CONDITION

Calcification

Learn what calcification means, where calcium deposits can occur, how they are evaluated, and when an imaging finding may need treatment or follow-up.

WHAT IT IS
Buildup of calcium salts in body tissue

BODY SYSTEM
Multiple body systems

MAIN SYMPTOMS
Pain, stiffness, reduced movement, shortness of breath

WHAT CAUSES IT
Aging, tissue damage, inflammation, infection, or mineral imbalance

HOW IT IS DIAGNOSED
X-ray, CT, mammogram, ultrasound, or echocardiogram

MAIN TREATMENT
Monitoring, medical management, procedures, or surgery

CAN IT BE CURED?
Sometimes, deposits may be removed

IS IT AN EMERGENCY?
Sometimes, with chest pressure or severe breathing difficulty

LONG-TERM OUTLOOK
Often harmless but depends on location, cause, and complications

Overview

Calcification is the buildup of calcium salts in body tissue. Calcium normally strengthens bones and teeth. When it collects elsewhere, such as in blood vessels, heart valves, tendons, skin, or organs, it may appear as a white or bright area on an X-ray, CT scan, mammogram, or ultrasound.

Calcification is a finding rather than a single disease. Its importance depends on its location, cause, pattern, and effect on nearby tissue. Some deposits are harmless signs of aging or past injury. Others may indicate inflammation, cardiovascular disease, kidney disease, or another condition that needs evaluation.

Doctors often divide abnormal calcification into two types:

Common examples include calcium in artery walls, heart valves, breast tissue, tendons, kidneys, skin, or healed areas of infection or injury. Kidney stones may contain calcium but form through a different process within the urinary system.

An imaging report that mentions calcification does not by itself show whether treatment is needed. Clinicians consider the deposit's appearance, symptoms, medical history, and changes on earlier imaging.

- Dystrophic calcification develops in damaged, inflamed, or aging tissue, usually while blood calcium levels remain normal.
- Metastatic calcification results from an imbalance of calcium or phosphate in the blood. Despite its name, it does not mean cancer has spread.

Symptoms

Many calcium deposits cause no symptoms and are found during imaging for another reason. When symptoms occur, they depend on the location.

Calcification in a tendon, particularly around the shoulder, may cause pain, tenderness, stiffness, and reduced movement. Pain can become intense if nearby tissue becomes inflamed.

A calcified heart valve can become stiff and narrow. Significant narrowing may cause shortness of breath during activity, chest pressure, fatigue, dizziness, or fainting.

Artery calcification usually cannot be felt, but it may be a marker of atherosclerosis. Symptoms can develop if blood flow becomes limited or a clot forms.

Breast calcifications generally do not cause pain or a lump. Many mammogram patterns are benign, while certain shapes or arrangements require additional imaging or a biopsy to rule out cancer.

Deposits in or beneath the skin may feel like firm bumps. They may become painful, break through the skin, or drain chalk-like material.

Seek emergency care for new chest pressure, severe breathing difficulty, sudden one-sided weakness, facial drooping, difficulty speaking, or sudden collapse. Fainting with chest discomfort or shortness of breath also requires urgent assessment. Do not assume these symptoms are caused by a previously identified calcium deposit.

Causes and risk factors

Calcification often forms in tissue changed by aging, long-term inflammation, infection, bleeding, injury, or cell death. Examples include a damaged heart valve, an inflamed tendon, or a healed area of infection.

Vascular calcification is associated with atherosclerosis and changes in artery walls. Relevant risk factors may include smoking, high blood pressure, diabetes, abnormal cholesterol levels, and older age. Chronic kidney disease can cause a different and sometimes more extensive form of vascular and soft-tissue calcification.

Kidney disease may disrupt the balance among calcium, phosphate, vitamin D, and parathyroid hormone. A long-term imbalance can contribute to deposits in blood vessels and soft tissue as well as changes in bone strength.

Less common causes include genetic or autoimmune disorders, severe tissue injury, and some infections. Deposits may also form at repeated injection sites or in areas affected by surgery or trauma.

Normal dietary calcium is usually not the direct cause of a localized deposit. Do not stop calcium-rich foods or prescribed supplements solely because an imaging report mentions calcification. Discuss supplement changes with a clinician, especially if they were recommended for bone health or another condition.

Diagnosis

A clinician considers why imaging was performed, whether symptoms are present, and how the calcification is described. Terms such as "punctate," "coarse," "vascular," or "valvular" have different meanings depending on the organ. Comparison with earlier scans can show whether a deposit is stable, new, or changing.

