

# LARYNGECTOMY



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## LARYNGECTOMY

This information aims to help you understand the operation, what is involved and some common complications that may occur. It may help answer some of your questions and help you think of other questions that you may want to ask your cancer care team; it is not intended to replace advice or discussion between you and your **cancer care team**.

### AN OVERVIEW TO LARYNGECTOMY

The **larynx** (or voice box) is an organ in the front of the neck.

- It is made up of cartilage (a firm tissue), muscles and ligaments which move to make different sounds and protect the lungs when swallowing (see diagram below).
- The cartilage in the front of the larynx is sometimes called the Adam's apple.

The larynx has three parts which doctors may refer to when describing where a cancer is located within the larynx:

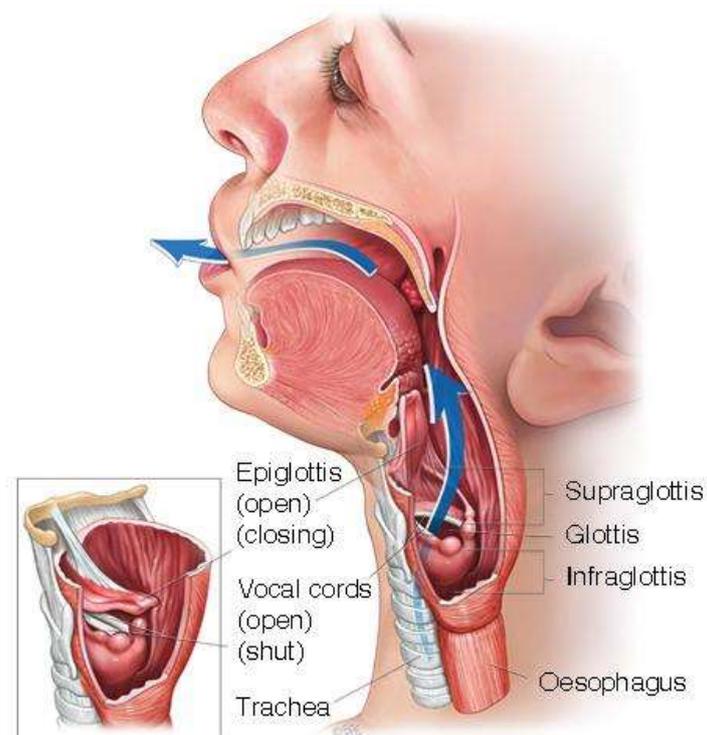
- **upper (supraglottis):** the area from the epiglottis down to the vocal cords at the top of the larynx. The epiglottis is responsible for protecting the lungs when swallowing foods and liquids.
- **middle (glottis):** this area contains the vocal cords which open when breathing, and close when talking and swallowing.
- **lower (subglottis):** the area below the vocal cords where the larynx joins the trachea (or windpipe). The trachea links the larynx to the lungs.

A **laryngectomy** is the removal of all (total laryngectomy) or part of the larynx (partial laryngectomy).

Partial laryngectomy is the term used to describe removal of part of the voice box using a cut on the neck, but your surgeon may also consider removing the cancer with a laser or robot through the mouth without any external cuts (transoral surgery).

- Further information on partial laryngectomy is available on the [Head and Neck Cancer Australia website](#).

- Further information about [Trans-oral robotic surgery](#) or [Trans-oral laser surgery](#) is available on the [Head and Neck Cancer Australia website](#).



Total laryngectomy is used for larger cancers that cannot be treated with a smaller operation. This involves removing the whole voice box and will have a major effect on your life. It will change the way that you talk, breath and look. Despite this, most patients adjust to these changes with the support of their friends, family and cancer care team.

After the voice box is removed during a total laryngectomy, the top of the windpipe is sewn to the skin of the neck to make a hole that you will breathe through after surgery. This is called a tracheostoma, or 'stoma' for short.

Sometimes cancers of the voice box can extend outside of the larynx and part of the throat (hypopharynx) needs to be removed as well. This is called a laryngopharyngectomy. Further information of [laryngopharyngectomy](#) is available on the [Head and Neck Cancer Australia website](#).

Sometimes the lymph nodes in the neck may need to be removed and this is called a neck dissection. Further information on [neck dissection](#) is available on the [Head and Neck Cancer Australia website](#).

