



# Women & Acute Coronary Syndromes

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## Women & Acute Coronary Syndromes

## Disclosures

- Nothing to disclose



## Learning Objectives

- The numbers of CAD
- List potential causes of ACS in Women
- Describe treatment options for women with ACS

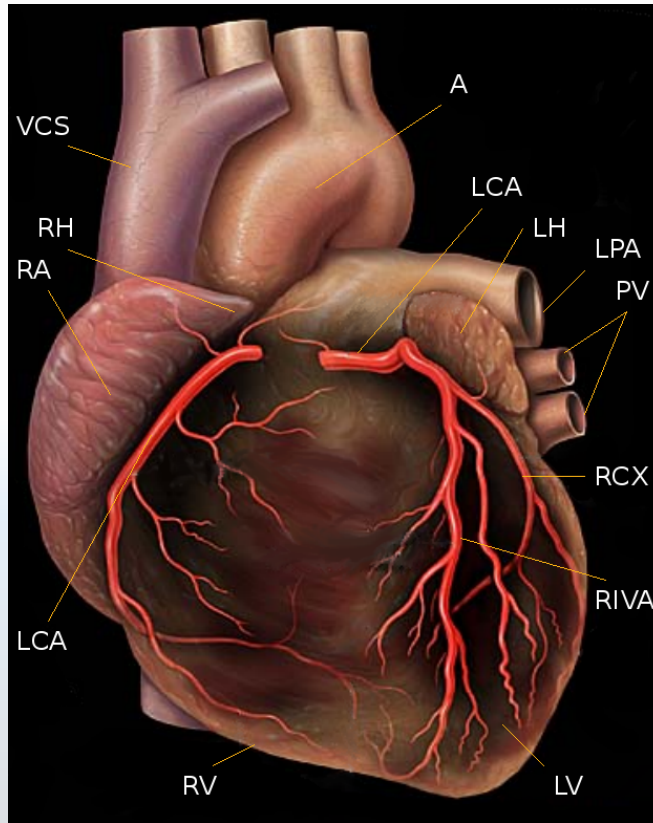




## Complexity of Cardiology

- Congenital
- Electrophysiology
- Congestive heart failure
- Transplant
- Atrial arrhythmias
- Ventricular Arrhythmias
- Infections
- Valvular disorders
- Hypertrophic cardiomyopathy
- Preventive cardiology
- Infectious disease
- Cardiovascular imaging
- Coronary artery disease
- Acute coronary syndromes
- Lipid disorders
- Hypertensive heart disease





