



Endocarditis

Overview

Endocarditis is an infection of the endocardium, which is the inner lining of your heart chambers and heart valves.

Endocarditis generally occurs when bacteria, fungi or other germs from another part of your body, such as your mouth, spread through your bloodstream and attach to damaged areas in your heart. If it's not treated quickly, endocarditis can damage or destroy your heart valves and can lead to life-threatening complications. Treatments for endocarditis include antibiotics and, in certain cases, surgery.

Since there are many ways to develop endocarditis, your doctor might not be able to pinpoint the exact cause of your condition. However, people at greatest risk of endocarditis usually have damaged heart valves, artificial heart valves or other heart defects.

Symptoms

Endocarditis may develop slowly or suddenly, depending on what germs are causing the infection and whether you have any underlying heart problems. Endocarditis signs and symptoms can vary from person to person.

Common signs and symptoms of endocarditis include:

- Flu-like symptoms, such as fever and chills
- A new or changed heart murmur, which is the heart sounds made by blood rushing through your heart
- Fatigue
- Aching joints and muscles
- Night sweats
- Shortness of breath

- Chest pain when you breathe
- Swelling in your feet, legs or abdomen

Endocarditis can also cause symptoms that are more uncommon. These include:

- Unexplained weight loss
- Blood in your urine, which you might be able to see or that your doctor might see when he or she views your urine under a microscope
- Tenderness in your spleen, which is an infection-fighting abdominal organ just below your rib cage on the left side of your body
- Janeway lesions, which are red spots on the soles of your feet or the palms of your hands
- Osler's nodes, which are red, tender spots under the skin of your fingers or toes
- Petechiae (puh-TEE-key-e), which are tiny purple or red spots on the skin, whites of your eyes, or inside your mouth

When to see a doctor

If you develop signs or symptoms of endocarditis, and if they don't go away, see your doctor as soon as possible — especially if you have risk factors for this serious infection, such as a heart defect or a previous case of endocarditis.

Although less serious conditions can cause similar signs and symptoms, you won't know for sure until you're evaluated by your doctor.

Causes

Endocarditis occurs when germs enter your bloodstream, travel to your heart, and attach to abnormal heart valves or damaged heart tissue. Certain types of bacteria cause most cases, but fungi or other microorganisms also may be responsible.

Usually, your immune system destroys harmful bacteria that make it into your bloodstream. Even if bacteria reach your heart, they may pass through without causing an infection. However, bacteria that live in your mouth, throat or other parts of your body, such as your skin or your gut, can sometimes cause serious infections like endocarditis under the right circumstances.

Bacteria, fungi or other germs that cause endocarditis might enter your bloodstream through:

- **Everyday oral activities.** Activities such as brushing your teeth, or other activities that could cause your gums to bleed, can allow bacteria to enter your bloodstream — especially if you don't floss or your teeth and gums aren't healthy.

- **An infection or other medical condition.** Bacteria may spread from an infected area, such as a skin sore. Other medical conditions, such as gum disease, a sexually transmitted infection or certain intestinal disorders — such as inflammatory bowel disease — can also give bacteria the opportunity to enter your bloodstream.
- **Catheters.** Bacteria can enter your body through a catheter — a thin tube that doctors sometimes use to inject or remove fluid from the body. This is more likely to occur if the catheter is in place for a long period of time.
- **Needles used for tattoos and body piercing.** The bacteria that can cause endocarditis can also enter your bloodstream through the needles used for tattooing or body piercing.
- **Intravenous (IV) illegal drug use.** Contaminated needles and syringes are a special concern for people who use illegal intravenous (IV) drugs, such as heroin or cocaine. Often, individuals who use these types of drugs don't have access to clean, unused needles or syringes.
- **Certain dental procedures.** Some dental procedures that can cut your gums may allow bacteria to enter your bloodstream.

Bacteria can more easily attach to the lining of your heart (endocardium), if the lining's surface is rough. You're also more likely to develop endocarditis if you have faulty, diseased or damaged heart valves. However, endocarditis does occasionally occur in previously healthy individuals.

Risk factors

If your heart is healthy, you could be less likely to develop endocarditis, although it is still possible. The germs that cause infection tend to stick to and multiply on damaged or surgically implanted heart valves, or on endocardium that has a rough surface.

People at highest risk of endocarditis are those who have:

- **Artificial heart valves.** Germs are more likely to attach to an artificial (prosthetic) heart valve than to a normal heart valve.
- **Congenital heart defects.** If you were born with certain types of heart defects, such as an irregular heart or abnormal heart valves, your heart may be more susceptible to infection.
- **A history of endocarditis.** Endocarditis can damage heart tissue and valves, increasing the risk of a future heart infection.
- **Damaged heart valves.** Certain medical conditions, such as rheumatic fever or infection, can damage or scar one or more of your heart valves. This can make them more prone to endocarditis.

- **A history of intravenous (IV) illegal drug use.** People who use illegal drugs by injecting them are at a greater risk of endocarditis. The needles used to inject drugs can be contaminated with the bacteria that can cause endocarditis.

Complications

In endocarditis, clumps of bacteria and cell fragments form in your heart at the site of the infection. These clumps, called vegetations, can break loose and travel to your brain, lungs, abdominal organs, kidneys or limbs. As a result, endocarditis can cause several major complications, including:

- Heart problems, such as heart murmur, heart valve damage and heart failure
- Stroke
- Seizure
- Loss of the ability to move part of all of your body (paralysis)
- Pockets of collected pus (abscesses) that develop in the heart, brain, lungs and other organs
- Pulmonary embolism — an infected vegetation that travels to the lungs and blocks a lung artery
- Kidney damage
- Enlarged spleen

Prevention

You can help prevent endocarditis in several ways, including:

- Know the signs and symptoms of endocarditis. See your doctor immediately if you develop any signs or symptoms, especially a fever that won't go away, unexplained fatigue, any type of skin infection, or open cuts or sores that don't heal properly.
- Pay special attention to your dental health — brush and floss your teeth and gums often, and have regular dental checkups.
- Avoid procedures that may lead to skin infections, such as body piercings or tattoos.

Preventive antibiotics

Certain dental and medical procedures may allow bacteria to enter your bloodstream. For some people with heart disease or damaged or diseased heart valves, taking antibiotics before these procedures can help destroy or control the harmful bacteria that may lead to endocarditis. This is because these people are more at risk of developing endocarditis after having these procedures.

In the past, doctors gave antibiotics to many people before dental or other surgical procedures, such as procedures involving the intestinal or urinary tracts, even if they weren't at high risk of developing endocarditis. However, antibiotics are no longer recommended before all dental or other surgical procedures, or for all people. As doctors have learned more about endocarditis prevention, they've realized endocarditis is much more likely to occur from exposure to random germs than from a standard dental exam or surgery.

If you're at risk of endocarditis, let your doctor and dentist know before having any dental work. They will decide whether you need antibiotics before any dental procedures.

It's still important to take good care of your teeth through brushing and flossing, since doctors have some concern that infections in your mouth from poor oral hygiene might increase the risk of germs entering your bloodstream. In addition to brushing and flossing, regular dental exams are an important part of maintaining good oral health.

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