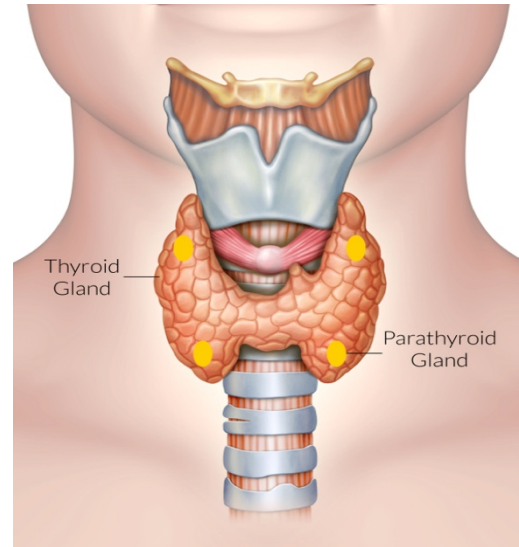


PARATHYROID SURGERY INFORMATION SHEET

(DR SZE LING WONG – ENDOCRINE SURGEON)

What are the parathyroid glands?

The parathyroid glands are four small glands in your neck, two on each side of your thyroid gland. They make parathyroid hormone (PTH) which controls the level of calcium in the blood. Calcium is very important for the normal functioning of muscles, nerves, and bones. It is absorbed through the intestines and stored in the bones. Parathyroid hormone raises blood levels of calcium by increasing intestinal absorption of calcium, and by dissolving calcium from the bone into the bloodstream.



What is hyperparathyroidism?

When there is elevated parathyroid hormone, it is a condition called hyperparathyroidism. This condition is most common in middle-aged women, but can occur in men or women at any age, and can run in families. In 8 of 10 patients with hyperparathyroidism, the cause is a single benign tumour. In two of 10, more than one parathyroid gland is enlarged. Cancer incidence is extremely rare. The overactive parathyroid steals calcium from your bones and puts it into the bloodstream. High blood calcium can cause you to feel tired and irritable, and have aches and pains. Over time, your bones can become weak, and your risk of broken bones is higher as you can develop conditions such as osteopenia and osteoporosis.

What are the symptoms of hyperparathyroidism?

Hyperparathyroidism can cause

- weak bones, called osteoporosis, which can lead to fractures
- kidney stones, poor kidney function
- high blood pressure
- abdominal pain
- increased thirst and frequency of urination
- constipation
- stomach ulcers and pancreatitis
- psychiatric problems
- arrhythmias and heart disease
- difficult to control blood sugar in diabetics

Other symptoms are much more subtle, and include

- weakness and fatigue, loss of energy
- memory and concentration problems
- muscle and joint aches and pains
- abdominal and back pains
- feeling “older” than you should
- mood swings or depression
- headaches
- poor sexual function
- disordered sleep patterns
- itchy skin

IMPORTANT* These vague symptoms may improve in about 60% of patient after successful parathyroid surgery. Hence, there is no guarantee. Bone density also improves, reducing the risk of fractures.*****

Treatment of hyperparathyroidism

The only effective treatment for hyperparathyroidism is surgery to remove the overactive (enlarged) gland(s). In the hands of an experienced endocrine surgeon, surgery can cure the condition in 98% of cases. There is no effective non-surgical treatment for hyperparathyroidism. Before surgery, you will have a parathyroid CT or a sestamibi scan (a painless scanning test) and a neck ultrasound to see if the enlarged gland(s) can be located. If only one enlarged gland is seen, you can have “parathyroid mini-surgery” through a very small incision, and go home the next morning. Neck ultrasound is also used to detect abnormal thyroid nodules that can be treated the same time if found.

If the abnormal gland is not seen on scanning, or if there is more than one enlarged parathyroid, the operation is slightly longer, but is still successful in 95% of cases. The surgery takes about one to two hours, and the incision is about 4cm to 5cm on your neck. You will be completely asleep during the operation, and will feel no pain. Recovery is quick, with most patients going home the next day, and feeling very little discomfort. Most are back at work in about a week. It is important to remember that driving is not safe while taking pain medications that can cause drowsiness, and patients should not drive until they can turn their head comfortably from side to side (this may take up to a week).

Frequently Asked Questions

Is there any other good treatment besides surgery?

No. Surgery is the only durable and effective treatment of hyperparathyroidism.

What if I don't have the surgery?

Even if you think you have no symptoms, you may feel generally better after you are cured. If you don't have surgery, you will continue to have high blood calcium, and many symptoms listed above. Without surgery, your bones will continue to become weaker, and possibly break. There is evidence of increased risk of high blood pressure, stroke, heart disease, and even shorter life expectancy, from untreated hyperparathyroidism.

What are the possible complications of parathyroid surgery?

