gain weight and feel cold and tired.

If you have side effects, your doctor will adjust your dose of thyroid hormone. It may take several months to find the dose that is right for you.

The end of cancer treatment may bring mixed emotions. You may be glad the treatments are over and look forward to returning to your normal activities. But you might feel anxious as well. If you're worried about the end of your treatment, talk to your healthcare team. They're there to help you through this transition period.

Living with cancer

Our booklet *Coping When You Have Cancer* has more detailed information and resources.

Many sources of help are available for people with cancer and for their caregivers.

Your healthcare team: If you need practical help or emotional support, members of your healthcare team may be able to suggest services in your community or refer you to cancer centre staff or mental health professionals.

Family and friends: People closest to you can be very supportive. Accept offers of help. When someone says, “Let me know how I can help,” tell them what they can do. Maybe they can run errands, cook a meal or drive you to your doctor’s office.

People who’ve had a similar experience: Talking with and learning from others who’ve had similar experiences can be helpful. Consider visiting a support group or talking with a cancer survivor in person, over the telephone or online. Try more than one option to see which one works best for you.

Yourself: Coping well with cancer doesn’t mean that you have to be happy or cheerful all the time. But it can mean looking after yourself by finding relaxing, enjoyable activities that refresh you mentally, spiritually or physically. Take some time to find coping strategies to help you through this experience. You may also want to talk to a counsellor for more help.

Talking to someone who's been there

If you would like to talk to someone who's had a similar cancer experience, you can connect by phone with a trained volunteer who will listen, provide hope and suggest ideas for coping – all from the shared perspective of someone who's been there.

Register for this free program at match.cancer.ca or call us at 1-888-939-3333.

Want to connect with people online?

If you'd like to join our online community, visit CancerConnection.ca. You can read news, join discussion groups that, get support and help others at the same time. You'll find caring, supportive people there.

What causes thyroid cancer?

There is no single cause of thyroid cancer, but some factors increase the risk of developing it. Some people can develop thyroid cancer without any risk factors, while others who have these factors do not get it. Thyroid cancer can develop at any age, but most cases occur in people 20–60 years old. For unknown reasons, thyroid cancer occurs about 3 times more often in women than in men.

Risk factors for thyroid cancer include:

- radiation exposure
- radiation therapy to the head and neck during childhood
- radioactive fallout (for example, nuclear accidents like in Chernobyl)
- history of benign thyroid conditions, such as goitre (an enlarged thyroid) and thyroid nodules
- family history of thyroid cancer

Canadian Cancer Society

We're here for you.

When you have questions about treatment, diagnosis, care or services, we will help you find answers.

Call our toll-free number 1 888 939-3333.



Ask a trained cancer information specialist your questions about cancer. Call us or email info@cis.cancer.ca.



Connect with people online to join discussions, get support and help others. Visit CancerConnection.ca.



Browse Canada's most trusted online source of information on all types of cancer. Visit cancer.ca.

Our services are free and confidential. Many are available in other languages through interpreters.

Tell us what you think

Email cancerinfo@cancer.ca and tell us how we can make this publication better.



What we do

The Canadian Cancer Society fights cancer by:

- doing everything we can to prevent cancer
- funding research to outsmart cancer
- empowering, informing and supporting Canadians living with cancer
- advocating for public policies to improve the health of Canadians
- rallying Canadians to get involved in the fight against cancer

Contact us for up-to-date information about cancer and our services or to make a donation.



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