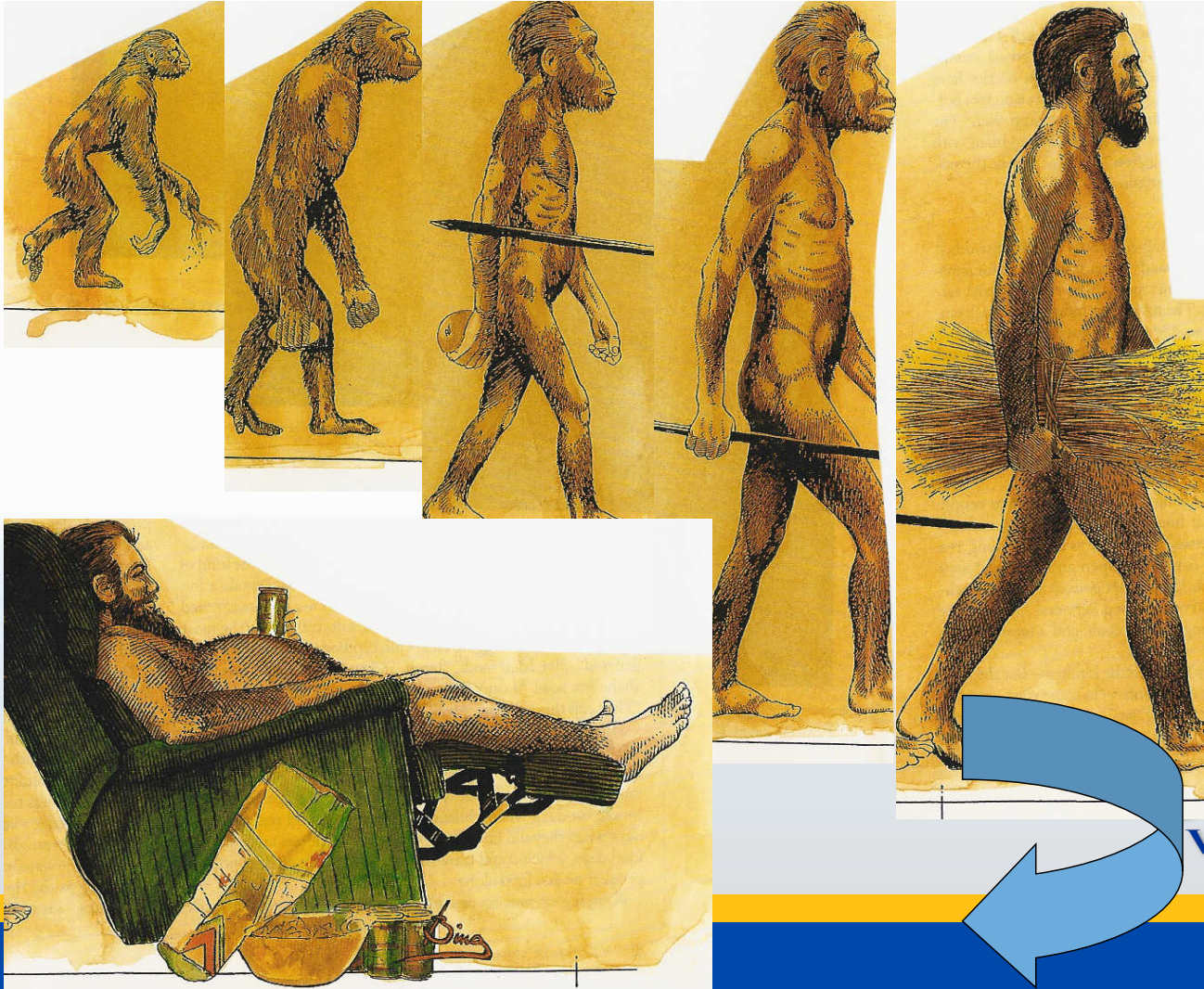
## The Numbers of Coronary Disease

- CAD single leading cause of death in America
- Mortality: 1 of every 5 deaths
- 33% of all deaths after the age of 35
- 2010 AHA data
  - 17.6 million Americans with CAD
  - **Heart Attacks: 8.5 million**

AHA. *Heart Disease and Stroke Statistics—2006 Update*.  
Gibbons RJ et al. ACC/AHA 2002 guidelines.  
[www.acc.org/clinical/guidelines/stable/stable.pdf](http://www.acc.org/clinical/guidelines/stable/stable.pdf).  
Pepine CJ et al. *Am J Cardiol*. 1994;74:226-31.









## Faces of CAD

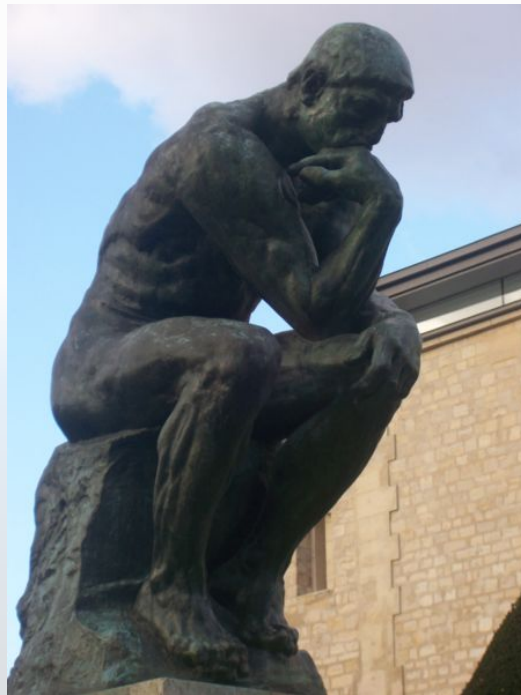


## Women & Heart Disease

- # 1 cause of death and disability for women in the U.S.
- Typically strikes 10 years older than men
  - Young women <45 years old also develop CAD
- Women with heart disease
  - Typically have more risk factors than men
  - Do worse overall with a higher mortality



What can we do to head off problems?





