CONDITION

Endophthalmitis

Endophthalmitis is severe inflammation inside the eye, usually caused by an infection.

WHAT IT IS
Severe inflammation inside the eye, usually from infection

BODY SYSTEM
Eyes and vision

MAIN SYMPTOMS
Eye pain, redness, blurred vision, light sensitivity

WHAT CAUSES IT
Bacterial or fungal infection, rarely noninfectious inflammation

HOW IT IS DIAGNOSED
Dilated eye examination and eye-fluid testing

MAIN TREATMENT
Medicines injected into the eye, sometimes surgery

CAN IT BE CURED?
Sometimes - infection may clear but damage can remain

IS IT AN EMERGENCY?
Yes - prompt specialist treatment helps protect sight

LONG-TERM OUTLOOK
Early treatment may preserve vision; severe cases cause lasting loss

Overview

Endophthalmitis is severe inflammation inside the eyeball, usually caused by bacteria or fungi. It affects the vitreous, the clear gel filling the eye, and may involve nearby tissues such as the retina.

The retina is the light-sensitive layer at the back of the eye and is essential for sight. Because inflammation can damage it quickly, endophthalmitis is an eye emergency. Treatment often begins as soon as the condition is suspected, before every test result is available.

Endophthalmitis may develop after eye surgery, an injection into the eye, or a penetrating injury. Less often, germs travel through the bloodstream from an infection elsewhere in the body. This is called endogenous endophthalmitis.

Most discomfort after an eye procedure is not endophthalmitis. However, increasing pain,

worsening redness, or reduced vision after eye treatment needs urgent assessment. You cannot safely distinguish the causes at home.

Symptoms

Symptoms usually affect one eye, although bloodstream infection can affect both.

Possible symptoms include:

The cornea is the clear window at the front of the eye. Inflammation may cause a collection of white blood cells called a hypopyon, which can look like a pale layer behind the lower cornea.

Symptoms after surgery or an eye injection often begin within days, but slower-growing infections may appear weeks or months later. These delayed infections can cause repeated blurred vision and milder inflammation rather than sudden severe pain.

Endogenous endophthalmitis may occur with fever, chills, tiredness, or symptoms of infection elsewhere. Eye pain can be mild or absent, especially in people who are seriously unwell or have reduced sensation.

- New or rapidly worsening blurred vision
- Moderate or severe eye pain
- Increasing redness
- Sensitivity to light
- Swollen eyelids
- New floaters, spots, or dark shapes
- Eye discharge
- A white or cloudy area behind the cornea

Causes and risk factors

Most cases are bacterial. Fungal infection is less common but may follow an injury involving plant or soil material or spread through the bloodstream.

Exogenous endophthalmitis occurs when germs enter the eye directly. It can follow:

Risk may be higher if a wound leaks, surgical material has a problem, or an injury leaves material inside the eye. Infection can still occasionally occur after an uncomplicated procedure performed with appropriate sterile precautions.

Endogenous endophthalmitis occurs when germs in the bloodstream settle in the eye. Sources can include infections of the heart valves, liver, urinary tract, skin, lungs, or an intravenous line. Risk is higher with a weakened immune system, poorly controlled diabetes, recent major illness, or injection of nonmedical drugs into a vein.

Severe sterile inflammation after an injection or operation can resemble endophthalmitis without involving living germs. An eye specialist must assess the difference because delaying treatment of infection can threaten sight.

- Cataract or other eye surgery
- An injection into the eye
- A cut or puncture entering the eyeball
- A corneal ulcer that spreads deeper
- Rarely, another eye procedure

Diagnosis

An ophthalmologist usually makes the initial diagnosis from the symptoms and an urgent eye examination.

Tests may include vision and eye-pressure checks, examination with a slit lamp microscope, and a dilated retinal examination. If inflammation blocks the view, ultrasound can assess the vitreous and look for a detached retina or material left after an injury.

A small fluid sample may be taken from the front chamber or vitreous of the eye. Laboratory culture or molecular tests can look for bacteria or fungi and help identify suitable medicines.

Tests do not detect a germ in every case. A negative result does not rule out endophthalmitis, particularly if the sample is small or treatment has already started.

If infection may have spread through the bloodstream, blood cultures and tests for possible sources-such as heart, abdominal, urinary, or line-related infection-are usually needed.

Treatment and management

Treatment aims to control infection quickly, limit inflammation, and protect sight. It usually takes place in hospital or through an emergency eye service.

For suspected bacterial endophthalmitis, antibiotics like amoxicillin or doxycycline are commonly injected directly into the vitreous. This delivers a high concentration near the

infection. The eye is usually numbed first, although brief pressure or discomfort can occur.

If fungal infection is suspected, an antifungal medicine may be injected instead of or alongside antibiotics. Treatment may change when laboratory results become available. Steroids like prednisone or hydrocortisone are sometimes used to reduce damaging inflammation, but the specialist team decides whether and when they are appropriate.

