

# Chest Pain

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Accounts for six million visits to the ER annually in the US

Consider life threatening causes including: Acute coronary syndrome (ACS), pulmonary embolism (PE), aortic dissection, tension pneumothorax, pericardial tamponade, and esophageal rupture. The HPI is important to direct workup. Consider the onset (abrupt/gradual), provocation/palliation, quality, radiation, site, and timing (constant or episodic).

**ACS:** The leading killer of adults in developed countries. Results from atherosclerotic plaque rupture and thrombus formation via the adhesion, activation, and aggregation of platelets (this is why anti platelets are so important). The degree and duration of ischemia will dictate whether there is infarction (irreversible damage). **Risk factors** include family history (especially for the young), male sex, age over 55, DM, HLD, HTN, and tobacco use. "Cardiac risk factors are poor predictors of acute risk in symptomatic ED patients, as the presence of chest pain outweighs their predictive value". Atypical presentations are more likely in elderly, diabetics, and women. Associated symptoms include nausea, vomiting, diaphoresis, dyspnea, weakness & syncope (especially in the elderly). The HEART score can be used to risk stratify patients (History, Ecg, Age, Risk factors, Troponin). Assume a patient who recently had an intervention has occluded the vessel until proven otherwise.

**PE:** Think about in patients who are tachycardic and tachypneic. Risk factors include *prior history*, OCPs, tobacco, pregnancy, recent surgery or immobilization, and long distance travel. Wells score and PERC rule are risk stratification tools. D dimer is a good screening test but cannot rule out PE in high risk patients.

**Aortic dissection:** Think about it in patients who complain about chest pain AND..... There may be a neurological deficit in the lower extremities or severe abdominal pain as well. Patients are usually very hypertensive and in distress. BP and HR control are crucial. BP may vary between arms

**Pneumothorax:** Smoking increases chance of development.

Basic testing with ECG, CXR, and trop can eliminate or confirm one of these diagnoses. CTA may be needed to confirm PE and dissection.

	Onset	Provocation & palliation	Quality	Radiation	Site	Timing
<b>ACS</b>	Gradual	Exertion/rest <b>Nitro</b>	“Discomfort”, pressure, heavy, full	Shoulder, neck, jaw, back	Sub sternal, left chest	Episodic
<b>Dissection</b>	Sudden/severe	Marfans, cocaine, HTN, pregnancy	Tearing or ripping	<b>Back, abdomen</b>	Central or left chest	Constant
<b>PE</b>	Often sudden	Deep inspiration	Sharp	Upper abdomen	Chest wall	Waxing and waning
<b>Pneumothorax</b>	Often sudden	Deep inspiration	Sharp	None	Varies	Constant
<b>Esophageal rupture</b>	Often sudden	<b>Vomiting, iatrogenic</b>	Tearing or ripping	Back	Anterior chest	Constant
<b>Tamponade (pericarditis)</b>	Gradual	Positional changes, leaning forward helps	Sharp	None	Anterior chest	Progressive