Part or all of the thyroid gland may also be removed during total laryngectomy. Further information on [thyroidectomy](#) is available on the [Head and Neck Cancer Australia website](#).

After the cancer is removed, some reconstructive surgery may also be done in the same operation. Further information on different reconstructive surgeries ([soft issue flaps](#) and [regional flaps](#)) is available on the [Head and Neck Cancer Australia website](#).

## WHY IS A LARYNGECTOMY NEEDED

A laryngectomy is recommended for patients with certain laryngeal and hypopharyngeal cancers, when the cancer is in or close to the voice box. There are three situations where it is commonly used:

- when radiation therapy is unlikely to cure the cancer;
- when the voice box or swallowing passage has been severely damaged by the cancer;
- when radiation therapy has already been used.

The cancer together with an area of normal-appearing tissue is removed to reduce the chance of any cancer cells being left behind.

Tissue removed from the laryngectomy will be examined in detail by a specialist pathologist, under a microscope to look for cancer cells. Through this examination, the cancer can be accurately staged. Further information about [staging of cancer](#) is available on the [Head and Neck Cancer Australia website](#).

## HOW TO PREPARE FOR THE OPERATION

### BEFORE THE OPERATION:

- You will need to fast (have nothing to eat or drink) for 6 hours before your operation (unless advised differently by your surgeon or anaesthetist) because thyroidectomy is

Possible questions that you may want to ask your cancer care team

How long will it take before I can eat again?

What kinds of food should I eat after the operation?

How will I talk

performed under a general anaesthetic (you will be asleep and will not remember what happens during the operation).

- Your surgeon will explain the details of your operation. Be sure to bring up any questions or concerns, and share your needs and wishes with your cancer care team (see box).
- You should speak to your doctor about how to manage aspects of your lifestyle, such as smoking, drinking alcohol and chronic conditions (e.g. diabetes and obesity) that may increase the risk of complications.
  - If you take blood thinning medication for a heart condition or blood clots (such as Warfarin, Plavix, Aspirin or Pradaxa), make sure your surgeon is aware. Some of these medications need to be stopped more than a week before the operation. Sometimes a short-acting blood thinner (such as Clexane) is used before and after the surgery.
- Talk to your surgeon and cancer care team about any likely side effects to expect following the operation. You will not be able to speak in the normal way after removal of your voice box, so you should discuss with your cancer care team how you will speak and swallow, and adjust.
- A laryngectomy will permanently and significantly alter your speech and breathing. It is important to talk to a speech pathologist about what to expect after operation and how you might be helped to speak and swallow afterwards.
- A dietitian may also be useful to discuss issues about eating.
- Your speech pathologist may arrange for you to meet another patient who had this operation (either online or in person). It can help to hear how they have coped and adjusted; it may also be encouraging to hear how others have managed to recover well and lead healthy productive lives. Your cancer care team can assist with making these contacts.
- If you are having a total laryngectomy you will be offered to meet a representative from the Laryngectomee Association of NSW who has undergone this surgery.
- Spend some time planning how to communicate with people including the nursing staff straight after the operation as you may not be able to talk (see section below: Will I be able to speak).

- Be sure to stay well nourished; if you are having trouble swallowing it may be helpful to take some high-calorie supplements. This is best done with the advice of the speech pathologist and dietitian.

## WHAT TO EXPECT DURING THE OPERATION

### DURING A TOTAL LARYNGECTOMY:

- A cut is made in the centre of the neck, extending far across each side of the neck.
- After the larynx is removed the surgeon may send the tissue from the edges of what was removed to the pathologist to confirm that the cancer cells have been removed. This is called a 'frozen section' because the tissue is snap frozen so that it can be quickly made into slides that can be reviewed under a microscope while you are asleep.
- Part of the thyroid gland is also often removed.
- After the voice box is removed, your surgeon will sew the top of the windpipe to the skin at the front of the neck. This will become the hole that helps breathing, called a tracheostoma or laryngostoma. A tracheostoma is a little different to a tracheostomy because it is permanent as the voice box is gone. Further information about [tracheostomy](#) is available on the [Head and Neck Cancer Australia website](#).
- A hole may be made in the back of the tracheostoma through to the oesophagus. This is called a tracheo-oesophageal fistula or puncture (TEP). This hole is used for talking by directing air from the lungs back through the mouth. The hole needs to be kept open with a special speaking valve. Sometimes this is done during the laryngectomy but may be done at a later stage when everything has healed.
- Lymph nodes in your neck may also be removed to remove any glands affected by the cancer. This is called a neck dissection. Further information on [neck dissection](#) is available on the [Head and Neck Cancer Australia website](#).
- If reconstructive surgery using a flap is required, then this follows the removal of the voice box. Further information about reconstructive surgery is available on the [Head and Neck Cancer Australia website](#).

