

Glomus Tumour

What you're feeling

The pain from a glomus tumour is usually felt at one small spot, most often under the fingernail or in the soft pad of the fingertip. It can be severe and out of proportion to how tiny the spot is. Pressing on that exact point hurts sharply. Cold sets it off: reaching into the fridge or freezer, washing your hands in cool water, or stepping outside on a chilly morning can bring on a wave of pain. Warmth tends to settle it.

The pain often flares at night and can wake you. Because the fingertip is packed with nerve endings, everyday tasks become hard. Doing up buttons, typing, holding a pen, turning a key, or gripping a saucepan handle can all press on the spot and hurt. You may find yourself protecting that finger without thinking about it.

You might notice a small bluish or pink spot under the nail, or a ridge running through the nail where the tumour sits. Sometimes there is nothing to see at all, which is part of why this condition is so often missed. The diagnosis is frequently delayed for years because the tumour is tiny and often cannot be seen, and some people are told for a long time that nothing is wrong.

A glomus tumour is benign, which means it is not a cancer and does not spread. Knowing that can bring some relief while you work out what is causing the pain.

If your symptoms are not settling, are getting worse over weeks, wake you at night, or stop you working or using your hand, see your GP or ask for a specialist review.

What's actually happening

Deep in your skin, mostly in your fingertips and nail beds, sit tiny structures called glomus bodies. Each one is a small coil of blood vessel wrapped in special muscle cells and nerve endings. Its job is to control blood flow to the skin, opening up when you need to release heat and narrowing when you need to keep it.

A glomus tumour is an overgrowth of those same cells. It is benign, which means it is not a cancer. It stays small, usually less than 1 cm, and there is normally just one. Most form under the nail or in the soft pad of the fingertip, though a few appear elsewhere in the hand or forearm.

The trouble is where these cells sit. A glomus body is built around blood vessels and sits in a dense bed of nerves. When the cells multiply, the tumour presses on those nerves and upsets the way the blood vessel

behaves. That is why the pain is so severe at one pinpoint spot, why even light touch there hurts, and why cold sets it off: chilling the finger changes the blood flow through the tumour and triggers a flare. The bluish or pink spot under your nail, if you have one, is the tumour itself showing through.

Because the tumour is so small and often hidden, it is easy to miss. Many people spend years being treated for something else before anyone names it.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. A clinic assessment, which includes your history, an examination, and imaging where needed, establishes the diagnosis.

Because a glomus tumour is a growth of cells rather than an inflamed joint, there is no tablet, cream or injection that makes it go away. Warmth settles the pain for a while, so you can keep the finger out of the cold and wear a glove when you cannot avoid it. That eases the flares, but it does not treat the cause. We do not usually send this condition to hand therapy first, because therapy cannot remove the tumour.

The treatment that works is surgical removal of the whole tumour. Once it is out, the typical pain usually goes straight away. We plan the operation around where the tumour sits, most often under the nail or in the fingertip pad, and we remove it completely while protecting the surrounding skin and nail as much as we can. If you have more than one painful spot, we look for a tumour at each one, because occasionally there is more than one from the start.

Surgery is considered once the diagnosis fits your story and examination, together with an X-ray and an MRI scan. A normal scan does not rule the tumour out when the examination points to it, because these tumours are tiny and some are too small for the scan to show. If your symptoms are not settling, are getting worse over weeks, wake you at night, or stop you working or using your hand, see your GP or ask for a specialist review.

What to expect

Left alone, a glomus tumour does not settle. The pain tends to persist, and for many people it comes and goes for years before anyone names the cause. Some people live with it for a long time, sometimes many years, while the pain slowly wears down their quality of life. The constant flares can make you protect the finger, and that protection can spread into the hand and arm over time.

With treatment, the outlook is different. Complete removal of the tumour cures it. Once it is out, the typical pain usually goes straight away. Recurrence after removal is uncommon, and when pain does return later it is often a second small tumour in a new spot rather than the first one growing back. Occasionally there is more than one tumour from the start, which is why we check for a tumour at each painful spot. Removing the tumour can also improve your quality of life overall, not just the pain itself.