## Women's Heart Disease Risk Factors

- Hypertension
- Dyslipidemia
- Advanced Age
- Family History
- Obesity
- Smoking



## Common Sense

Hypertension

Stress

Obesity

Diabetes

Smoking

Alcohol

Lipids

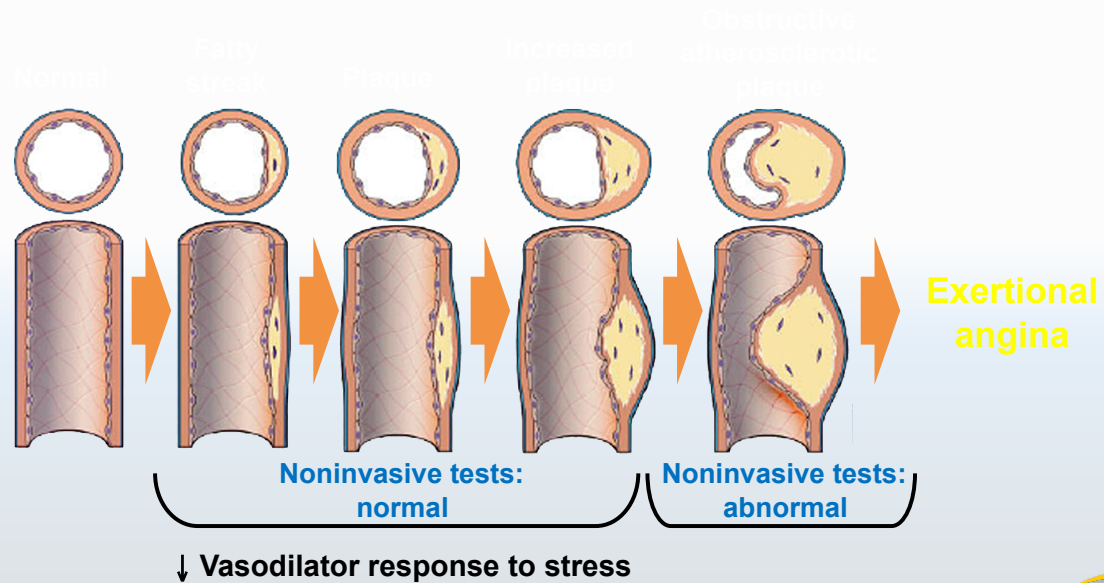
Exercise



## What's Going On In the Artery?

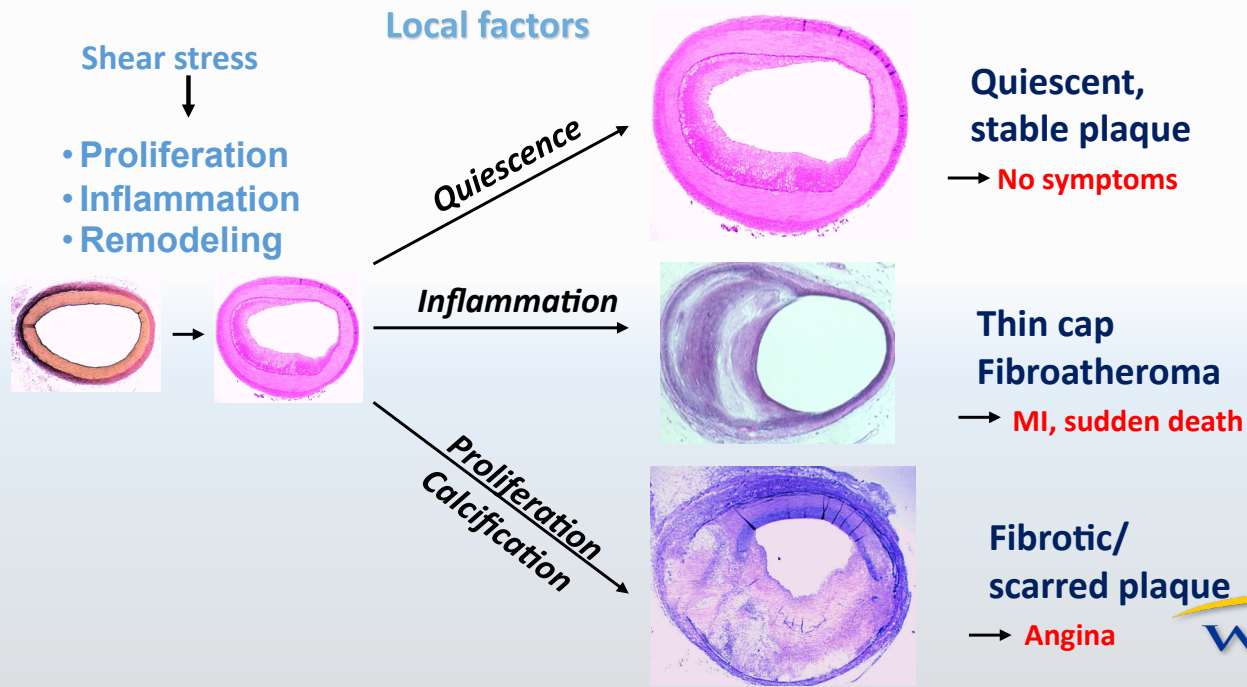


## Obstructive Plaque and Ischemia



Adapted from Abrams J. *N Engl J Med.* 2005;352:2524-33.

## Local Determinants of the Natural History of Individual Coronary Lesions

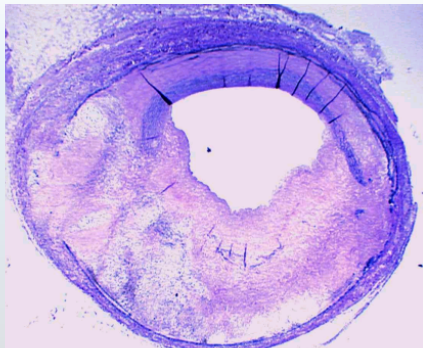


Courtesy of PH Stone, MD and R Gerrity, PhD.

## Stable vs. Unstable CAD

- Stable

- Symptoms slowly progressive over time
- Angina with exertion



- Unstable

- Symptoms rapidly progressive
- Can be life threatening within minutes

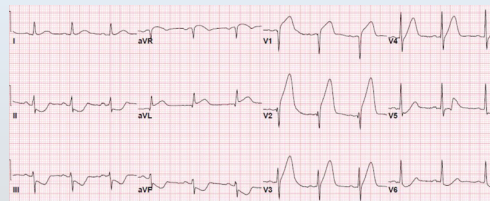


# What is an Acute Coronary Syndrome?



## Acute Coronary Syndromes

- Unstable angina
  - Rest angina, can last approx 20 min
  - New onset angina
  - Increasing angina, increasing frequency, longer duration, occurring more easily
- Non ST elevation MI
  - Same characteristics as unstable angina, but increase in Troponins
- ST elevation MI





## Women's Heart Symptoms

- Typical warning signs
  - Chest tightness, burning, squeezing or pressure
  - Discomfort in arms, shoulders, neck, jaw
  - Shortness of breath
  - Increase in symptoms with exertion



## Women's Heart Symptoms

- Less typical symptoms in women
  - Pain in upper back, jaw or neck
  - Flu like symptoms, nausea, vomiting or cold sweats
  - Overwhelming fatigue or weakness
  - Anxiety, loss of appetite



## Women & ACS: Initial Therapy

- Medical Stabilization
  - Systemic anticoagulation
  - Antiplatelet
    - Aspirin
    - P2Y12 inhibitors
  - Beta blockade
  - High intensity statins
- Serial Troponins
- Telemetry
- Echocardiography



