

**TABLE 3-2** NONCARDIAC CAUSES OF CHEST PAIN

CONDITION	LOCATION	QUALITY	DURATION	AGGRAVATING OR ALLEVIATING FACTORS	ASSOCIATED SYMPTOMS OR SIGNS
Pulmonary embolism (chest pain often not present)	Substernal or over region of pulmonary infarction	Pleuritic (with pulmonary infarction) or angina-like	Sudden onset (minutes to hours)	Aggravated by deep breathing	Dyspnea, tachypnea, tachycardia; hypotension, signs of acute right ventricular heart failure, and pulmonary hypertension with large emboli; pleural rub; hemoptysis with pulmonary infarction
Pulmonary hypertension	Substernal	Pressure; oppressive	—	Aggravated by effort	Pain usually associated with dyspnea; signs of pulmonary hypertension
Pneumonia with pleurisy	Located over involved area	Pleuritic	—	Aggravated by breathing	Dyspnea, cough, fever, bronchial breath sounds, rhonchi, egophony, dullness to percussion, occasional pleural rub
Spontaneous pneumothorax	Unilateral	Sharp, well localized	Sudden onset; lasts many hours	Aggravated by breathing	Dyspnea; hyperresonance and decreased breath and voice sounds over involved lung
Musculoskeletal disorders	Variable	Aching, well localized	Variable	Aggravated by movement; history of exertion or injury	Tender to palpation or with light pressure
Herpes zoster	Dermatomal distribution	Sharp, burning	Prolonged	None	Vesicular rash appears in area of discomfort
Esophageal reflux	Substernal or epigastric; may radiate to neck	Burning, visceral discomfort	10-60 min	Aggravated by large meal, postprandial recumbency; relief with antacid	Water brash
Peptic ulcer	Epigastric, substernal	Visceral burning, aching	Prolonged	Relief with food, antacid	—
Gallbladder disease	Right upper quadrant; epigastric	Visceral	Prolonged	Spontaneous or after meals	Right upper quadrant tenderness may be present
Anxiety states	Often localized over precordium	Variable; location often moves from place to place	Varies; often fleeting	Situational	Sighing respirations; often chest wall tenderness

intensity and lasts longer than 30 minutes may represent acute myocardial infarction. Angina-like pain at rest may also occur with coronary vasospasm and noncardiac chest pain.

There are several other potential causes of chest pain that may be confused with angina pectoris (see [Table 3-2](#)). Pain associated with acute pericarditis is typically sharp, is located to the left of the sternum, and radiates to the neck, shoulders, and back. This may be rather severe pain that is present at rest and can last for hours. It typically improves with sitting up and forward and worsens with inspiration. Acute aortic dissection usually causes sudden onset of severe tearing chest pain which radiates to the back between the scapulae or to the lumbar region. Typically, there is a history of hypertension, and pulses may be asymmetric between the extremities. A murmur of aortic regurgitation may also be heard. Pain associated with pulmonary embolism is also acute in onset and is usually accompanied by shortness of breath. This pain is typically pleuritic, worsening with inspiration.

### Dyspnea

Dyspnea is another hallmark symptom of cardiovascular disease, but it is also a primary symptom of pulmonary disease. It is defined as an uncomfortable heightened awareness of breathing.

This can be an entirely normal sensation in individuals performing moderate to extreme exertion, depending on their level of conditioning. When it occurs at rest or with minimal exertion, dyspnea is considered abnormal. Dyspnea may accompany a large number of noncardiac conditions such as anemia due to a lack of oxygen-carrying capacity, pulmonary disorders such as obstructive or restrictive lung disease and asthma, obesity due to an increased work of breathing and restricted filling of the lungs, and deconditioning. In the cardiovascular patient, dyspnea is typically caused by left ventricular dysfunction, either systolic or diastolic; CAD and resultant ischemia; or valvular heart disease which, when severe, can lead to a drop in cardiac output. In cases of left ventricular dysfunction and valvular disease, the mechanism of dyspnea often involves increased intracardiac pressures that lead to pulmonary vascular congestion. Fluid then leaks into the alveolar space, impairing gas exchange and causing dyspnea.

Breathing difficulties can also be secondary to a low-output state without pulmonary vascular congestion. Patients often notice dyspnea with exertion, but it can also occur at rest in patients with severe cardiac disease. Shortness of breath at rest is also a symptom in patients with pulmonary edema, large pleural