CONDITION

Cardiomyopathy

Learn about cardiomyopathy, including its main types, possible symptoms and causes, diagnostic tests, treatment options, complications, and follow-up care.

WHAT IT IS
Group of conditions affecting the heart muscle

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Shortness of breath, tiredness, swelling, irregular heartbeat

WHAT CAUSES IT
Inherited, acquired, or unknown

HOW IT IS DIAGNOSED
Echocardiogram and cardiac MRI

MAIN TREATMENT
Medicines, procedures, and implanted devices

CAN IT BE CURED?
No, usually requires ongoing follow-up

IS IT AN EMERGENCY?
Sometimes, with sudden collapse

LONG-TERM OUTLOOK
Varies from mild disease to serious complications

Overview

Cardiomyopathy is a group of conditions that affect the heart muscle. The muscle may become enlarged, thickened, stiff, scarred, or weak. These changes can make it harder for the heart to fill with blood, pump blood to the body, or maintain a steady rhythm.

Some people have mild disease and no symptoms. Others develop heart failure, abnormal heart rhythms, or other serious complications. The course depends on the type of cardiomyopathy, its cause, and how the heart is affected.

The main forms include:

Cardiomyopathy is not the same as a heart attack. A heart attack usually happens when blood flow through a coronary artery is blocked. However, coronary artery disease and

cardiomyopathy can occur together, and a prior heart attack can weaken the heart muscle.

Finding the specific type and cause matters because treatment and family screening needs can differ.

- Dilated cardiomyopathy: A heart chamber, usually the left ventricle, becomes enlarged and pumps less strongly.
- Hypertrophic cardiomyopathy: The heart muscle becomes unusually thick. In some people, the thickened muscle blocks blood leaving the heart.
- Restrictive cardiomyopathy: The heart muscle becomes stiff, so the chambers cannot relax and fill normally.
- Arrhythmogenic cardiomyopathy: Heart muscle is replaced by scar tissue and sometimes fatty tissue, increasing the risk of abnormal heart rhythms. It often affects the right ventricle but can involve either side.
- Other forms: Cardiomyopathy may occur around the end of pregnancy or after delivery, from a persistently fast heart rhythm, or as part of another disease.

Symptoms

Cardiomyopathy does not always cause symptoms, especially early in the condition. It may be found during a heart test done for another reason or after a relative is diagnosed.

When symptoms occur, they may include:

These symptoms are not specific to cardiomyopathy. Lung disease, anemia, abnormal heart rhythms, valve disease, and other conditions can cause similar problems. A medical assessment is needed to identify the cause.

Call emergency services for severe trouble breathing, fainting, chest pain that is intense or does not improve, or symptoms of cardiac arrest such as sudden collapse and lack of normal breathing.

Contact a healthcare professional promptly for new or worsening shortness of breath, fainting, ongoing palpitations, increasing swelling, or rapid weight gain. These symptoms may need earlier assessment even when they are not an emergency.

- Shortness of breath during activity, while lying flat, or at night
- Unusual tiredness or reduced ability to exercise
- Swelling in the feet, ankles, legs, or abdomen
- Rapid weight gain related to fluid buildup

- Chest discomfort, especially with activity
- A fast, pounding, fluttering, or irregular heartbeat
- Dizziness, lightheadedness, or fainting

Causes and risk factors

Cardiomyopathy can be inherited, acquired later in life, or related to both genetic and environmental factors. In some people, no cause is found.

Inherited cardiomyopathy is caused by a disease-related change in a gene. A person can carry such a change without obvious symptoms, and relatives with the same change may be affected differently. Hypertrophic and arrhythmogenic cardiomyopathies are often inherited. Some cases of dilated and restrictive cardiomyopathy also run in families.

Other possible causes include:

Risk may be higher in someone with a close relative who has cardiomyopathy, unexplained heart failure, sudden cardiac death, or an implanted defibrillator at a young age. A personal history of heart inflammation, certain neuromuscular disorders, high-risk substance exposure, or treatment with medicines that can damage the heart may also be relevant.

Exercise does not cause most cardiomyopathies. However, intense exercise may increase rhythm-related risk in some people with certain inherited forms. Exercise advice should be based on the exact diagnosis rather than a blanket restriction.

- Inflammation of the heart muscle, called myocarditis
- Certain viral or other infections
- Long-term heavy alcohol use
- Cocaine, methamphetamine, and some other toxic exposures
- Certain cancer treatments, including some chemotherapy medicines and chest radiation
- Autoimmune diseases, in which the immune system attacks the body's tissues
- Abnormal protein or cell deposits, as in amyloidosis or sarcoidosis
- Excess iron storage, known as hemochromatosis
- Thyroid, metabolic, or nutritional disorders
- A persistently fast or irregular heart rhythm
- Pregnancy-related changes, usually late in pregnancy or during the months after delivery

Diagnosis

Diagnosis starts with a detailed medical and family history. A clinician may ask about fainting, exercise symptoms, pregnancy, alcohol or drug exposure, infections, cancer treatment, and relatives with heart failure or sudden death. The physical examination may identify a heart murmur, fluid buildup, or an abnormal rhythm.