## Advanced Diagnostic Therapies

- Ischemia driven approach

- Preserved EF
- Negative EKG
- Negative troponins

- Early invasive approach

- EKG changes
- Positive enzymes
- High risk features
  - Decreased EF



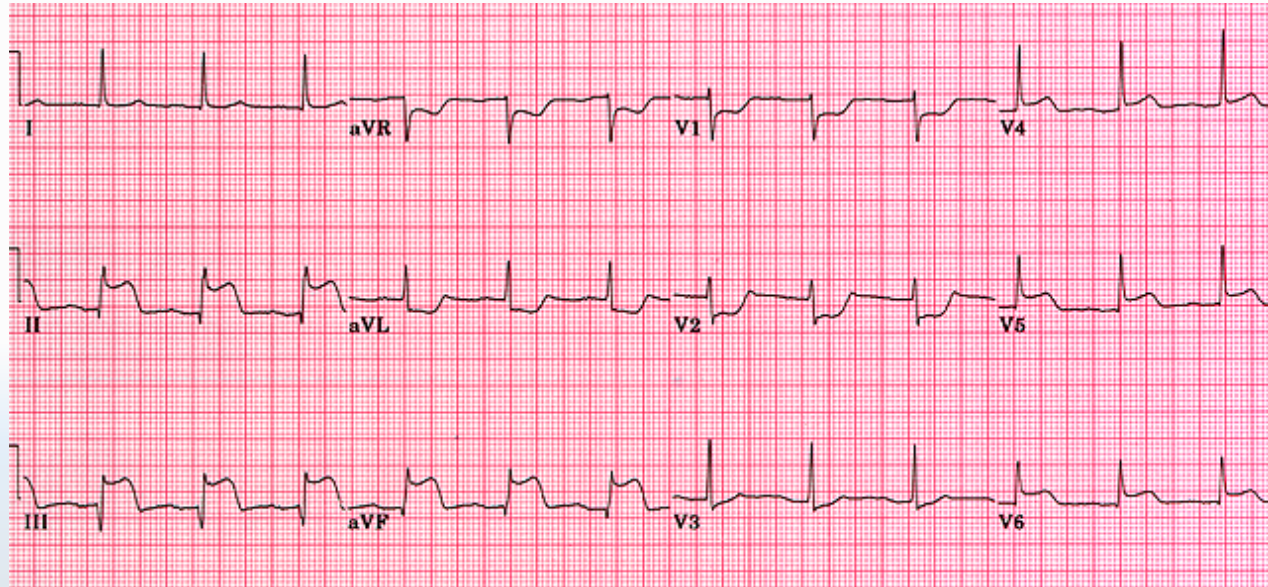


## Clinical Case #1

- 66 year old female presents with chest discomfort
- PMH
  - DM 2
  - HTN
  - GERD
- All: IV dye
- Meds: HCTZ, ranitidine, lovastatin
- SH: Widowed, no smoking
- Pertinent exam findings
  - Obvious distress
  - Tachypnic
  - Lungs clear
  - No murmurs



## Clinical Case #1 EKG



So what do we do?





## Previous therapy

San Diego Historical Society



## Time Counts



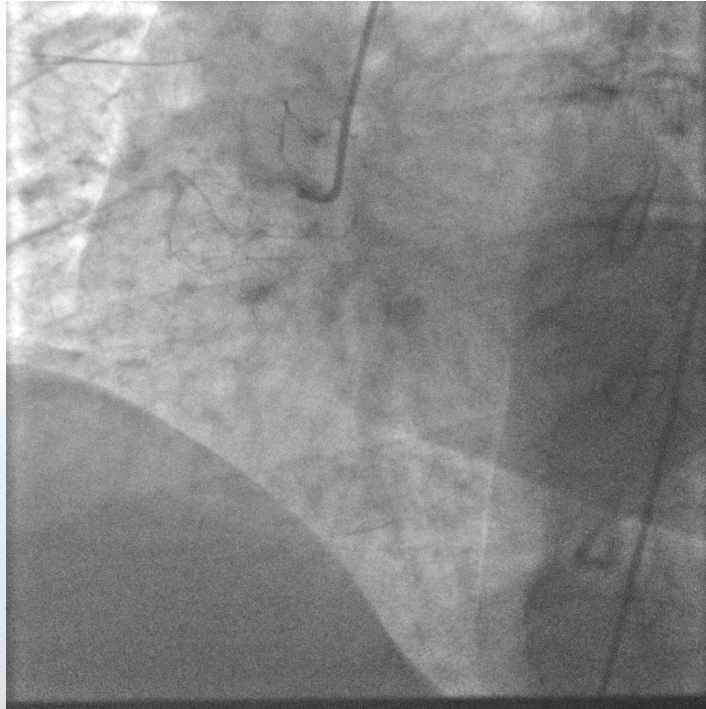
- 30 min = 3.0%
- 60 min = 3.5%
- **90 min = 4.3%**
- 120 min = 5.6 %
- 150 min = 7.0 %
- 180 min = 8.4 %

