CONDITION

Hypoparathyroidism

Hypoparathyroidism is a condition in which too little parathyroid hormone causes low calcium levels in the blood.

WHAT IT IS
Too little parathyroid hormone, causing low blood calcium

BODY SYSTEM
Hormones, bones, kidneys, muscles, and nervous system

MAIN SYMPTOMS
Tingling, muscle cramps, spasms, tiredness

WHAT CAUSES IT
Neck surgery, autoimmune conditions, inherited changes, low magnesium

HOW IT IS DIAGNOSED
Blood calcium, phosphate, magnesium, and parathyroid hormone tests

MAIN TREATMENT
Calcium, active vitamin D, and sometimes hormone replacement

CAN IT BE CURED?
Sometimes - temporary cases recover as glands heal

IS IT AN EMERGENCY?
Sometimes, with seizures, breathing trouble, or severe spasms

LONG-TERM OUTLOOK
Usually manageable with lifelong treatment and monitoring

Overview

Hypoparathyroidism means the parathyroid glands do not make enough parathyroid hormone, often shortened to PTH. It is also called underactivity of the parathyroid glands.

Most people have four small parathyroid glands in the neck, close to the thyroid gland. Despite their similar names, the parathyroid and thyroid glands have different jobs.

PTH helps control calcium and phosphate levels in the blood. It also affects how the kidneys handle calcium and how vitamin D supports calcium absorption from food. When there is too little PTH, blood calcium can fall and phosphate can rise.

Calcium is needed for nerves, muscles, the heart, bones, and teeth. Low calcium may cause tingling or muscle cramps. A large or rapid fall can cause more serious symptoms.

Hypoparathyroidism may be temporary, especially after neck surgery, or it may be long term. Treatment aims to control symptoms while avoiding too much calcium in the blood or urine.

Symptoms

Symptoms are mainly caused by low blood calcium, also called hypocalcaemia. They may develop quickly or build gradually.

Common symptoms include:

Some people have few symptoms when their calcium is only mildly low. Others remain sensitive to small changes, even while receiving treatment.

More severe hypocalcaemia can cause painful spasms of the hands or feet. The throat muscles may tighten, making breathing difficult. Seizures, confusion, fainting, or an abnormal heart rhythm can also occur, although these are less common.

Symptoms are not specific to hypoparathyroidism. Tingling, cramps, and tiredness can have many other causes, so blood tests are needed.

- Tingling or numbness around the mouth, fingers, or toes
- Muscle cramps, twitching, stiffness, or spasms
- Tiredness, weakness, or difficulty concentrating
- Dry or rough skin and brittle nails
- Headaches, anxiety, or low mood

Causes and risk factors

The most common cause is damage to or removal of the parathyroid glands during surgery on the thyroid, parathyroid glands, or other structures in the neck. Blood flow to the glands may also be affected during surgery.

Low calcium soon after an operation does not always mean the condition will be permanent. A gland that has been disturbed may begin working again as it heals. In other cases, reduced PTH production continues.

Other causes include:

Some inherited forms occur with other hormone or immune problems. Genetic assessment may be considered when hypoparathyroidism begins at a young age, runs in a family, or has no clear cause.

In some people, no cause is found. This is called idiopathic hypoparathyroidism.

A different condition called pseudohypoparathyroidism can also cause low calcium and high phosphate. In that condition, the body does not respond properly to PTH, so the PTH level is usually high rather than low.

- An autoimmune condition in which the immune system attacks the glands
- An inherited genetic change affecting gland development or PTH production
- Being born without working parathyroid glands
- Rare damage from radiation, iron overload, or other conditions affecting the neck
- A very low magnesium level, which can reduce PTH release and its effects

Diagnosis

Diagnosis is based on blood tests showing low calcium together with a low or "inappropriately normal" PTH level. Inappropriately normal means the PTH result falls within the laboratory range but is lower than expected when calcium is low.

Calcium may be assessed as:

Tests usually also measure phosphate, magnesium, kidney function, and vitamin D. Low magnesium must be identified because it can cause or worsen low calcium.

Results may be repeated to confirm that the problem continues. If symptoms began after neck surgery, follow-up tests help show whether the glands are recovering.

Once the diagnosis is established, urine testing may be used to measure calcium loss through the kidneys. An electrocardiogram, or ECG, may be needed if calcium is very low or there are symptoms suggesting a heart rhythm problem.

Further tests can look for autoimmune or inherited causes when appropriate.

- Total calcium, interpreted with the blood protein albumin
- Ionised calcium, which measures the active form directly

Treatment and management

Treatment replaces calcium and helps the body absorb it. The plan is adjusted according to symptoms, blood results, urine calcium, kidney health, and whether the condition is temporary or long term.

Conventional treatment usually includes calcium supplements and an active form of vitamin D. Active vitamin D, such as calcitriol or alfacalcidol, works more directly than ordinary vitamin D because low PTH makes it harder for the body to activate vitamin D normally.

A standard vitamin D supplement may also be used if vitamin D stores are low. Magnesium is replaced if there is a deficiency.