Recovery from the diagnosis is often the biggest change. After years of being told nothing is wrong, having a name for the pain and a clear plan can feel like a turning point. The relief after surgery is usually felt quickly, though the finger itself may take some time to settle and get back to full use.

If your symptoms are not settling, are getting worse over weeks, wake you at night, or stop you working or using your hand, see your GP or ask for a specialist review.

When to see someone

A glomus tumour is not an emergency, but it is worth naming early. The signs that point to it are the ones described earlier: severe pain at one pinpoint spot, sharp tenderness there, and pain set off by cold. You might also see a small bluish or pink spot under the nail, or a ridge in the nail.

See your GP if a fingertip has hurt like this for more than a few weeks, especially if cold water or cold air sets the pain off. Ask for a specialist review if your symptoms are not settling, are getting worse over weeks, wake you at night, or stop you working or using your hand.

This condition is often missed, sometimes for years, because the tumour is tiny and often cannot be seen. Some people are treated for other causes first, and some are told nothing is wrong. If that sounds like you, it is still reasonable to ask whether a glomus tumour could be the cause.

Go to an emergency department if a finger or hand becomes hot, red, swollen and painful, especially with a fever, or turns pale, cold, white or blue, or you suddenly lose feeling or movement after an injury. These signs are not typical of a glomus tumour and need same-day care.

In more depth

This section goes further than you need for your own treatment decisions. A glomus tumour is worth the extra reading because it is one of the few conditions in hand surgery where the usual problem is not treatment but recognition: the tumour is tiny, often invisible, and cured by its removal, yet people commonly live with it for years before anyone names it.

YEARS OF PAIN FROM SOMETHING A FEW MILLIMETRES ACROSS

A glomus body is a small coil of blood vessel wrapped in specialised muscle cells that helps control blood flow to the skin, and the fingertips and nail beds are packed with them. A glomus tumour is a benign overgrowth of these cells, usually under the nail or in the pulp of the fingertip. Because the cells sit around blood vessels and nerve endings, a lump only a few millimetres across can produce pain out of all proportion to its size.

The delay in diagnosis is the defining feature of the condition. In a UK series of **73** tumours, more than **90%** of patients had the classic symptoms, yet **31%** had first been given another diagnosis, and the average time from first symptoms to diagnosis was **6 years** [1]. In a Singapore series of **31** cases the average was **44 months**; nearly everyone had pain (**96.8%**), but a visible lump was present in fewer than half (**48.4%**) [2]. In a review of

138 cases at a large American centre, the clinical diagnosis and the laboratory diagnosis agreed in only **45.4%**; the commonest alternatives were a lipoma, a cyst or a blood vessel lump [3].

THREE BEDSIDE TESTS, AND WHY THEY ARE COMBINED

The classic triad is severe pain at one spot, exquisite tenderness there, and pain set off by cold. Three simple tests build on it.

- **The pin test (Love's test):** pressing with the head of a pin finds the single point of tenderness and maps it.
- **The cold test:** chilling the finger reproduces the pain.
- **Hildreth's test:** a cuff on the upper arm briefly stops blood flow; the tenderness fades while the cuff is up and returns when it comes down.

In a study of **24** patients Hildreth's test was **92%** sensitive and **91%** specific [4]. In a series of **18** people with fingertip pain, the cold test identified every tumour correctly, while the pin and Hildreth's tests were each **78%** accurate [5]. The numbers come from small series and do not agree exactly, which is why the tests are used together rather than relied on one at a time.

WHAT AN MRI CAN AND CANNOT DO

An MRI scan is very good at confirming a tumour that is there. In a study of **42** hands it was **90%** sensitive with a positive predictive value of **97%**, but its negative predictive value was only **20%**: all four tumours it missed were confirmed at surgery, and each measured just **2 to 3 mm** [6]. In a second series of **36** MRI scans, about **one in three** did not make the diagnosis, more often when the tumour was small, unusual under the microscope, in an unusual place, or not suspected by the person requesting the scan [7]. An X-ray adds a little: a long-standing tumour under the nail can leave a small dent in the bone, and tumours without one were more likely to be missed on MRI [7]. A normal scan therefore does not rule out a glomus tumour when the history and examination fit; the clinical findings come first.