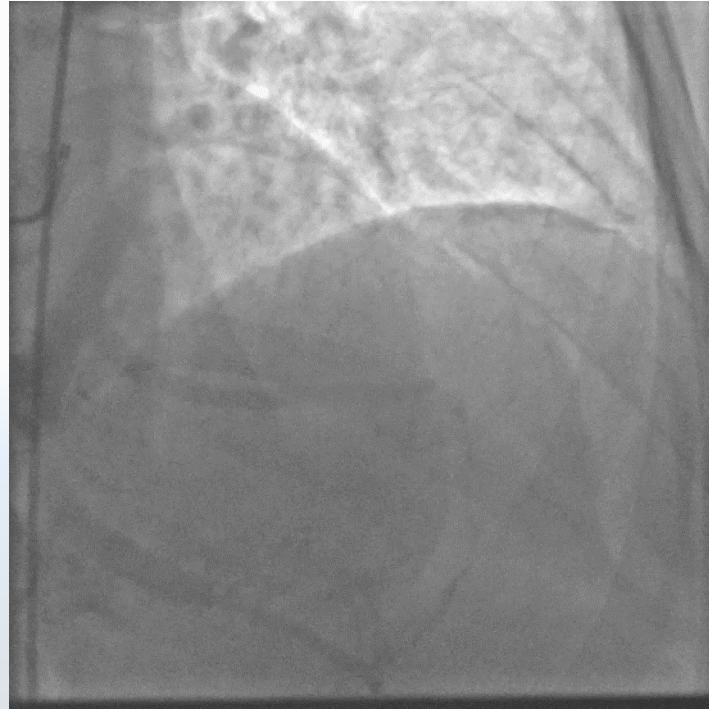
Adapted from National Cardiovascular Data  
Registry