The aim is not always to place blood calcium at the upper end of the normal range. Keeping it in a lower target range that controls symptoms may reduce the amount of calcium lost in urine. Your treatment team will set a target based on your circumstances.

Monitoring commonly includes:

Some people continue to have symptoms, high urine calcium, kidney problems, or difficulty controlling phosphate despite conventional treatment. Parathyroid hormone replacement may then be considered. It is given by injection, and access differs between countries. It still requires regular monitoring.

Medicines that increase urine calcium or affect vitamin D may change treatment needs. Tell your healthcare team about prescription medicines, over-the-counter products, and supplements. Do not make large changes to calcium or vitamin D on your own, as both low and high calcium can cause problems.

Severe symptomatic hypocalcaemia may need calcium through a vein in hospital.

- Blood calcium, phosphate, magnesium, and kidney function
- Urine calcium
- Review of symptoms and medicines
- Kidney imaging when there is concern about stones or calcium deposits

Complications

Low calcium that is severe or poorly controlled can lead to seizures, spasms affecting breathing, or heart rhythm changes.

Over months or years, hypoparathyroidism may be associated with dental problems, cataracts, or calcium deposits in parts of the brain. Not everyone develops these problems.

Treatment also requires care. Too much calcium or active vitamin D can raise blood calcium. Calcium may build up in the kidneys even when blood calcium is acceptable, increasing the risk of kidney stones, kidney deposits called nephrocalcinosis, or reduced kidney function.

Regular blood and urine monitoring helps balance these risks.

Prevention

Most cases cannot be prevented. Autoimmune and inherited forms are not caused by lifestyle, food choices, or anything you did.

When neck surgery is needed, careful surgical technique and monitoring after the operation may reduce or identify the risk, but they cannot remove it completely.

If low magnesium is contributing, finding and correcting its cause may allow PTH and calcium levels to recover.

Living with it and what to expect

Temporary hypoparathyroidism may improve over weeks or months as the parathyroid glands recover. Long-term hypoparathyroidism often needs lifelong treatment.

Calcium needs can change with illness, diet, kidney function, other medicines, and life stages such as pregnancy. Regular follow-up remains important even when you feel well. Monitoring is usually more frequent after diagnosis or a treatment change and less frequent once results are stable.

Many people continue their usual work, exercise, travel, and family life. It can take time to learn your early symptoms of low or high calcium. Keeping an up-to-date medicine list and arranging enough medication before travel can help avoid interruptions.

Pregnancy and breastfeeding can change calcium requirements. Close monitoring is important because both low and high calcium can affect the pregnant person and baby. Treatment should be reviewed before pregnancy when possible.

Seek routine follow-up if symptoms return, become more frequent, or treatment is difficult to take. New thirst, frequent urination, nausea, constipation, unusual weakness, or confusion can be signs of high calcium and should also be assessed promptly.

When to get medical help

Arrange a prompt medical review if you develop new or worsening tingling, repeated muscle cramps, twitching, or spasms. Contact your healthcare team if vomiting, diarrhoea, illness, or missed treatment may have affected your calcium level.

Seek urgent medical help for:

Call emergency services for a seizure, severe breathing difficulty, collapse, or a spasm

affecting the throat. These symptoms can occur when calcium is dangerously low and need immediate assessment.

- A painful or sustained spasm of the hands, feet, or face
- New confusion, severe weakness, or fainting
- A fast, pounding, or irregular heartbeat
- Symptoms that are worsening rapidly

Common questions

Is hypoparathyroidism the same as hypothyroidism?

No. Hypoparathyroidism involves the small parathyroid glands and mainly affects calcium and phosphate. Hypothyroidism involves the thyroid gland and reduces thyroid hormone production. A person can have either condition or both.

Can hypoparathyroidism be cured?

Sometimes. Temporary hypoparathyroidism after surgery may resolve as the glands recover. Low magnesium-related hypoparathyroidism may also improve when the magnesium problem is corrected.

Permanent gland damage, autoimmune forms, and many inherited forms are not currently cured. Treatment can often control calcium levels and symptoms.

What foods should I eat or avoid?

Food does not replace prescribed calcium or active vitamin D. A balanced diet with suitable calcium sources may support treatment, but very high-phosphate foods or drinks may be limited if phosphate is difficult to control.

Do not make major dietary changes without advice. Kidney health, blood phosphate, other conditions, and your medicines all affect what is appropriate.

Can I exercise with hypoparathyroidism?

Many people can exercise normally when calcium is stable. Muscle cramps, tingling, weakness, or poor coordination may make activity unsafe until calcium is checked. If symptoms begin during exercise, stop and seek advice rather than pushing through them.

Does hypoparathyroidism cause weight gain?

Weight gain is not a defining symptom. Tiredness or reduced activity may affect weight, while thyroid problems can sometimes occur alongside hypoparathyroidism. A persistent weight change deserves assessment rather than being assumed to come from low PTH.

Can I have a healthy pregnancy?

Many people with hypoparathyroidism have successful pregnancies. Calcium and active vitamin D needs can change, so closer blood-test monitoring and coordinated care are important before, during, and after pregnancy.

Sources

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