Some people need a vitrectomy. This operation removes infected or cloudy vitreous gel and replaces it with clear fluid. It can remove germs and inflammatory material, provide a larger sample, and allow the surgeon to examine or repair the retina. The decision depends on the cause, severity, view into the eye, and level of vision.

Antibiotic or antifungal tablets or intravenous medicines may also be used. They are particularly important for endogenous endophthalmitis because the infection elsewhere in the body must also be treated. Systemic antibiotics have a more limited role in some infections confined to the eye after surgery.

Injections or surgery may need to be repeated. Follow-up is usually frequent at first so the team can monitor vision, pressure, pain, inflammation, and the retina.

Complications

Endophthalmitis can damage sight even when the infection is controlled. The outcome depends on the germ, the extent of infection, vision at presentation, and how quickly effective treatment begins.

Possible complications include:

Rarely, an eye that remains painful and has no useful vision may need to be removed to control infection or pain.

Bloodstream infection can also cause serious illness outside the eye. Recovery then depends on treating both the eye and the original source.

- Retinal or macular scarring
- Retinal detachment
- Clouding of the cornea
- Cataract
- Glaucoma from raised eye pressure
- Persistently low eye pressure

- Lasting blurred vision or severe sight loss
- Shrinkage of a badly damaged eye

Prevention

Not every case can be prevented. Endophthalmitis can occur despite appropriate sterile technique and aftercare.

Eye-care teams use infection-control measures around surgery and injections, such as antiseptic preparation and, for some procedures, preventive antibiotics. These are clinical measures and are not treatments to start yourself.

After an eye procedure, follow all instructions for drops, eye protection, hygiene, and follow-up. Wash your hands before touching around the eye, and do not rub or press it. Do not put non-prescribed drops or other substances into a recently treated or injured eye.

Wear suitable eye protection during activities that could send metal, glass, wood, or soil into the eye. A penetrating injury requires immediate medical assessment even if the object has come out or pain is mild.

Prompt treatment of bloodstream infections may reduce the chance of spread to the eye, although endogenous endophthalmitis is not always preventable.

Living with it and what to expect

The first days may involve repeated examinations, injections, or surgery. Vision can remain very blurred because of inflammation, blood, medication, or gas used during surgery. Early vision does not always predict the final result.

Recovery is not always steady, and any deterioration needs reassessment. Do not miss follow-up because the eye feels more comfortable; infection or retinal problems can progress without severe pain.

Inflammation may take weeks to settle, and vision can change over several months. Some people regain useful reading, driving, or working vision, while others have permanent loss despite prompt treatment. Delayed fungal infections and infections involving surgical material may recur and require prolonged care.

If vision remains reduced, low-vision services can help with magnifiers, lighting, screen settings, mobility, and home or workplace adaptations. If one eye has lasting sight loss, protect the better-seeing eye with suitable safety glasses.

Sudden sight changes can also have a significant emotional effect. Support is available from the eye team, rehabilitation services, and people close to you.

When to get medical help

Seek emergency eye care now for sudden or worsening vision loss, significant eye pain, or increasing redness-especially after eye surgery, an eye injection, or a penetrating injury. Contact the emergency number provided by your eye clinic or go to an emergency department with ophthalmology support.

Also seek urgent assessment for new floaters, marked light sensitivity, eyelid swelling, discharge, or a cloudy appearance inside the eye after a procedure. Do not wait for a routine appointment or use leftover eye drops.

Call emergency services if eye symptoms occur with severe illness, confusion, breathing difficulty, fainting, extreme shivering, or rapidly worsening weakness, as these may be signs of sepsis.

Once treatment has started, keep every scheduled review. Contact the treating service sooner if pain, redness, discharge, or vision worsens between appointments.

Common questions

Can endophthalmitis be cured?

The infection can often be controlled with medicine and sometimes surgery. Treatment cannot always reverse existing damage, so some people have lasting visual impairment.

How soon does endophthalmitis start after cataract surgery?

Acute infection often appears within days or weeks. Slower infections can appear months later and cause repeated inflammation. Worsening pain, redness, or reduced vision after surgery always needs urgent assessment.

Is endophthalmitis contagious?

It does not usually spread through ordinary contact. It develops when germs enter the eye directly or travel there through the bloodstream.

Will I need an operation?

Not everyone needs surgery. Many people receive injections into the eye. Vitrectomy may be recommended if infection is severe, vision is very poor, the retina cannot be examined, or infected material needs removing.

Can eyesight return after treatment?

Sight may improve over weeks or months. Recovery depends on the germ, retinal or optic nerve damage, complications, and vision before treatment. The final result is difficult to predict at the start.

Why is fluid taken from the eye?

Testing eye fluid can identify the organism and guide treatment. Treatment usually begins before results are available because testing takes time and may not detect a germ.

Sources

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