## Cardiac Cath Lab

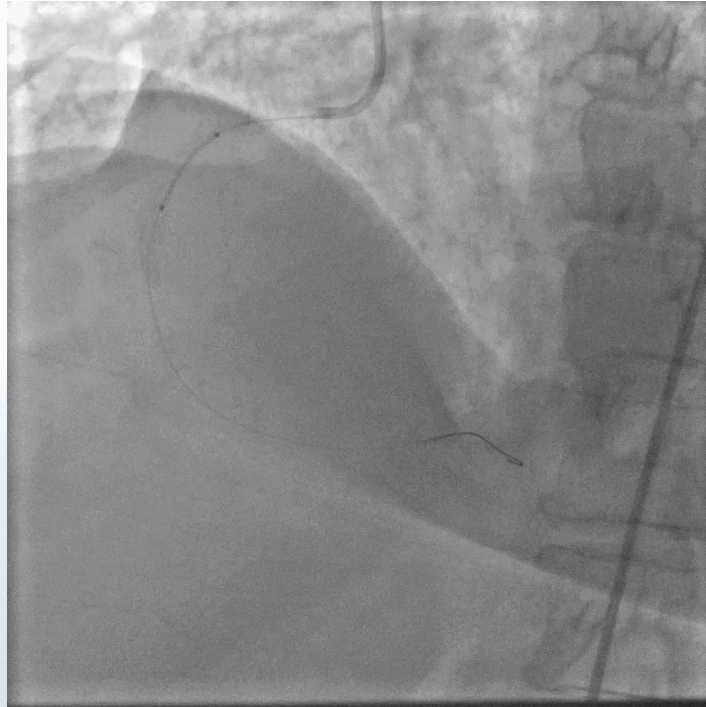






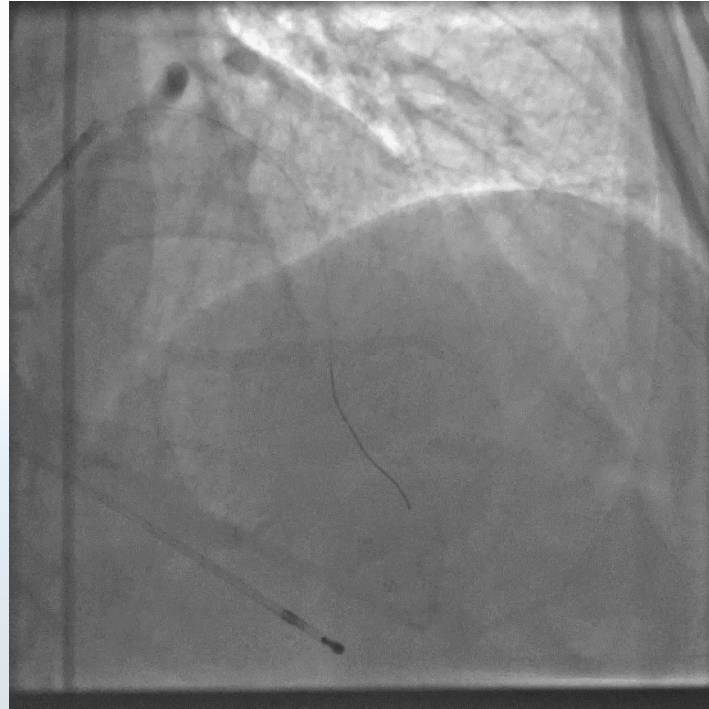




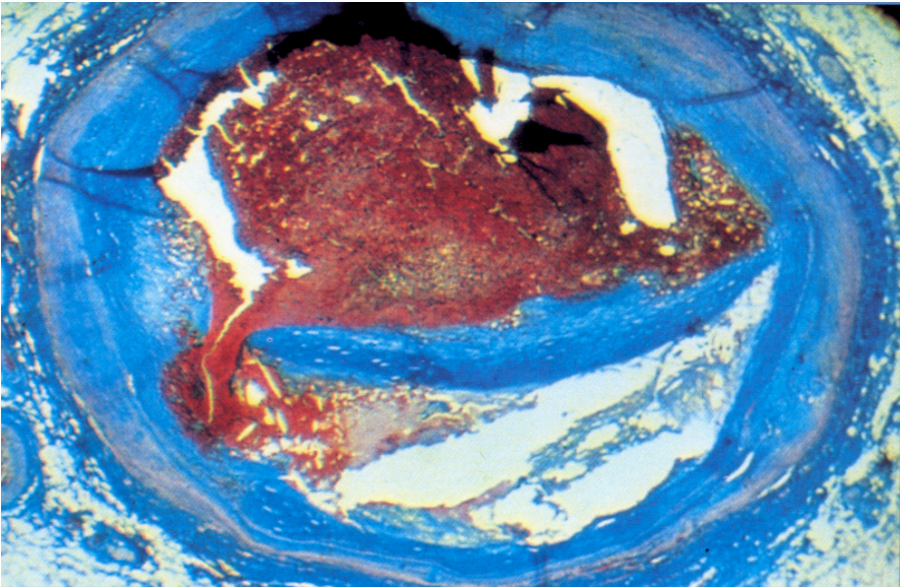








## Plaque Rupture



## Case #1 Wrap up

- No difference in treatment based on gender
- Placed on DAP for 1 year
- Risk factor modification
- Beta Blockade
- High intensity statin
- Cardiac rehabilitation

