Life Threatening Differential Chest Pain Diagnoses Supplemental Guide

Aortic Aneurysm (Ruptured)

Characteristic symptoms:

- Appears pale and unwell, cold, sweaty and hypotensive
- Tachycardia, weak and thready pulse
- There may be a pulsatile mass in the vicinity of the bifurcation of the aorta. This is a few centimeters above the umbilicus and a little to the left.
- Aneurysm may be tender and a bruit may be audible. Bleeding causes peritoneal irritation and it may appear as an acute abdomen.
- Occasionally atypical presentation will occur ï ex. intestinal obstruction from hematoma or an apparent irreducible inguinal hernia.

Diagnosis:

Obtain chest x-ray: Thoracic aortic aneurysm may cause an enlarged base of aorta.

Abdominal X-ray: will reveal abdominal aortic aneurysm lesion in about 75% of cases

Portable ultrasound

Other investigations: CT angiography will confirm the diagnosis, but is time consuming, so transferring patient to tertiary center may be preferred

Treatment:

Emergency surgical or endovascular repair

Aortic Dissection

Characteristic symptoms:

- Sudden severe chest or upper back pain, often described as a tearing, ripping or shearing sensation, that radiates to the neck or down the back
- Loss of consciousness

- Shortness of breath
- Sudden difficulty speaking, loss of vision, weakness or hemiplegia
- Weak pulse/decreased BP in one arm compared with the other

Diagnosis:

Obtain chest x-ray- look for widened mediastinum or aortic knob

CTA, MRI, and TEE

Treatment:

Emergency surgical intervention

Pericardial Tamponade

Characteristic symptoms:

- Chest pain radiating to neck, shoulders, or back
- Hypotension and weak pulse
- Distended neck veins
- Tachycardia combined with muffled heart sounds due to the expanding layer of fluid inside the pericardium
- Blood pressure that falls (pulsus paradoxical) when breathing deeply
- Discomfort that is relieved by sitting or leaning forward
- Trouble breathing or taking deep breaths
- Anxiety and restlessness
- Weakness
- Tachypnea
- Syncope
- Weak or absent peripheral pulses

Diagnosis:

Chest x-ray may show enlarged globular-shaped heart

EKG may show low voltage QRS complexes

Echocardiography is diagnostic test of choice

CTA or MRI

Treatment:

Pericardiocentesis

Tension Pneumothorax

Characteristic symptoms:

- Sudden onset of chest pain that is sharp in nature and may lead to feelings of tightness in the chest.
- Shortness of breath
- Hypotension, tracheal deviation and neck vein distention
- Tachycardia
- Tachypnea
- Cough
- Fatigue
- Cyanosis

Diagnosis:

Decreased or absent breath sounds over the affected lung. Affected hemithorax is also hyperresonant to percussion and often feels distended, tense and poorly compressible to palpation.

Chest X-ray

Treatment:

A small pneumothorax without underlying lung disease may resolve on its own in one to two weeks. A larger pneumothorax and a pneumothorax associated with underlying lung disease often require aspiration of the free air and/or placement of a chest tube to evacuate the air.

Pulmonary Embolism

Characteristic symptoms:

- Shortness of breath that may occur suddenly
- Sudden, sharp chest pain that may become worse with deep breathing or coughing
- Calf pain/swelling

- Rapid heart rate
- Rapid breathing
- Sweating
- Anxiety
- Coughing up blood or pink, foamy mucus
- Syncope
- Heart palpitations

Diagnosis:

Evaluate Wells Score (see below)

Obtain D-Dimer- high levels may be diagnostic of PE

Ultrasound, CT, pulmonary angiogram, MRI

Wells Criteria for Pulmonary Embolism	
Clinical Feature	Points
Clinical s/s of DVT *(minimum of leg swelling and pain with palpitation of deep veins)*	3
An alternative diagnosis is less likely than PE	3
Heart rate >100 beats per minute	1.5
Immobilization $\geq$ 3 days or surgery in the previous 4 weeks	1.5
Hemoptysis	1
Malignancy (on treatment/treated in the past 6 months/palliative)	1
Clinical Probability	
PE likely	>4
PE unlikely	$\leq$4

Treatment:

Administration of anticoagulants and thrombolytics

Endovascular clot removal

Placement of vena cava filter