Intravitreal Injections: What to Expect

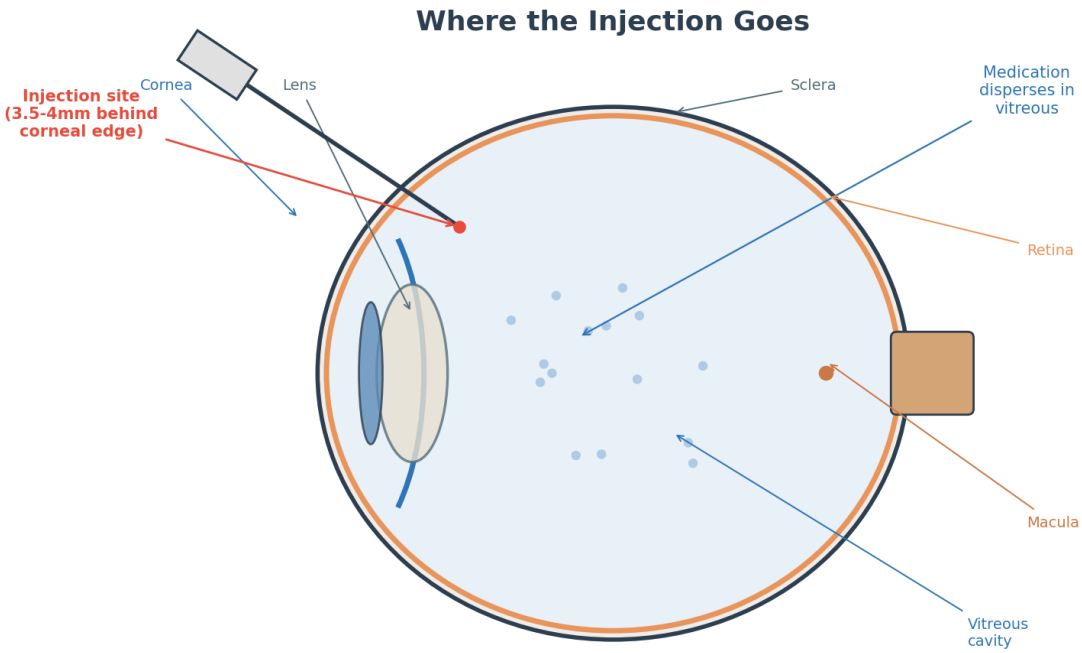
By Dr Chee Wai Wong, Vitreoretinal Surgeon

If your eye doctor has told you that you need an injection into your eye, your first reaction is probably something along the lines of "you want to put a needle where?" I understand. It sounds daunting. In fact, it is one of the most common anxieties I encounter in my practice.

But here is the truth: intravitreal injections are one of the most frequently performed procedures in all of ophthalmology, and they have transformed outcomes for a range of sight-threatening conditions. Having performed thousands of these injections over more than 15 years, I can tell you that the vast majority of patients find the reality far less frightening than the idea. Many tell me afterward that it was nothing like what they had imagined.

This article walks you through exactly what happens before, during, and after the injection, so you know what to expect.

What Is an Intravitreal Injection?



An intravitreal injection is the delivery of medication directly into the vitreous cavity, the gel-filled space inside the eye. By placing the drug inside the eye rather than giving it as a pill or an intravenous drip, we achieve much higher concentrations of medication exactly where it is needed, with minimal effects on the rest of the body.

The injection is given through the white part of the eye (the sclera), using a very fine needle. The whole procedure takes only a few minutes.

What Conditions Are Treated with Intravitreal Injections?

Intravitreal injections are used to treat a wide range of retinal conditions, including:

- Wet age-related macular degeneration (AMD): The most common indication. Anti-VEGF injections stop abnormal blood vessel growth and leakage under the retina.
- Diabetic macular oedema: Fluid accumulation in the macula caused by diabetes. Both anti-VEGF and steroid injections are used.
- Retinal vein occlusion: Blockage of a retinal vein can cause swelling and bleeding in the retina. Anti-VEGF injections reduce the associated macular oedema.
- Myopic choroidal neovascularisation: Abnormal blood vessels in highly myopic eyes that respond well to anti-VEGF treatment.
- Diabetic retinopathy: Anti-VEGF injections can reduce the growth of abnormal blood vessels in advanced diabetic eye disease.
- Uveitis (eye inflammation): Steroid injections can help control inflammation inside the eye.

What Medications Are Used?

The two main categories of intravitreal medications are:

Anti-VEGF Agents

These block vascular endothelial growth factor (VEGF), a protein that drives the growth of abnormal blood vessels and promotes fluid leakage. The most commonly used agents include:

- Ranibizumab (Lucentis): One of the first anti-VEGF agents, with a long track record of safety and efficacy.
- Aflibercept (Eylea): Blocks multiple VEGF-related proteins and can be given at longer intervals in some patients.
- Brolucizumab (Beovu): A newer agent that may allow longer treatment intervals.
- Faricimab (Vabysmo): The newest addition, which targets two pathways (VEGF and Ang-2) and can potentially be given every 12 to 16 weeks in some patients.