- There will be a feeding tube inserted through the nose, or through the TEP hole in the back of the stoma to help transport nutrition into the body for the first week or two after surgery, or sometimes longer. Further information about [feeding tubes](#) is available on the [Head and Neck Cancer Australia website](#).

## WHAT TO EXPECT AFTER THE OPERATION

- After the operation, you will be closely monitored in the hospital ward or the intensive care unit during your recovery.
- You may have a drip in your arm to give you fluid until you are able to drink and a feeding tube to keep your body healthy and promote healing until you are able to eat and drink by mouth.
- You may have some surgical drains coming from the area of the operation to allow blood or fluid to escape and prevent swelling. These will be removed before you go home.
- The operation takes several hours, so a catheter is usually placed in the bladder to monitor how your kidneys are working.
- After your larynx is removed, you will breathe through the breathing hole in your neck (stoma) and will no longer be able to speak normally. A tracheostomy tube is usually placed in the hole to start with. This tube will need to be suctioned and cleaned by the nurse looking after you
- Most patients stay in hospital for around 2 weeks to recover but will vary depending on the extent of your surgery and how you recover.

## WILL I BE ABLE TO SPEAK?

- You will not be able to speak in the normal way after removal of your voice box. The air from your lungs will come out from the hole in the throat (the stoma), instead of the mouth.

- In hospital after surgery, you may need to write things down that you want to say to people. It is useful to have a pen and paper, mini white board or iPad/tablet in hospital to write down anything you want to say.
- After a total laryngectomy, there are different ways you can speak again. Your surgeon and speech pathologist will discuss this with you and advise on the best option for you.
- A speech pathologist will help you with voice rehabilitation that may involve speaking by:
  - swallowing air and expelling it (oesophageal speech)
  - using an artificial larynx with an electronic device (electrolarynx)
  - using a speaking valve in the hole at the back of your stoma so that air from the lungs can reach the food pipe (tracheo-oesophageal speech).

## **WILL I BE ABLE TO EAT?**

- You will still be able to eat after total laryngectomy because the swallowing passage is not removed.
- However, you will probably have to wait about one week for your throat to heal and to reduce risk of a salivary leak from where the throat (pharynx) has been sealed.
- Once the feeding tube is removed, you may have some difficulty swallowing and a speech pathologist can assist with this.
- You will lose your sense of smell, since the air doesn't pass through your nose when you breathe in. Food will taste very different without your sense of smell.

## **WILL I BE IN PAIN?**

- Laryngectomy is not usually a very painful operation, but you will be uncomfortable. Let the nurse know if you are experiencing pain.
- Your anaesthetist and surgical team will give you medicine to help control any pain and nausea after the operation.

## HOW DO I BREATHE?

- After total laryngectomy, you will breathe through the hole in your neck (laryngostoma, or stoma). This will be permanent and you will breathe through this hole from now on. Further information about laryngostomas is available on the [Head and Neck Cancer Australia website](#).

## POSSIBLE RISKS OF LARYNGECTOMY

All operations carry some risks such as blood clots, wound infections, bleeding, chest infection, adverse reactions to anaesthetic, and other complications. These risks will be explained by your cancer specialist and anaesthetist.

Your doctor will explain details of the operation, general risks and side effects of the operation, they may recommend:

- stopping blood thinners (e.g. aspirin) before surgery to reduce the risk of bleeding
- a blood thinner (called heparin) may be injected before and after surgery to reduce the risk of blood clots
- antibiotics to reduce to risk of wound infection
- early mobilisation to reduce the risk of blood clots and chest infection
- special stockings to reduce the risk of blood clots.