The nerves (recurrent laryngeal nerves) that control your voice are closely associated with the parathyroid glands. Temporary voice changes are common, but usually resolve within weeks to months. In 1 in 100 parathyroid operations, the nerve that controls the voice is permanently affected, leaving your voice hoarse. Some patients have difficulty with projection of the voice and production of high pitched sounds. This problem is more common, and may affect your singing voice. “Voice fatigue” may occur as well.

Sometimes the surgery will not cure the hyperparathyroidism. In the hands of an experienced endocrine surgeon, failure to cure occurs in roughly 5 in 100 patients. The most common reason is another enlarged parathyroid that was not seen on initial imaging. These can be found at a second operation, required in about 4-5% of patients.

Sometimes the normal parathyroid glands become “lazy” because the abnormal gland was doing all the work. They may take some time to recover, so some patients require extra calcium tablets on a temporary basis. Rarely, after a bilateral parathyroid exploration, the parathyroids do not recover, and calcium and vitamin D may be needed on a permanent basis. Occasionally, the benign tumour (parathyroid gland disease) can recur. We recommend an annual calcium blood test after parathyroid surgery.

There is a small risk of bleeding into the wound. If this happens, it may be necessary to have a second operation to evacuate the blood so it does not interfere with your breathing. Infection is relatively uncommon, and is easy to treat should it occur.

WHAT ARE THE RISKS OF PARATHYROID SURGERY?

As with anything in life, there are risks to surgery. These risks are weighed against the risks of not having surgery. Listed below are some of the possible complications of surgery. Risks include, but are not limited to:

- Permanent voice hoarseness.....1%
- Persistent hyperparathyroidism.....5%
- Permanent hypoparathyroidism.....½ % (0% for mini-surgery)
- Infection of Incision.....Less than 1%
- Haematoma or Bleeding.....Less than 1%
- Seroma (fluid collection).....1% (temporary)
- Swelling and black/blue..... 5-10% (temporary)
- Keloid or overgrown scar.....uncommon in Caucasians
- 10-20% in Asian, Indian, African skin
- Scar tethering/tightness.....5% early, usually settles with time
- Other unforeseen risks

You will require general anaesthetic, given by a specialist anaesthetist. Risk of a serious complication in a healthy person is very rare. Potential risks include, but are not limited to:

- Heart problems (death, heart attack, arrhythmias)
- Lung problems (pneumonia, wheezing)
- Blood clots (stroke, clots in leg veins or lungs)
- Drug reactions (also possible with local anaesthetic)
- Chipped teeth
- Other unforeseen risks

You will meet the anaesthetist just before your operation and have the chance to discuss these further.

How long will I be hospitalised?

Most patients are admitted to the hospital on the morning of their surgery. You will be able to go home the day after surgery. Sometimes, if you have mini parathyroid surgery, you may be able to go home that same evening, depending on how you feel.

What type of anaesthesia will I have?

You will have a general anaesthesia. You will be completely asleep during the operation. You will have local anaesthesia injected into the neck (cervical plexus block) to make you even more comfortable when you wake up. This local anaesthetic block will probably leave your ear lobes numb for 24 hours as well.

When will I know the results of the surgery?

The calcium levels generally return to normal within 12-48 hours of surgery.

A final pathology report requires careful study of the surgical specimen. Therefore, the final report is usually not available until about two to three weeks after the operation.

Will I have stitches?

You will have stitches on the inside that dissolve on their own.

Will I have pain after the operation?

Most patients are surprised at how comfortable they are after parathyroid surgery. Although you should be able to eat and drink normally, the main complaint is sore throat and discomfort with swallowing for 4-5 days. You may also have a headache, or pain at the back of your neck. Most patients take paracetamol to keep them comfortable at home. You can have a prescription for something stronger for the first few days in case you need it, but beware prescription pain medicine can make you drowsy and constipated, so do not drive, drink lots of water and eat plenty of fruits and vegetables.

When can I remove the wound dressing?

You will have a waterproof dressing so that you can shower or bathe as usual (but do not submerge the incision). **You can remove the dressing after about two weeks.** You may see thickened skin glue which is applied to the wound to assist healing process and it will flake off by itself, usually after 3 to 4 weeks. Do not peel off the skin glue, otherwise you may be at risk of wound infection.

Will I have a scar?

Yes. All surgery causes a scar, and how a patient scars is dependent on the individual. Techniques we use to minimise scarring include careful incision placement in a natural skin crease, and hypoallergenic suture material (to avoid inflammation). For parathyroid “mini-surgery,” the scar is about 3cm. If you need a full neck exploration, it will be bigger (4-6 cm). Scars continue to fade for three years.

How can I lessen my scar?