Steroid Injections

Corticosteroids such as dexamethasone implant (Ozurdex) and triamcinolone are sometimes used to treat macular oedema associated with diabetes, retinal vein occlusion, or uveitis. The dexamethasone implant is a slow-release device that gradually releases medication over several months.

Your doctor will choose the most appropriate medication based on your specific condition, treatment history, and individual response.

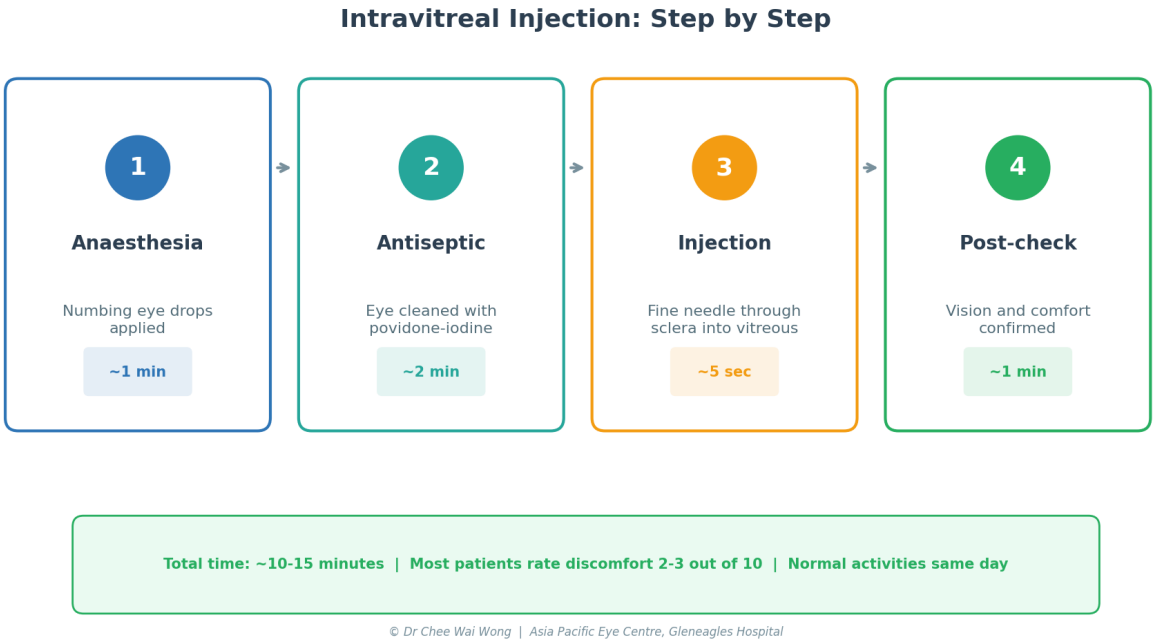
What Happens Before the Injection?

Before your first injection, your doctor will have explained why the injection is recommended and what results you can expect. If you have questions, this is the time to ask them.

On the day of the procedure:

- You do not need to fast. Eat and drink normally.
- Take your usual medications, including blood thinners if prescribed. You do not need to stop aspirin or warfarin for intravitreal injections.
- You can come alone, though some patients prefer to have someone accompany them on the first visit, particularly if they are nervous.
- The procedure is performed in the clinic treatment room. You do not need to go to an operating theatre.

What Happens During the Injection?



Here is a step-by-step description of what to expect. The entire process, from preparation to completion, typically takes about 10 to 15 minutes, with the injection itself lasting only a few seconds.

Step 1: Anaesthesia

Your eye will be numbed using anaesthetic eye drops. Some doctors also place a small anaesthetic-soaked pledget (cotton pad) on the injection site for additional numbing. You should not feel any sharp pain during the procedure.

Step 2: Antiseptic Preparation

This is the most important step for safety. Your eyelids and the eye surface are cleaned with an antiseptic solution (povidone-iodine), which significantly reduces the risk of infection. A small sterile drape or speculum is placed to keep your eyelids open and out of the way. The antiseptic may sting briefly, but this settles quickly.

Step 3: The Injection

Your doctor will ask you to look in a specific direction. The injection is given through the white of the eye (the sclera), about 3.5 to 4 millimetres behind the edge of the cornea. This precise location ensures the needle enters the vitreous cavity safely, well away from the retina and lens.

The needle used is very fine, typically 30-gauge (thinner than most needles used for blood tests). The injection takes only a few seconds. Most patients describe feeling pressure rather than sharp pain. Some feel nothing at all.

Step 4: Post-Injection Check

After the injection, your doctor will check that your eye is comfortable and that you can see. You may notice some floaters or a small dark shadow, which is the medication dispersing within the vitreous. This is normal and temporary.

Does It Hurt?