Testing may include:

Some people need testing of the coronary arteries to determine whether reduced blood flow is contributing to heart weakness. This may involve a CT scan, cardiac catheterization, or another type of stress test.

Genetic counseling and testing may be offered when an inherited form is suspected. A genetic counselor can explain what a result may mean for the patient and relatives. A negative test does not always rule out inherited disease because not every disease-causing gene change is known.

A heart biopsy, in which a small tissue sample is removed through a catheter, is used only in selected situations. It is not a routine test for everyone with suspected cardiomyopathy.

- Electrocardiogram, or ECG: Records the heart's electrical activity and can show rhythm problems or patterns linked to thickened or damaged muscle.
- Echocardiogram: Uses ultrasound to show heart size, wall thickness, pumping strength, valve function, blood flow, and possible obstruction.
- Blood tests: May look for heart strain or injury, anemia, thyroid disease, iron problems, infection, or conditions affecting other organs.
- Ambulatory rhythm monitor: Records the heartbeat for one or more days, or longer, to look for abnormal rhythms that come and go.
- Cardiac MRI: Produces detailed images of the heart and can identify inflammation, scarring, fatty replacement, or patterns suggesting a particular cause.
- Exercise testing: Assesses symptoms, blood pressure, rhythm, oxygen use, and exercise capacity under supervision.

Treatment and management

Treatment is tailored to the type of cardiomyopathy, its cause, symptoms, pumping function, rhythm findings, and risk of complications. Not everyone needs the same medicines or procedures.

When cardiomyopathy causes heart failure, treatment may include medicines that reduce strain on the heart, help it pump more effectively, or remove excess fluid. The specific combination depends on factors such as blood pressure, kidney function, symptoms, and whether the heart's pumping ability is reduced or preserved.

Other treatment approaches may include:

People with obstructive hypertrophic cardiomyopathy may need treatment to improve blood flow out of the heart. If symptoms continue despite medicines, procedures can reduce the thickened area. These include surgical removal of part of the muscle, called septal myectomy, or alcohol septal ablation, which creates a controlled reduction in the thickened tissue. These procedures require an experienced specialist team.

An implantable cardioverter-defibrillator, or ICD, may be recommended for some people at higher risk of life-threatening rhythms. The device monitors the heartbeat and can deliver treatment if a dangerous rhythm occurs. It does not prevent every rhythm problem or treat the underlying muscle disease.

Cardiac resynchronization therapy may help selected people whose weakened ventricles do not contract together. Advanced heart failure that does not improve with other care may be treated with a mechanical heart pump or heart transplantation.

Daily management often includes following an individualized activity plan, avoiding tobacco, and discussing safe alcohol use. A clinician may recommend monitoring body weight or limiting sodium or fluids when fluid retention is a concern. These steps are not identical for everyone.

People who are pregnant or considering pregnancy should discuss their condition and medicines with a cardiology and pregnancy care team. Some heart medicines are not used during pregnancy, and cardiomyopathy can affect pregnancy-related risk. Medicines should not be stopped without medical guidance.

- Medicines to slow the heart rate or control an abnormal rhythm
- Anticoagulants like warfarin or apixaban , sometimes called blood thinners, when there is a significant risk of blood clots
- Treatment for an underlying thyroid, iron-storage, inflammatory, infectious, or metabolic condition
- Stopping alcohol or substances that may damage the heart
- Adjusting or monitoring cancer treatment in coordination with oncology and cardiology teams
- Treating sleep apnea, high blood pressure, diabetes, and other conditions that place stress on the heart

Complications

Possible complications include heart failure, abnormal heart rhythms, blood clots, stroke, heart valve leakage, and sudden cardiac arrest. The likelihood of each complication varies greatly by cardiomyopathy type and individual test findings.

Some abnormal rhythms begin in the upper chambers and may cause palpitations or raise the risk of stroke. Rhythms that begin in the ventricles can be more dangerous. Careful risk assessment helps determine whether monitoring, medicine, a procedure, or an implanted device is appropriate.

Cardiomyopathy can also affect daily life through fatigue, exercise limits, repeated appointments, and uncertainty about family risk. Rehabilitation, mental health support, and genetic counseling may be useful parts of care.

Follow up

Cardiomyopathy usually requires ongoing follow-up, even when symptoms are mild. Routine visits may include a symptom review, physical examination, ECG, heart imaging, rhythm monitoring, or blood tests. The timing depends on the type of cardiomyopathy, treatment, and whether findings are stable.

Keep a current medicine list and tell the care team about side effects, missed doses, supplements, or nonprescription medicines. Do not stop heart medicine suddenly unless a clinician advises it.

Ask whether first-degree relatives-parents, siblings, or children-should have heart screening. Screening may involve an ECG and echocardiogram, with genetic counseling when appropriate. A normal test at one point may not end the need for future screening in families with inherited disease.

Routine follow-up is appropriate for stable symptoms and planned monitoring. Contact the care team sooner for declining exercise ability, more swelling, new palpitations, fainting, or worsening breathlessness.

Seek emergency help for sudden collapse, severe breathing difficulty, or persistent chest pain. Family members may also benefit from learning cardiopulmonary resuscitation, or CPR, when a household member has a significant risk of dangerous heart rhythms.

Sources

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