



**ANDREW ONG**

**Oncoplastic Breast Surgery  
Endocrine (Thyroid & Parathyroid) Surgery  
General Surgery**



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## **What do the parathyroid glands do? How does it relate to calcium in my body?**

### **What are the parathyroid glands?**

The parathyroid glands are tiny little structures the size of a grain of rice located behind the thyroid gland at the bottom of the neck (SEE PICTURE RIGHT).

We have 4 parathyroid glands.

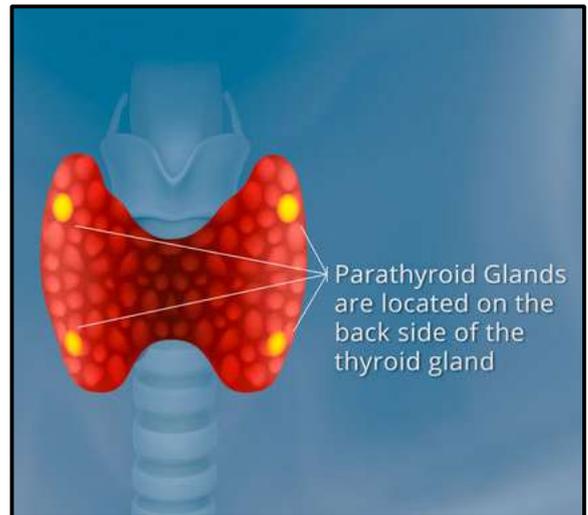
### **What is the function of the parathyroid gland?**

The parathyroid glands produce parathyroid hormone (PTH).

PTH controls the level of calcium in the blood.

### **What does calcium in the blood do?**

Calcium in the blood is tightly controlled. Calcium is responsible for regulating many functions in our body including brain function, bone health, gut and heart function.



### **My GP/endocrinologist detected high calcium in my blood. What problems can that cause?**

High calcium in the blood can cause problems ranging from none to very subtle changes in brain function to severe problems with the bones. A common way to think about it is “bones, stones, groans and psychic moans”.

- “Bones” – high calcium can be from leeching of calcium from the bones resulting in thinning of the bones (termed osteopenia) to the point where bones fracture easily (osteoporosis).
- “Stones” – high calcium in the blood can lead to recurrent kidney stones and gallbladder stones.
- “Groans” – high calcium can occasionally be a cause of abdominal discomfort or pain or subtle alterations in bowel functions (constipation, regular cramps etc.)
- “Psychic moans” – perhaps the most underappreciated and subtle effects of high calcium are neuropsychiatric changes including depression, chronic fatigue, and in severe cases, psychiatric illnesses.
- Another problem with high calcium in the blood are effects on heart function including rhythm abnormalities (arrhythmias).

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## What is causing this high calcium?

There can be several causes of high calcium in the blood but a major reason is due to abnormal enlargement of the parathyroid glands.

This results in overproduction of parathyroid hormone (PTH) which in turn causes blood calcium to rise – the condition is called HYPER-PARATHYROIDISM.

Less common causes include vitamin D deficiency, kidney problems and uncommonly, consumption of too much calcium tablets.

## How is this investigated?

Investigations for high calcium can be quite involved, ranging from blood tests, urine tests, bone density measurements (DEXA), special CT scans (4D-CT), ultrasound scans, nuclear medicine tests (sestamibi) and sometimes even more invasive tests that require interventional radiology.

## What is done to correct it?

The cure for high calcium from abnormally enlarged parathyroid gland(s) is a parathyroidectomy.

## What is a parathyroidectomy?

This is a surgical procedure which involves making a small incision in the neck and removing the enlarged parathyroid gland(s). This can range from removing 1 gland to sometimes 3½ glands.

## Is this a simple operation?

Parathyroidectomy operations can be straightforward, taking 30-60 minutes and a day-only procedure to a complicated exploration of the entire neck taking 2-3 hours and may even (uncommonly) result in removal of half or all of the thyroid gland.

Surgical investigation of high calcium levels is a highly specialised field and parathyroidectomy should ideally be carried out by high-volume endocrine surgeons.

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LET'S OPERATE WITH RESPECT

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