Scar formation and scar maturation are ongoing processes. Scars continue to grow and change throughout the recovery process which may take from twelve to eighteen months. Scar massage is an effective way to decrease scar tissue build up and help make scars less noticeable by softening and flattening it.

You should start massaging your scars about three weeks after surgery. Wait until all scabs have fallen off by themselves. Do not pull your scabs off. Use the facial pads or soft tips of your fingers to massage the scar and tissue around the scar. Massage in all three directions (circle, vertical and horizontal). You should apply as much pressure as you can tolerate. Begin with light pressure and progress to deeper and firmer pressure. Massage lotion in, applying enough pressure to make the scar area lighten in color or turn white. Massage should be done two to three times daily for ten minutes each time.

You can use Silicone Strips to reduce scarring – to be worn 12 hours every day for 8 to 12 weeks after surgery.

Will I have any physical restrictions after my surgery?

Your activity level depends on the amount of discomfort you experience. Many patients have resumed golf or tennis within a week after the operation. **Most patients return to work in a week, and you are able to drive as soon as your head can be turned comfortably without prescription pain pills (this limitation is for driver safety), usually around one week.**

Should I do neck exercise after my surgery?

Yes, these neck exercises after thyroid surgery can increase comfort and your range of motion. Patients can feel tight across the neck area where a scar is forming, and neck exercises can alleviate some of those feelings of discomfort. You need to lift your chin up and down, side to side and down to side. Repeat all of these exercises 10 times. You can perform them a couple of times per day.

PREPARATION for SURGERY

- Do Not Drink Alcoholic beverages 24 hours prior to your surgery.
- Do Not Smoke for 4 weeks before surgery or your risk of serious complications increases.
- Ask us if you are permitted to take your routine medications (such as those for heart, blood pressure, or insulin etc.) before arriving for surgery.
- Stop aspirin, warfarin, or any other blood thinner 7 days prior to surgery (unless advised otherwise by doctor)
- **Diabetic patients:** Stop SGLT2 and SGLT2i inhibitors 3 days prior to surgery. SGLT2 inhibitor agents include DAPAGLIFLOZIN (Forxiga®), EMPAGLIFLOZIN (Jardiance®), or a combination with metformin (Xigduo®, Jiardamet®). (discuss with anesthetist)
- **Diabetic patients:** Do not take Metformin or any oral hypoglycaemic on the day of surgery. Discuss with anesthetist about management of insulin.
- Do Not bring valuables such as money, jewelry etc. Do not wear make-up.
- Bring toiletries and loose fitting, comfortable clothing to wear upon discharge.
- You will be required to remove contact lenses, jewelry, dentures, and wigs
- Arrange for a responsible adult to drive you home after discharge.
- Notify us there is a change in your condition prior to surgery (such as a cold, cough, fever or infection). If severe, your surgery may need to be postponed for your safety.
- Stop all herbal medications 4 weeks before surgery unless discussed beforehand. Especially Ginseng, Garlic, and Gingko, Fish oil, or St. John's Wort, which increase the risk of bleeding.

THE DAY of YOUR SURGERY

- Please shower at home the evening before or the morning of surgery.
- For morning surgery, Do Not Eat or anything after midnight the night before surgery unless otherwise instructed. Clear liquids (water, apple juice, black tea or coffee **NO MILK**) are OK until two hours before your admission time. Medication with a small sip of water is OK. For afternoon surgery, a small breakfast **BEFORE 7AM** is OK, and clear liquids only after that, until two hours before admission. Your surgery may be cancelled if you do not follow these instructions.
- On the day of your surgery, report to reception of the hospital at the time instructed
- Bring a book – you may be waiting a few hours before your operation.
- If you have not already done so, you will meet your anesthetist
- You may need a blood test or ECG prior to surgery
- After the operation, you will spend some time in the recovery room before going to the ward
- After discharge, you are not permitted to:
 - Drive a Car nor operate power equipment (for at least one week)
 - Drink Alcoholic Beverages
 - Sign important papers
 - (The above are not permitted on the day of surgery and for the next 24 hours after surgery, nor while taking any prescription pain medication.)

Post-Operative Instructions for Parathyroid Surgery

Below are general instructions for patients who have had thyroid or parathyroid surgery. Since individual circumstances may vary, it is important that you discuss your individual post-operative care with us.

Monitoring Your Progress

You should feel improvement every day after surgery. If you have any questions regarding your progress, call the hospital or your GP. You should have a follow up appointment approximately 4-6 weeks after your surgery. Please call the hospital to make an appointment if you have not been given a follow up appointment date.

