PROCEDURE

Parathyroid gland removal

Parathyroid gland removal is surgery to remove one or more glands making too much parathyroid hormone.

PURPOSE
To stop harmful overproduction of parathyroid hormone

PROCEDURE TYPE
Therapeutic surgery through an incision in the neck

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About one to three hours

PREPARATION
Fasting and a medication plan from the surgical team

RECOVERY
Same day or overnight; no driving until safely turning your neck

MAIN RISKS
Low calcium, neck bleeding, voice nerve injury, persistent disease

RESULTS
Hormone response immediately; pathology usually within several days

Overview

Parathyroid gland removal, called a parathyroidectomy, is an operation to remove one or more parathyroid glands. These are usually four small glands behind the thyroid gland in your neck. They control blood calcium through parathyroid hormone, or PTH.

The operation is most often used when one or more glands make too much PTH. This can raise blood calcium, weaken bones, contribute to kidney stones, and affect kidney function.

A focused parathyroidectomy removes a gland identified as abnormal before surgery. A bilateral neck exploration examines all four glands. The approach is based on your diagnosis, imaging results, previous neck surgery, and whether more than one gland may be affected.

Parathyroid surgery is different from thyroid surgery, although both take place in the same

area of the neck.

Why the procedure is performed

The most common reason is primary hyperparathyroidism. This usually happens when one gland becomes enlarged and overactive. Sometimes several glands are involved.

Surgery may be offered when high PTH and calcium are causing problems such as kidney stones, reduced bone strength, fractures, or impaired kidney function. It may also be considered before complications develop when test results show a meaningful future risk.

Less commonly, surgery is used for severe secondary or tertiary hyperparathyroidism, often related to long-term kidney disease. These conditions may affect several glands.

Removal may also be needed if parathyroid cancer is suspected or confirmed. This is uncommon and may require a wider operation than routine parathyroidectomy.

Who should and should not have it

You may benefit if testing confirms hyperparathyroidism that is causing symptoms, organ damage, or a higher risk of future complications. Surgery can provide a cure for many people with primary hyperparathyroidism.

An operation may not be the right next step if the diagnosis is uncertain. For example, familial hypocalciuric hypercalcaemia is an inherited condition that can resemble primary hyperparathyroidism but usually does not improve with parathyroid surgery.

Scans are used to plan the operation, not to establish the diagnosis by themselves. A scan that does not locate an abnormal gland does not automatically rule out surgery, but it may affect the surgical approach.

Surgery may be delayed if you have an acute illness, an untreated infection, or a bleeding risk that cannot yet be managed safely. Pregnancy requires individual planning because the timing of surgery matters. If general anaesthesia presents a high risk, monitoring or medical treatment may be considered instead.

Your surgeon should explain the expected benefit in your situation, the planned extent of surgery, and the chance that more than one gland will need removal.

How to prepare

Your treating facility's own instructions take priority because fasting and medication plans differ between hospitals and anaesthetic teams.

You will usually be told when to stop eating and drinking. Ask specifically about blood thinners like warfarin or apixaban , diabetes medicines, and supplements. Do not stop a prescribed blood thinner unless the clinician responsible for your procedure tells you to do so.

Preparation may include:

Tell the team if you develop a fever, respiratory illness, or skin infection near the planned incision.

- Blood tests for calcium, PTH, vitamin D, and kidney function
- Ultrasound, sestamibi scanning, or another scan to locate abnormal glands
- A review of your medicines, allergies, and previous neck operations
- Assessment of your voice or vocal cords in selected cases
- Arrangements for someone to take you home and stay nearby afterward

What happens during the procedure

You will usually have general anaesthesia, which means you are unconscious and do not feel the operation. A breathing tube supports your breathing.

The surgeon makes an incision low in the front of your neck. During a focused operation, the surgeon goes to the gland located on imaging. During bilateral exploration, the surgeon examines both sides of the neck and identifies the glands.

One enlarged gland may be removed. If several glands are overactive, the surgeon may remove most or all of the abnormal tissue. In some operations, a small amount of parathyroid tissue is left in place or transplanted into a muscle to preserve some hormone function.

Some centres measure PTH during surgery. Because PTH falls quickly after an overactive gland is removed, this test can help show whether enough abnormal tissue has been taken out.

The incision is closed with stitches, skin adhesive, or strips. A neck drain is not routinely needed but may be used in selected cases. Removed tissue is sent to a laboratory for examination.

Recovery and what to expect afterward

Pain is usually concentrated around the incision and may feel like soreness or tightness. A mild

sore throat can follow the breathing tube. Your team will explain which pain relief is appropriate.

You can often drink soon after waking and return to normal food as tolerated. Temporary discomfort with swallowing can occur. Calcium tablets may be prescribed if your calcium falls or if several glands were removed.