Risks specific to laryngeal surgery vary depending on the type of surgery and general health.

In addition to the general risks of surgery mentioned above, these are possible risks:

- **Bleeding:** some people may experience excessive bleeding, which may be life-threatening. If this happens, another operation may be needed to stop bleeding or your surgeon may suggest blood transfusion.
- **Abnormal opening or fistula:** if the seal separating the throat and neck breaks down, saliva may leak causing an infection. This can be a very serious complication and might require opening a wound to allow it to drain or another operation to fix the seal.

- **Infection:** bacteria may cause an infection in the neck wound after the surgery. The surgeon will prescribe antibiotics to prevent this occurring, but if an infection still occurs, it might require opening part of the wound to allow any pus to drain out.
- **Airway obstruction:** Blocking of the airway can happen from crusting of the stoma. You will be given careful instructions in hospital on how to look after your stoma before you go home.
- **Leakage of lymphatic fluid (chyle leak):** Lymphatic fluid leaks from lymph channels (near where **lymph nodes were removed**) and may cause swelling under the skin. This can be treated using a special diet.
- **Low blood calcium:** The parathyroid glands (responsible for controlling the body's calcium levels) are located near the larynx and may be damaged or removed during the laryngectomy. This may cause blood calcium levels to fall below normal, leading to muscles spasms and can be treated with calcium tablets.
- **Nerve damage:** a number of nerves run close to the lymph nodes. Occasionally, some of these nerves are injured or need to be removed during the operation. If the nerves have been injured or bruised during the operation, the side effects usually go away after a few months, but, if a nerve is removed during the operation, the weakness may be permanent. Depending on the nerve involved, this may lead to:
  - shoulder weakness, stiffness and discomfort in your shoulder, including difficulty raising your arm above the head
  - uneven smile due to weakness of the lower lip
  - difficulty with speech and swallowing
  - arm and breathing muscle weakness.
- **Flap failure:** if a flap reconstruction is needed, then microsurgery is done to join blood vessels together to keep the flap alive. If the blood supply blocks, another operation will be needed to fix the problem. Sometimes the problem cannot be fixed and a new flap is needed.

## SIDE-EFFECTS AND MANAGING SIDE EFFECTS

As with all operations, there is a chance that neck dissection may lead to a number of side effects. You may not experience all of the side effects. Speak with your doctor if you have any questions or concerns about treatment side effects. Side effects common for total laryngectomy may include:

- **Nausea:** General anaesthetic may cause nausea. This will settle down soon after the operation and can be treated with medications.
- **Swollen throat:** Your mouth and throat may be swollen from the operation.
- **Pain management:** Pain is a common side effect of the operation. Your anaesthetist will give you pain medicine during the operation to keep you comfortable when you wake up, and you may continue on pain medicines to ensure pain is under control.
- **Changes in eating and speaking:** Total laryngectomy will affect eating, breathing and speaking. It may be useful to have a tablet/portable device or pen and paper to write down what you want to say; and breathing and feeding tubes may be used to help you breathe and receive nutrition especially soon after surgery.
  - You will breathe through a hole in your throat (stoma); give yourself time to learn to breathe through a stoma and speak in a different way, and to adjust to these big changes. A speech pathologist and your cancer care team are able to help.
  - Swallowing will likely be difficult for a few weeks and a dietitian will also provide assistance to help with your nutrition and eating during recovery.
  - You will lose your sense of smell, since the air will no longer pass through your nose when you breathe in. Food will taste very different without your sense of smell.
- It may help to make contact with other patients who have had this surgery or a support group. Hearing how others have coped with this operation and the adjustments needed can help you have a positive attitude and realistic expectations. Seeing how others lead healthy productive lives after laryngectomy is encouraging. Your health care team can help with making these contacts, in person or online.

**Hypothyroidism:** If all or some of the thyroid gland is removed during the laryngectomy and not enough thyroid hormone is made, some people may feel tired and sluggish. This is very common if you have already had radiotherapy. Blood tests are used to measure the levels of thyroid hormones about two months after surgery. You may need to remind your surgeon or doctor to check this.