This is the question every patient asks, and I am always honest about it. Most patients experience mild discomfort rather than real pain. The anaesthetic drops are very effective, and the needle is fine enough that many patients barely feel it. The most uncomfortable part for most people is the antiseptic solution and the eyelid speculum, not the injection itself.

On a scale of 1 to 10, the majority of my patients rate the discomfort at 2 to 3. Many are surprised at how quick and tolerable the experience is. By the second or third injection, most patients feel far less anxious because they know what to expect.

What Happens After the Injection?

The First Few Hours

- Your eye may feel slightly gritty, watery, or irritated. This is normal and usually settles within a few hours.
- You may notice some redness on the white of your eye at the injection site. This is a small, harmless bruise (subconjunctival haemorrhage) and will resolve on its own over

one to two weeks.

- Your vision may be slightly blurry immediately after, partly from the antiseptic solution and partly from the medication in the eye. This usually clears within hours.
- You can resume normal activities the same day, including reading, watching television, and light household tasks.

Eye Drops

Your doctor may prescribe antibiotic eye drops to use for a few days after the injection to reduce infection risk. Follow the instructions provided.

Things to Avoid

- Do not rub your eye for the rest of the day.
- Avoid swimming or submerging your head in water for 48 hours.
- There is no need to restrict activities such as walking, light exercise, or bending down.

What Are the Risks?

Intravitreal injections are very safe, but like any medical procedure, they carry some risks. It is important to understand these, while also recognising that serious complications are rare.

Common and Minor

- Subconjunctival haemorrhage (red spot on the eye): Harmless and resolves spontaneously.
- Temporary floaters: Small spots or shadows from the medication, which clear within hours to days.
- Mild discomfort or grittiness: Usually settles within a day.

Uncommon but Important

- Raised eye pressure: Some patients experience a temporary increase in eye pressure after the injection. This is usually transient and managed with monitoring or eye drops if needed.
- Inflammation: A mild inflammatory reaction can occasionally occur, causing redness, light sensitivity, or blurred vision. This is usually self-limiting or treated with eye drops.

Rare but Serious

- Endophthalmitis (infection inside the eye): This is the most feared complication. The risk is approximately 1 in 2,000 to 1 in 5,000 per injection. Strict antiseptic technique during the procedure is specifically designed to minimise this risk. Symptoms include increasing pain, worsening vision, and significant redness developing one to five days after the injection. If you experience these, contact your doctor immediately.

Endophthalmitis requires urgent treatment.

- Retinal detachment: Extremely rare with modern fine-gauge needles.
- Vitreous haemorrhage: Bleeding inside the eye, which is very uncommon.

How Often Will I Need Injections?

This depends on the condition being treated and your individual response:

- Wet AMD: Treatment usually starts with three monthly injections (a "loading phase"), followed by ongoing injections at intervals tailored to your response. With newer agents, some patients can be maintained on injections every 8 to 16 weeks. Many patients require treatment for years, sometimes indefinitely, though the frequency often decreases over time.
- Diabetic macular oedema: Similar loading phase, with ongoing treatment as needed. Some patients achieve remission and can stop treatment; others require longer-term injections.
- Retinal vein occlusion: Treatment duration varies. Some patients need only a few injections; others require ongoing therapy for months to years.
- Myopic CNV: Often requires fewer injections than AMD, sometimes just one to three treatments.

Your doctor will monitor your response with regular OCT scans and clinical examinations, adjusting the treatment interval based on how your retina is responding.

Tips for Patients Having Regular Injections

For patients on long-term injection therapy, here are some practical suggestions:

- Try to relax. Easier said than done, I know. But the procedure truly becomes routine after the first few sessions. Listening to music or a podcast while waiting can help.
- Ask questions. If something about the procedure or your treatment plan is unclear, your doctor is there to help.
- Keep your appointments. Consistency matters. Delaying or skipping injections can allow the disease to progress, and lost vision may not always be recoverable.
- Monitor at home. Use an Amsler grid or a simple vision chart to check your vision regularly between appointments. Report any sudden changes promptly.
- Bring sunglasses. Your pupils may be dilated during the visit, and sunglasses make the trip home more comfortable.

The Bottom Line

Intravitreal injections are one of the most important advances in eye care in the past two decades. They have saved the sight of millions of people worldwide who would otherwise have lost central vision to conditions like wet AMD and diabetic eye disease. The

procedure is quick, well-tolerated, and performed routinely in the clinic. While the idea of an eye injection understandably causes anxiety, the reality is far more manageable than most patients expect. If your doctor has recommended intravitreal injections, the potential benefit to your vision is substantial, and the risks, while real, are small.

Dr Chee Wai Wong is a vitreoretinal surgeon practising at Asia Pacific Eye Centre, Gleneagles Hospital, Singapore. He has a special interest in macular diseases and vitreoretinal conditions. This article is for informational purposes and does not replace professional medical advice. If you have concerns about your eyes, please consult an ophthalmologist.