Incision Care

Your incision is covered with a waterproof protective dressing. You can shower and wash your hair as usual, but do not soak or scrub the dressing. After showering, pat dry. Your dressing can be removed around two weeks after surgery. If you experience itching once the dressing is off, you may apply lotion to the scar. ***Keep your neck and the scar moving by turning your head from side to side, tilting your head, and massaging your scar several times per day (with the tape in place).***

You might notice bruising around your incision or upper chest and slight swelling behind the scar when you are upright. In addition, the scar may become pink and hard. This hardening will peak at about 3 to 4 weeks and may result in some tightness or difficulty swallowing, which will disappear over the next 3 to 4 months. You will also notice some numbness of the skin of your neck. This will gradually improve over time. Occasionally, patients get tethering of the scar on the inside, resulting in a tight feeling when swallowing or tilting the head back. If you experience this tightness, continue to stretch your neck and massage your scar firmly, several times per day. The tightness should settle down over time, usually by 6 months, but it continues to improve for three years.

After Surgery Neck Swelling

Some patients may develop neck swelling due to seroma (fluid collection inside the wound) which is not associated with skin infection. This can happen after surgery and seroma may take about one to two weeks to slowly resolve leading to reduction in swelling. Some patients may develop skin flap swelling (wound flap edema) and this may take three to four weeks to settle. Please present to your GP or hospital if you are concerned with any neck swelling or if you have breathing difficulty so that you can be reviewed by a medical doctor.

Pain

The main complaint following parathyroid surgery is discomfort with swallowing. Some people experience a dull ache, while others feel a sharp pain. This should not keep you from eating anything you want, but the pain can be annoying for a day or two. Nurofen and/ or Panadol is generally enough to control this pain. Some people prefer Panadeine, but in general, stronger medications are not necessary for long. You may feel like you have phlegm in your throat. This is usually because there was a tube in your windpipe while you were asleep that caused irritation that you perceive as phlegm. You will notice that if you cough, very little phlegm will come up. This should clear up in 4 to 5 days. In a small proportion of patients, the "lump in throat" feeling persists for a few months, but in most cases it will eventually resolve.

Voice Changes

Your voice may go through some temporary changes with fluctuations in volume and clarity (hoarseness). Temporary changes are quite common. Generally, it will be better in the mornings and "tire" toward the end of the day. This can last for variable periods of time, but should clear in 4-6 months at most. There is a small (1/100) risk of permanent hoarseness. There is a higher chance your singing voice will be affected.

Hypocalcemia and Bone Health

Your bones have been starved of calcium during the time you have had hyperparathyroidism, and will now have the chance to grow strong again. After successful parathyroid surgery, if your starting bone density is low, we recommend you take three servings of dairy or other high calcium foods, or Caltrate two tablets daily (available at any chemist) to promote healthy bones. In addition to these supplements, an exercise routine using weights is also recommended

In a small number of patients who have parathyroid surgery, the remaining parathyroid glands have become lazy, and do not function properly immediately after surgery. It is very rare after the mini-surgery, but about 5% if you need both sides of the neck explored. This is usually temporary and causes the blood calcium level to drop below normal (hypocalcaemia). Symptoms of hypocalcaemia include numbness and tingling in your hands, soles of your feet and around your lips. Some patients experience a "crawling" sensation in the skin, muscle cramps or headaches. These symptoms appear between 24 and 48 hours after surgery. It is rare for them to appear after 72 hours.

Hypocalcaemia is treated with extra calcium tablets. You can purchase Calcium (Caltrate) tablets over the counter. If you feel you need it, take two extra tablets (there is no danger in taking it, even if you do not need it.) The symptoms of tingling/numbness should improve within 30-45 minutes of taking the tablets. If they do not disappear, take two more, and repeat as necessary each 30-45 minutes. If the symptoms do not disappear after 3 doses, report to your GP or hospital emergency room to have your blood calcium checked.

Some patients also need a tablet called calcitriol to help absorb calcium from your diet. You should repeat the dose whenever the symptoms return. This may mean that you are taking as many as 2 tablets every 3 hours. It is important that you keep a record of your doses to show your doctor. The hypocalcaemia should disappear over a few weeks. Keep a record and let us know at your post-surgery visit if you need extra calcium.

Follow up with GP

You will need to follow up with your GP one week after surgery to check your blood test which includes Parathyroid Hormone (PTH) and Calcium levels. If you have been sent home with calcium medication/supplement (caltrate/calcitriol), your GP may instruct you to stop /continue /change the dosage of these medications depending on your blood test result.

CONTACT THE HOSPITAL OR YOUR GP for any of the following symptoms:

- Fever >38.3 or chills
- Increasing pain or redness around incision
- Difficulty breathing
- Tingling around the lips or fingertips not relieved by extra calcium tablets
- Severe muscle cramps

ASK YOUR DOCTOR

We are here to help you. If you have any questions, please ask. It is often helpful to bring a family member with you to a consultation, or to write questions down so you won't forget them.