MORE THAN ONE TUMOUR, AND NEUROFIBROMATOSIS

Glomus tumours are not always single. In an early series of **28** patients, **7 (25%)** had more than one, and **15%** had their symptoms come back after surgery, which the authors put down to a second tumour missed at the first operation [8]. In a later series, all **5** recurrences among **12** patients appeared in new, separate places rather than where the first tumour had been removed [9]. Pain that returns months or years after a successful operation is therefore often a second tumour rather than regrowth.

People with neurofibromatosis type 1, a genetic condition that causes growths along nerves, are at much higher risk. In one study **6 of 21** people with a hand glomus tumour (**29%**) had neurofibromatosis, against **none of 200** people with a wrist ganglion; the odds ratio was **168** [10]. A painful fingertip in someone with neurofibromatosis deserves a careful look for a glomus tumour.

WHAT REMOVAL ACHIEVES

Complete removal cures the typical pain, usually at once. In a series of **53** people every one had relief by the day after surgery [11]. In a smaller French study that followed people for more than **10 years**, the pain had

gone in **91%** [12]. Recurrence after removal is uncommon, at about **3 to 7%** in the larger modern series [1] [13], and is covered in more detail on the operation page.

WHAT THIS MEANS FOR YOU

- A small, very tender spot at the fingertip that hurts in the cold is worth naming early. The diagnosis is commonly missed for years.
- The examination tests matter as much as the scan. A normal MRI does not rule out a small tumour when the story fits.
- Removal is the only treatment that cures it, and the relief is usually immediate.
- If the pain comes back later, it is often a second small tumour, and a repeat MRI is worth having.

REFERENCES

1. Jabir S, Rodrigo T, Petkar M, Iwuagwu F. Glomus tumours of the upper limb and hand. A clinicopathological review of cases over two decades. J Hand Surg Eur Vol. 2021;47(4):419-20.
2. Lee WQ, Li Y, Yeo NEM. Glomus tumour: an institutional experience of 31 cases. J Orthop Surg Res. 2023;18(1):741.
3. Mravic M, LaChaud G, Nguyen A, Scott MA, Dry SM, James AW. Clinical and histopathological diagnosis of glomus tumor: an institutional experience of 138 cases. Int J Surg Pathol. 2015;23(3):181-8.
4. Giele H. Hildreth's Test is a Reliable Clinical Sign for the Diagnosis of Glomus Tumours. J Hand Surg Br. 2002;27(2):157-8.
5. Bhaskaranand K, Navadgi BC. Glomus Tumour of the Hand. J Hand Surg Br. 2002;27(3):229-31.
6. Al-Qattan MM, Al-Namla A, Al-Thunayan A, Al-Subhi F, El-Shayeb AF. Magnetic Resonance Imaging in the Diagnosis of Glomus Tumours of the Hand. J Hand Surg Br. 2005;30(5):535-40.
7. Trehan SK, Athanasian EA, DiCarlo EF, Mintz DN, Daluiski A. Characteristics of Glomus Tumors in the Hand Not Diagnosed on Magnetic Resonance Imaging. J Hand Surg Am. 2015;40(3):542-5.
8. Maxwell GP, Curtis RM, Wilgis ES. Multiple digital glomus tumors. J Hand Surg Am. 1979;4(4):363-7.
9. Gandhi J, Yang SS, Hurd J. The Anatomic Location of Digital Glomus Tumor Recurrences. J Hand Surg Am. 2010;35(6):986-9.
10. Harrison B, Moore AM, Calfee R, Sammer DM. The Association Between Glomus Tumors and Neurofibromatosis. J Hand Surg Am. 2013;38(8):1571-4.
11. Madhar M, Bouslous J, Saidi H, Fikry T, Schuind F. Which approach is best for subungual glomus tumors? Transungual with microsurgical dissection of the nail bed or periungual? Chir Main. 2015;34(1):39-43.
12. Faisan Smilevitch D, Chaput B, Grolleau J, Rongieres M, Mansat P. Improvement in quality of life after surgery for glomus tumors of the fingers. Chir Main. 2014;33(5):330-5.
13. Kim YJ, Kim DH, Park JS, Baek JH, Kim KJ, Lee JH. Factors affecting surgical outcomes of digital glomus tumour: a multicentre study. J Hand Surg Eur Vol. 2018;43(6):652-8.