

CH 4.1. Non-Cardiac Chest pain-Imaging Evidence Summary

It is important to rule out potentially life-threatening causes of acute chest pain, such as an acute coronary syndrome, aortic dissection, and pulmonary embolus. These topics are discussed in other guideline summaries (CD 1.0, CD 1.4, PVD 6.2 and PVD 6.3, CH 25.1). A specialized imaging protocol called the “triple rule-out” is sometimes used to evaluate the pulmonary arteries, aorta and coronary arteries. However, it is associated with higher non-diagnostic imaging quality, radiation and contrast doses.(Burris 2015). The population for which it may be useful is unknown. It is yet to be proven useful in large clinical trials, and its appropriate use needs to be further defined.(1,2,3).

An evaluation for the cause of non-cardiac “angina-like” chest pain should be done if it persists or recurs despite a negative stress test or anatomic cardiac evaluation, or a low risk designation by a clinical decision pathway.(4) The differential diagnosis of non-cardiac chest pain is broad. The most common causes in a primary care setting are chest wall pain, reflux esophagitis and costochondritis.(5) Respiratory causes include pneumonia, pleuritis and pneumothorax. People with COPD or acute asthma exacerbations may experience chest pain.(6,7) A thorough history and physical exam are important to help narrow the differential diagnosis and direct imaging. Musculoskeletal causes are usually diagnosed based on history and physical exam (point tenderness, reproducibility with palpation) without the need for diagnostic imaging. Most patients should have an ECG and chest x-ray (CR).(4,8) CR is rapid, non-invasive and is usually appropriate in the initial evaluation of acute non-specific chest pain with a low probability of coronary artery disease (CAD).(4,9) In patients without evidence of cardiac or pulmonary disease, evaluation for a GI cause is reasonable. An empiric trial of acid suppression may be merited. If this is ineffective or there are alarm symptoms, an EGD, pH probe and/or motility study should be considered.(4,10,11)

Patients with sickle cell disease and acute chest pain should have a CR initially.(4) Acute chest syndrome is defined by a new infiltrate on CR with fever and/or respiratory symptoms. In the presence of unexplained hypoxemia and an unremarkable CR, CT chest may be obtained to evaluate the pulmonary vasculature and lung parenchyma.(12)

CR is usually appropriate for non-traumatic chest wall pain and no history of malignancy to evaluate for a specific etiology, such as rib fracture, pneumonia, or pneumothorax.(13) Following a normal CR, CT chest is usually appropriate to evaluate chest pain in the setting of known or suspected malignancy, suspected infectious or inflammatory condition, or a history of prior chest intervention.(13) CT is more sensitive than CR for characterizing chest wall neoplasms, chest wall infections, and subtle osseous and soft tissue lesions. Chest MRI is useful if there is a high suspicion for necrotizing fasciitis and for surgical planning prior to debridement.(13)

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