

CHEST PAIN: A TRIAD CLASSIFICATION

Chest pain is one of the most frequent medical symptoms and the second most common complaint in patients who present to emergency departments. A variety of cardiac and noncardiac conditions can cause chest discomfort. While less than one-third of patients presenting with chest pain have myocardial ischemia and 20-25% of noncardiac chest pain has a musculoskeletal basis, it is important to consider other life-threatening nonischemic causes of chest pain and noncardiac non life-threatening conditions causing chest pain. (Figure 1).

Not only can making an inaccurate diagnosis lead to potentially devastating consequences – the administration of thrombolytic agents to patients with an aortic dissection for example – but even a delay in making a correct diagnosis in serious conditions may lead to a fatal outcome, such as in pulmonary emboli.

It is important, therefore, to systematically evaluate the patient with chest pain. Taking a careful history is a critical step in this process. Cardiac ischemic pain is often described as a “heavy, tight, burning, pressure” sensation and often gradually increases in severity over a given period of time. Cardiac ischemic pain may also be epigastric or interscapular in location. In addition, it is important to consider “anginal equivalents” such as dyspnea and jaw, neck, shoulder, or elbow discomfort as manifestations of ischemic heart disease. There is also a gender difference in the clinical presentation of ischemic heart disease with women often presenting with atypical symptoms. Women also seem to have a higher prevalence of mitral valve prolapse, coronary vasospasm, and syndrome X (angina-like symptoms in the presence of normal coronary arteries) that may also contribute to the gender variation of chest pain. In contrast, the pain of aortic dissection is often immediately severe (which is often the case with pulmonary emboli and pneumothorax) and associated with hypertension or a history of a bicuspid aortic valve.

Sometimes the pain of dissection is disproportionate to any observable abnormalities, such as an abnormal electrocardiogram or chest x-ray, or arterial blood gas desaturation, and patients have, on occasion, been labeled as hysterical. Aortic dissection pain may have either anterior chest pain or back pain, prompting the adage “aortic dissection until proven otherwise” even though this condition is far less common than other causes of chest pain.¹ Acute pericardial pain is worse with inspiration, often more left sided in location, and is relieved when the patient sits up

or leans forward. Pneumonia, often diagnosed by an abnormal chest x-ray, is sometimes more inscrutable and not suspected until a CT scan, originally ordered to exclude coronary emboli, discloses a pulmonary infiltrate not initially observed on the plain chest x-ray. Boerhaave's syndrome – forceful vomiting leading to rupture of the esophagus – should also be considered since early surgical intervention may be critical.

A wide variety of noncardiac non life-threatening conditions must also be considered in evaluating patients with chest pain. The pain of Herpes Zoster may be severe and occur several days before vesicular skin eruptions. (Figure 2) Unfortunately, the response to Nitroglycerin is nonspecific and other causes of chest pain, such as esophageal spasm, may be ameliorated with sublingual Nitroglycerin.

In conclusion, it is important to consider the presentation of chest pain as a “triad” of differential diagnoses including not only the possibility of acute coronary syndromes, but other noncardiac, though nonetheless life-threatening, syndromes and finally considering a large list of non life-threatening causes of chest pain. Such an approach in the assessment of this common clinical problem may help avoid missing a crucial diagnosis.

REFERENCES

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