APPROACH WITH CAUTION

EMERGENCY MEDICINE RISK MANAGEMENT SERIES

AORTIC DISSECTION

Evaluation | Management | Documentation

HISTORY

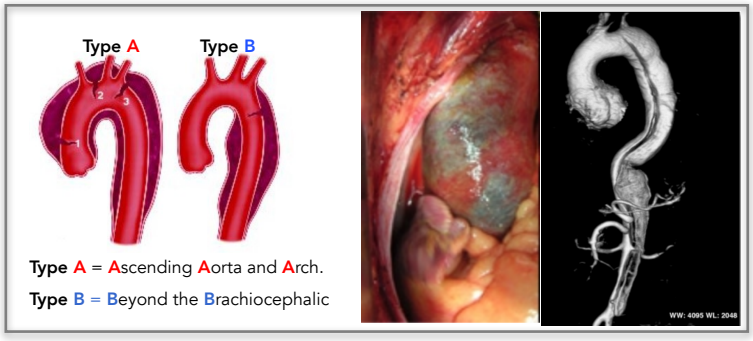
PAIN CHARACTERISTICS

It's all about the "**S**"

- **S**udden & **S**evere onset
  Sharp/**S**tabbing - More common
  Skips - Migratory above/below diaphragm; pain can radiate
  Stuttering - can be intermittent pain
- Tearing/Ripping - More specific increased positive predictive value
- Vague/Unable to localize pain = worrisome feature
- Chest Pain "plus one"
  - CP + Neuro symptoms
  - CP + Leg pain/ischemic limb
  - CP + Abdominal pain
- AP/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



EXAM

- 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

Be cautious of TEXTBOOK CLASSICS

- Atypical presentations are the norm - rarely classic textbook symptoms
- HTN seen in only 50% of cases
- 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

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 SYTEM!*
  - ★ *often in younger patients - perhaps due to increased incidence of risk factors in our younger patient population*

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

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**