Evaluation may involve an X-ray, ultrasound, mammogram, CT scan, MRI, or echocardiogram. Echocardiography uses sound waves to examine heart valves and blood flow. MRI does not show calcium as directly as CT but may help assess surrounding soft tissue.

A coronary artery calcium scan is a specialized low-dose CT scan that measures calcified plaque in the heart's arteries. For selected adults, it can help refine cardiovascular risk when the best preventive approach is uncertain. It is not appropriate for everyone and does not establish whether an artery is fully open or blocked.

Blood tests may be needed when deposits are widespread, unusual, or associated with kidney or hormone problems. Tests may include calcium, phosphate, kidney function, parathyroid hormone, and vitamin D. Normal blood calcium does not rule out localized calcification.

Breast calcifications are assessed by their size, shape, and distribution. An unclear or

concerning pattern may require additional mammogram views or a biopsy. In other settings, biopsy is generally reserved for findings that cannot be distinguished from a tumor, infection, or another process through imaging.

Treatment and management

There is no single treatment for every form of calcification. Management depends on the cause, location, symptoms, and risk of complications. A clearly benign incidental deposit may need no treatment.

For calcific tendinitis, treatment may include activity changes, physical therapy, and pain-relieving medicine. Persistent or severe cases may require an image-guided procedure to break up and wash out the deposit, an injection to reduce nearby inflammation, or surgery.

Vascular calcification is generally managed as a marker of cardiovascular risk rather than material that can simply be dissolved. Care may include addressing smoking, blood pressure, cholesterol, diabetes, physical activity, and other risk factors.

A calcified heart valve may need periodic monitoring if it is not causing significant narrowing or symptoms. Severe valve disease may require repair or replacement after specialist assessment. Medicine can manage some related symptoms and conditions but does not reverse a severely narrowed valve.

For chronic kidney disease, treatment focuses on the kidney condition and mineral imbalance. Management may involve phosphate, calcium, vitamin D, parathyroid hormone, dialysis care, and nutrition. Individualized monitoring is essential because excessive restriction or replacement may also be harmful.

Breast calcification management follows the radiologist's assessment. Benign patterns may return to routine screening, probably benign findings may need scheduled imaging, and suspicious patterns may require biopsy.

Skin deposits may be monitored if they are small and painless. Treatment may be considered for pain, recurrent infection, skin breakdown, limited movement, or an underlying metabolic or autoimmune condition.

Products advertised to "decalcify" arteries or dissolve deposits have not been shown to treat all forms of calcification. Supplements and chelation treatments can cause harm and should not replace medical evaluation.

Complications

Many calcium deposits never cause complications. Problems are more likely when calcification interferes with movement, blood flow, valve function, or nearby tissue.

Possible complications include:

Calciphylaxis is a rare but serious condition that occurs most often in people with advanced kidney disease. Calcium-related blood vessel changes and clots cause extremely painful skin areas that may develop into wounds. New severe skin pain, dark discoloration, or an open wound in someone with advanced kidney disease requires prompt medical assessment.

Calcification within a tumor does not automatically mean cancer. Both benign and cancerous growths may contain calcium. The overall imaging appearance and, when necessary, biopsy results determine the diagnosis.

- Long-term pain or reduced movement from tendon or soft-tissue deposits
- Heart strain due to narrowing of a valve
- Increased cardiovascular risk when calcification reflects atherosclerosis
- Skin breakdown, drainage, or infection
- Tissue damage from severe calcium-phosphate imbalance in advanced kidney disease
- Delayed diagnosis if recommended evaluation is not completed

Follow up

Follow-up depends on the type of calcification. Ask the ordering clinician to explain its location, whether the pattern appears benign, and whether comparison with older imaging is needed.

The plan may involve no further testing, repeat imaging at a defined interval, blood tests, or specialist review. A cardiologist may monitor a calcified heart valve, a breast-imaging team may arrange another mammogram, or a kidney specialist may track mineral and hormone levels.

Keep copies of imaging reports and record any recommended follow-up date. If a report recommends additional imaging, contact the ordering clinician rather than waiting for symptoms.

Arrange an appointment if pain, stiffness, skin deposits, or exercise tolerance gradually changes. Seek prompt medical advice for rapidly worsening pain, redness or drainage over a deposit, new fainting, or increasing shortness of breath.

Call emergency services for chest pressure, severe breathing difficulty, signs of stroke, or sudden collapse.

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