Light activity is usually encouraged. Avoid heavy lifting, strenuous exercise, and stretching the incision until your surgical team says these are safe.

Do not drive home. After general anaesthesia, you need another adult to take you. Resume driving only when you are no longer taking medicine that affects alertness and can turn your head, wear a seat belt, and perform an emergency stop comfortably.

Many people return to desk-based work within one to two weeks. More time may be needed after extensive surgery or for physically demanding work.

Risks and possible complications

Your surgeon should discuss both your personal risks and the steps used to reduce them. Possible complications include:

You will also have a scar low on the neck. It usually fades with time, but its final appearance is not predictable.

- Low blood calcium: Tingling, numbness, or muscle cramps may occur while the remaining glands recover. Severe or lasting low calcium is less common but may require long-term calcium and vitamin D treatment.
- Bleeding in the neck: A collection of blood can cause swelling and, rarely, pressure on the airway. This requires urgent treatment.
- Voice changes: A nerve controlling the vocal cord runs beside each parathyroid gland. Irritation or injury can cause hoarseness or a weak voice. Changes are often temporary but can be permanent.
- Persistent or recurrent hyperparathyroidism: Abnormal tissue may remain, be difficult to locate, or become overactive later.
- Infection or wound problems: These can cause redness, drainage, or delayed healing.
- Anaesthetic complications: These include reactions to medicines and breathing or heart problems.

Results and follow up

If PTH is measured during the operation, the surgeon may know immediately whether it fell as expected. Your calcium is usually checked after surgery and may be checked several times if it is low or falling.

The laboratory report on the removed tissue usually takes several days. Parathyroid tissue can be difficult to classify by appearance alone, so the report must be considered with your blood results and surgical findings.

Routine follow-up may include calcium and PTH blood tests, a wound review, and discussion of calcium or vitamin D treatment. If you had reduced bone density or kidney stones, those problems may need separate long-term follow-up.

Keep taking prescribed calcium exactly as directed. Do not change the amount based only on symptoms without contacting your healthcare team.

Alternatives

Observation with regular blood, kidney, and bone checks may be reasonable for some people with mild primary hyperparathyroidism. It avoids surgery but does not remove the abnormal gland, and the condition may progress.

Cinacalcet can lower blood calcium in some people. It does not remove the gland and generally does not provide the same improvement in bone density as successful surgery.

Medicines such as bisphosphonates or denosumab may protect bone in selected people. They do not cure excess PTH production or reliably correct high calcium.

For hyperparathyroidism related to kidney disease, treatment may include phosphate control, vitamin D-related medicines, calcimimetics, and changes to dialysis care. Surgery is considered when these measures do not provide adequate control.

Image-guided ablation is available in some specialist centres for carefully selected people, often when another neck operation would carry extra risk. Long-term evidence and availability are more limited than for surgery.

If parathyroid cancer is suspected, surgery is generally the main treatment with a chance of removing the tumour completely.

When to call your healthcare team

Call emergency services for rapidly increasing neck swelling, trouble breathing, severe

difficulty swallowing, fainting, or sudden major voice change with neck pressure. Do not drive yourself.

Contact your surgical team urgently for increasing tingling around the mouth, muscle cramps or spasms, marked weakness, confusion, or symptoms that continue despite prescribed calcium. These can indicate low blood calcium.

Also contact the team promptly for fever, spreading redness, pus, worsening wound pain, persistent vomiting, or bleeding from the incision.

Routine questions about your scar, return to exercise, test results, or medication duration can usually wait for normal office hours or your planned follow-up appointment.

Common questions

Will I be asleep?

Usually, yes. Most parathyroid operations are performed under general anaesthesia. Your anaesthetist will discuss the plan before surgery.

Can I drive home?

No. Arrange for another adult to take you home. Do not drive until you can move your neck safely and are no longer using medicines that reduce alertness.

How painful is it?

Most people describe soreness or tightness rather than severe pain. Swallowing and turning your head may be uncomfortable for the first few days.

When will I know whether it worked?

An intraoperative PTH test may provide an early answer during surgery. Follow-up calcium and PTH tests confirm the response. The tissue report usually takes several days.

Will I need calcium tablets?

You may need them temporarily while the remaining glands recover. After extensive gland removal, longer treatment may be necessary. Follow the prescribed plan and report symptoms of low calcium.

Sources

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- Evaluation and Management of Primary Hyperparathyroidism: Summary Statement and Guidelines from the Fifth International Workshop , Journal of Bone and Mineral Research , 2022
- NICE guideline NG132: Hyperparathyroidism (primary)-diagnosis, assessment and initial management , National Institute for Health and Care Excellence
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