

Pericarditis

The heart is surrounded by a flexible two-layered membrane called the pericardium. The two layers are separated by a thin slick of fluid that allows the layers to glide easily over each other. The roles of the pericardium include keeping the heart in place and protecting it from catching secondary infections.

Pericarditis is inflammation of the pericardium, which causes its two layers to rasp and rub against each other as the heart contracts and relaxes. The symptoms may be similar to those of heart attack and include chest pain and abnormal heart rhythms. Men aged between 20 and 50 years are most susceptible. The broad classifications include viral or bacterial pericarditis, constrictive pericarditis, post-heart attack pericarditis and chronic effusive pericarditis. In many cases, the condition can't be prevented, but prompt treatment of infections (such as pneumonia) will reduce the risk of bacterial pericarditis.

Symptoms

The symptoms of pericarditis depend on the type, but may include:

- High temperature
- Sweating and chills
- Breathing problems, such as breathlessness
- Dry cough
- Abnormal heart rhythms, such as accelerated heartbeat (tachycardia)
- Sharp and stabbing chest pains
- The pain may radiate into the left shoulder and arm
- The pain is aggravated by lying down or taking deep breaths.

A range of causes

Some of the causes of pericarditis include:

- Bacterial infection
- Viral infection
- Fungal infection
- Chest injury
- Oesophageal injury
- Heart attack
- Heart surgery
- Kidney failure
- Leukaemia
- Autoimmune diseases, such as systemic lupus erythematosus
- Cancer
- Radiation therapy
- Certain drugs, including anticoagulants.

Bacterial pericarditis

This condition is potentially fatal without prompt medical treatment. Most cases of bacterial pericarditis are triggered by infections somewhere else in the body. For example, a person with pneumonia (lung infection) may be vulnerable to bacterial pericarditis if the bacteria access the pericardium directly or via the bloodstream. Some of the dangerous complications include:

- **Cardiac tamponade** – fluid builds up between the two layers of the pericardium. The heart is compressed and can't function properly.
- **Abscess** – a build-up of pus either within the heart or in the pericardium.
- **Spread of infection** – as with any infection, the infection can spread to other areas.
- **Constrictive pericarditis** – the pericardium is scarred by the inflammation. Scar tissue doesn't stretch, so the heart can't function properly.

Constrictive pericarditis

As the pericardium recovers from injury or inflammation, scar tissue may form. Scar tissue makes the pericardium stiff and hard, so that the heart is unable to fill properly with blood. Symptoms include unexplained weight loss, fatigue, breathlessness, swelling of the abdomen and heart murmurs. Without treatment, constrictive pericarditis can lead to a range of complications including:

- Irregular heartbeat (heart arrhythmia)
- Heart failure
- Liver damage.

Post-heart attack pericarditis

While pericarditis doesn't cause or contribute to heart attack, the injury to cardiac tissue caused by a heart attack can sometimes lead to pericarditis. This is known as post-myocardial infarction (post-MI) pericarditis. The symptoms may not appear for some weeks or months after the heart attack, and can include relatively mild chest pain, joint pains and fever. It is not possible to prevent post-MI pericarditis.

Pericarditis following heart surgery

Pericarditis may be a complication of heart surgery. Operations on the heart involve opening the pericardium in order to apply coronary artery bypass grafts, open or replace heart valves, or undertake other corrective procedures.

Chronic effusive pericarditis

Long term inflammation causes a gradual build-up of fluid within the two layers of the pericardium. In most cases, the reasons for this are unknown. Some of the known causes of chronic effusive pericarditis include tuberculosis and hypothyroidism (underactive thyroid gland).

Diagnosis methods

Pericarditis is diagnosed using a number of tests including:

- Medical history.
- Physical examination – including listening to the heart through a stethoscope. The doctor will hear the inflamed pericardium layers rubbing against each other.
- Electrocardiogram (ECG).
- Chest x-ray.
- Echocardiogram (ultrasound of the heart).
- Magnetic resonance imaging (MRI) scan of the chest.
- Blood tests.
- Cardiac catheterisation (insertion of a catheter through the blood vessels of the groin into the heart).
- A sample of pericardium fluid may be drawn off with a fine needle and examined in a laboratory.

Treatment options

Treatment for pericarditis depends on the cause and severity, but may include:

- Rest.
- Low salt diet.

- Antibiotics.
- Pain-killing medication.
- Diuretics to remove excess fluid, including from the pericardium.
- Surgical drainage of the excess fluid (pericardiocentesis).
- Drugs to reduce inflammation, such as non-steroidal anti-inflammatory medication (NSAIDS) or corticosteroids.
- Medication to treat any arrhythmias.
- Surgery to remove the pericardium.

Surgical pericardectomy

The operation to remove the pericardium is called surgical pericardectomy. Surgery may be considered if the pericardium is scarred and inflexible, or if pericarditis keeps recurring. The damaged parts of the pericardium are removed or the entire sac is cut away, depending on the severity. Even though the pericardium helps to support and protect the heart, its removal doesn't cause any harm. The heart can function perfectly well without it.

Where to get help

- Your doctor

Things to remember

- The heart is surrounded by a flexible two-layered membrane called the pericardium.
- Pericarditis is inflammation of the pericardium.
- The symptoms are similar to those of heart attack, and include chest pain and abnormal heart rhythms.
- The broad classifications include viral and bacterial pericarditis, constrictive pericarditis, post-heart attack pericarditis, chronic effusive pericarditis and pericarditis following heart surgery.
- Treatment includes medications, bed rest and surgery.

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Heart Research Centre

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