Chest Pain-Possible Acute Coronary Syndrome

Cardiovascular disease is the leading cause of death in the United States. Acute coronary syndrome (ACS) is most often caused by plaque rupture or clot formation in the heart's arteries, which leads to sudden drop in blood flow to the heart. Symptoms may include chest pressure at rest or during light activities. Quick diagnosis and management are key to restore blood flow.

Chest x-ray (https://www.radiologyinfo.org/en/info/chestrad) may be used as the initial imaging test to help decide if further imaging tests are needed. Other imaging tests include coronary angiography (https://www.radiologyinfo.org/en/info/angiocoroct) and specialized CT, MRI (https://www.radiologyinfo.org/en/info/chestmr) , and ultrasound (https://www.radiologyinfo.org/en/info/genus) (US) tests, some at rest and some with exercise. These look at the heart and how it functions. They are described next.

In individuals with chest pain who are at low to intermediate risk of ACS, CT angiography (https://www.radiologyinfo.org/en/info/angioct) (CTA) coronary arteries with intravenous (IV) contrast (CT of the heart specifically looking at the coronary arteries) is appropriate. A single-photon emission computed tomography (SPECT)/CT is also appropriate; this is a special type of CT performed at rest and during stress to look at how the heart is functioning. Ultrasound echocardiography transthoracic stress (echocardiogram after exercise) is also usually appropriate and allows direct visualization of the heart while it beats. An MRI with and without contrast looking at heart function may be appropriate.

For individuals who are high risk of ACS, coronary arteriography (https://www.radiologyinfo.org/en/info/angiocoroct) is usually appropriate. This is a test where a very thin tube catheter is put into an artery in the thigh, neck, or shoulder and threaded up to the heart. Dye is injected through the catheter to help see the arteries in the heart. US echocardiography transthoracic resting, CTA coronary arteries with IV contrast, MRI heart function and morphology without and with IV contrast, SPECT, or SPECT/CT MPI rest and stress may also be appropriate.

— By Kristin Jordan Moore and Khushboo Jhala, MD, MBA. This information originally appeared in the *Journal of the American College of Radiology*.

Disclaimer

This information is copied from the RadiologyInfo Web site (http://www.radiologyinfo.org) which is dedicated to providing the highest quality information. To ensure that, each section is reviewed by a physician with expertise in the area presented. All information contained in the Web site is further reviewed by an ACR (American College of Radiology) - RSNA (Radiological Society of North America) committee, comprising physicians with expertise in several radiologic areas.

However, it is not possible to assure that this Web site contains complete, up-to-date information on any particular subject. Therefore, ACR and RSNA make no representations or warranties about the suitability of this information for use for any particular purpose. All information is provided "as is" without express or implied warranty.

Please visit the RadiologyInfo Web site at **http://www.radiologyinfo.org** to view or download the latest information.

Note: Images may be shown for illustrative purposes. Do not attempt to draw conclusions or make diagnoses by comparing these images to other medical images, particularly your own. Only qualified physicians should interpret images; the radiologist is the physician expert trained in medical imaging.

Copyright

This material is copyrighted by either the Radiological Society of North America (RSNA), 820 Jorie Boulevard, Oak Brook, IL 60523-2251 or the American College of Radiology (ACR), 1891 Preston White Drive, Reston, VA 20191-4397. Commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is prohibited.

Copyright ® 2026 Radiological Society of North America, Inc.