**HISTORY**

**PAIN CHARACTERISTICS**

It's all about the "S"
- **S**udden & **S**evere onset
- **S**harp/ **S**tabbing - More common
- **S**kips - **M**igratory above/below diaphragm; pain can radiate
- **S**tuttering - can be intermittent pain

- **T**earing/Ripping - More specific increased positive predictive value
- **V**ague/Unable to localize pain = worrisome feature
- **C**hest Pain " **p**lus one"*  
  CP + Neuro symptoms  
  CP + Leg pain/ischemic limb  
  CP + Abdominal pain
- **A**P/flank pain + syncope = RED FLAG - increased suspicion for dissection

**RISK FACTORS**

- Personal h/o bicuspid aortic valve or aortic aneurysm
- Connective Tissue Disease - Marfan's, Ehlers-Danlos
- Family history of sudden cardiac death, aortic aneurysm, bicuspid aortic valve, aortic dissection
- Uncontrolled HTN
- Smoking
- Cocaine abuse
- Pregnancy
- Trauma

*Look for signs of Marfan's Syndrome - Patients may not know they have it

**LISTEN** for new aortic regurgitation murmur

**FEEL** for pulse deficit

**DIAGNOSTICS**

- **CXR** - widened mediastinum and loss of aortic knob
- Elevated **troponin** is not always ACS. Rule out dissection based on hx and exam
- **D-Dimer** nonspecific - don't use alone to rule out dissection
- **POCUS** - look for intimal dissection flap and/or pericardial effusion
- Get **CTA** even if elevated creatinine for high suspicion cases

**TEXTBOOK CLASSICS**

*Atypical presentations* are the norm - rarely classic textbook symptoms
- **BP** differential is nonspecific. High false positive rate may lead to more or unnecessary testing
- **Normal mediastinum** DOES NOT r/o dissection
- **Young patients** CAN have dissection; usually from connective tissue disease and bicuspid aortic valve rather than atherosclerosis or HTN
- **No pain** in 10% of patients - often these patients will have neuro symptoms
MANAGEMENT

• Rapid HR & BP reduction (within minutes)
  • First control HR and THEN control BP
  • This avoids reflex tachycardia which would increase shear stress and worsen dissection
  • If high clinical suspicion for dissection, don’t wait for results to start lowering a severely elevated BP

• HR Target < 60
  • Esmolol or Labetalol or Diltiazem

• BP Target <120
  • Nicardipine

• Pain meds will also help reduce HR and BP

• Prompt surgical consultation regardless of type of dissection

DOCUMENTATION

• Chart should reflect that you considered aortic dissection in the DDX

• Document presence or absence of RED FLAGS that support your medical decision making

• YOUR TIMELINE IN THE EMR IS CRITICAL! - document key steps:
  • orders for labs and diagnostic imaging
  • review / interpretation of test results
  • interventions for HR / BP - time to initiate and control
  • requests for consults and consultant recommendations
  • request and initiation of emergency transfer

• ADD-RS Decision Aid (with d-dimer)
  • NOT VALIDATED - use with caution to defend your Dx and disposition
  • Limitations due to:
    • subjective questions
    • use of BP differential and d-dimer (nonspecific elements)
  • ACEP advises against using D-dimer alone

SO WHY SHOULD YOU CARE?

The diagnosis you miss is the one you don’t consider!

• Uncommon disease that’s hard to diagnose
  • variable/atypical clinical presentations
  • classic exam seen in < 1/3 of cases
  • mimics more common diagnoses like ACS and stroke. If anticoagulants or lytics are given it would be disastrous for dissection

• The DEADLY 3 DDX of chest pain:
  • Aortic Dissection
  • ACS
  • Pulmonary Embolism

• Devastating complications

• High mortality rate

• Early diagnosis is key! - for every hour delay in Dx, there is a 1-2% increase in mortality

• High risk diagnosis for litigation

• 1 in 6 cases get missed at 1st ED visit

• Several cases / near misses in OUR SYSTEM!
  • often in younger patients - perhaps due to increased incidence of risk factors in our younger patient population

TAKE HOME POINTS

• Young patients CAN have dissection
• Beware of Chest Pain “Plus One” presentations
• Not every STEMI is ACS
• Atypical presentations are the norm
• Hit critical steps - Manage the timeline