## BEFORE GOING HOME

- **Care of your stoma:** You will be given information and careful instructions in hospital and you will not be discharged until you and your carers are completely comfortable with looking after your stoma.
  - It is very important to keep the stoma clean. It can be very dangerous if the airway becomes blocked. Using a small mirror may aid you with caring for the tube.
  - Ask as many questions as you need to while you are still in hospital. To get more confident yourself, practice looking after the stoma as much as you can. It can feel daunting but is quite simple. Don't worry and be sure to ask any questions you have.
  - It helps if someone else you live with or see regularly, also learns what you have to do.
  - Your recovery at home may vary and you should allow time for your body to recover and heal. With major surgery this can be slow and you may feel tired or lack energy. Regular follow up helps to assess your progress.
- **Keeping your airway moist:** Normally air is kept warm and moist by the nose so dry air does not irritate the windpipe and lungs. After total laryngectomy, the air does not go through the nose, so it is very important that it is moistened. You will be given instructions on keeping your airways moist. Most patients use a Heat Moisture Exchanger (HME) device.
- **Feeding tube:** The gastrostomy tube is usually removed before leaving the hospital. However, if you have to go home with the gastrostomy tube, it is very important that you know how to look after it. You will be given information and careful instructions in hospital. Further information on Feeding tubes (Gastrostomy) is available on the [Head and Neck Cancer Australia website](#).

- Any particular instructions for [wound care](#) or medications will be provided to you before you go home. You may want to download further information about wound care on the [Head and Neck Cancer Australia website](#).
- Your doctor will advise you about any particular symptoms you should look out for such as difficulty breathing or swallowing, fever or discharge from the wound, and what you should do.
- You will be assessed by the team involved in your care before you go home and follow-up will be arranged with your surgeon and GP. Follow-up may also be arranged with any other allied health professionals to assist you with [supportive care](#).
- Your [cancer care team](#) can help you make contact with other patients and support groups to hear how they have coped and adjusted.

## OTHER TREATMENT(S)

- Additional treatment(s) depend on the nature and extent of the cancer.
- Head and neck cancers often require treatment with more than one form of therapy to reduce the risk of the cancer recurring. Many patients need radiation therapy after the operation, and sometimes, may also require chemotherapy.
- Your cancer care team will be able to discuss the likelihood of needing further treatment before your operation.

## FOLLOW-UP CARE

- After your operation, you will continue to have regular follow-up visits with your specialist doctor and cancer care team. This may include a check on the stoma.
- It may be useful to make contact with a support group, such as a Laryngectomy association, or with other patients who have had this surgery. Your health care team can help with making these contacts, in person or online.
- Follow-up may also be arranged with any other allied health professionals to assist you with supportive care, such as a speech pathologist to help learn to speak again or a dietitian to assist with swallowing or eating difficulties.

- Any additional reconstruction, cosmetic procedures or treatments that you may need are planned after discharge. This enables time for you to recover from the initial operation, get results of the pathology that examined the tissue removed at the operation, and make the arrangements for any additional treatment or next steps.

For further information about the operation for cancer and what to expect, you can also refer to [Understanding Surgery: a guide for people with cancer, their families and friends.](#)

## QUESTIONS TO ASK YOUR DOCTOR

- What type of cancer do I have? Where is it located?
- What lifestyle changes (diet, exercise) do you recommend I make?
- What are the chances that the surgery will cure the cancer?
- What will happen if I decide not to have the surgery?
- How much will the operation cost? Will my health insurance cover it?
- What are the possible side effects of treatment? How can they be prevented or controlled?
- When will I get the pathology results?
- What follow-up tests will I need after the operation?
- Am I suitable for any clinical trials?

You may want to write specific questions here to ask your doctor or cancer care team

#### **About Head and Neck Cancer Australia**

Head and Neck Cancer Australia (formerly Beyond Five) is Australia's only charity dedicated to providing information and support to people living with head and neck cancer, caregivers, family and healthcare professionals.

Head and Neck Cancer Australia's mission is to improve the quality of life of everyone affected by head and neck cancer through education and access to support and to raise awareness of head and neck cancer nationally.

Head and Neck Cancer Australia supports people through their cancer journey, from diagnosis to treatment and life after cancer by providing comprehensive, easy to understand and easy to access information. We have the only Directory of Head and Neck Cancer services and support groups available in Australia and New Zealand helping people to find the right services and support when they need it most.

Phone: 1300 424 848

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