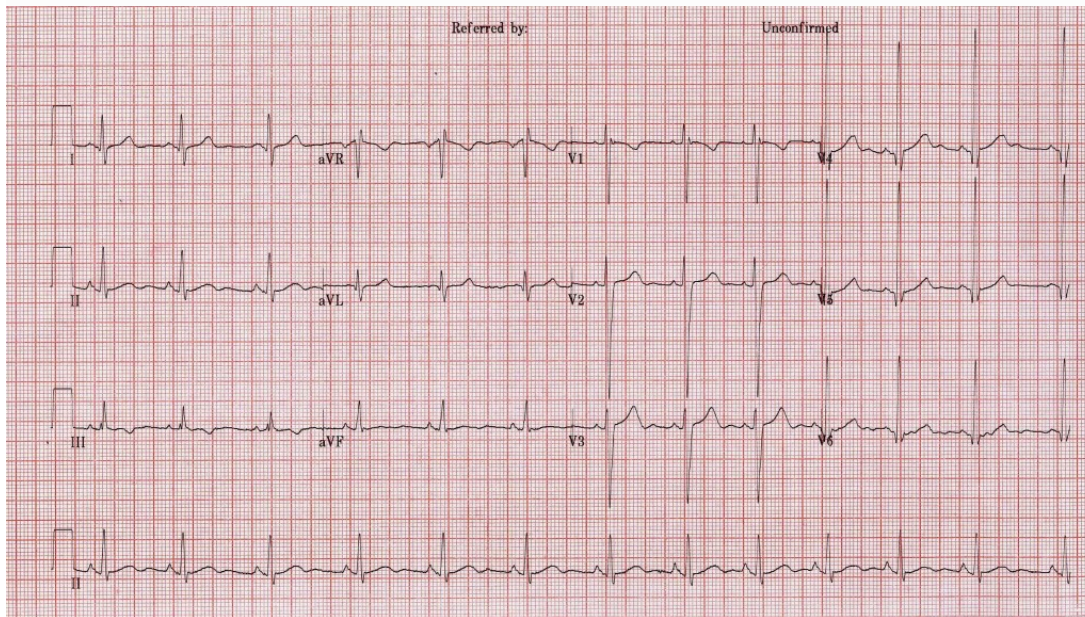


## Clinical Case # 2

- 45 year old presents with recurrent SOB, CP & back pain
- First occurred the previous day with exertion
- No significant past medical hx
- Avid exerciser
- No smoking
- CAD in Father at advanced age
- Physical Exam
  - Vital signs stable
  - Exam benign
- Troponin 1.3
- Medical therapy
  - NPO
  - Aspirin
  - Beta blockers
  - Heparin gtt



## Clinical Case # 2 EKG

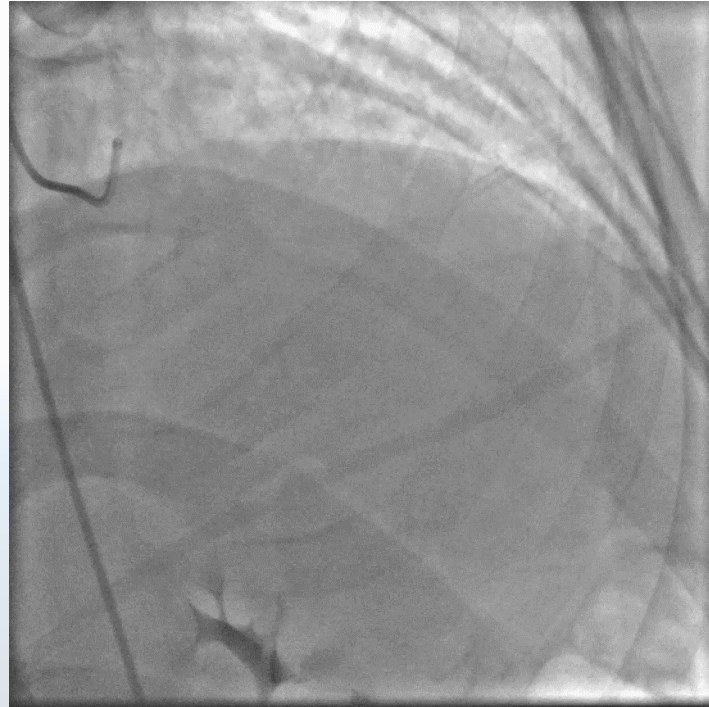


So what do we do?

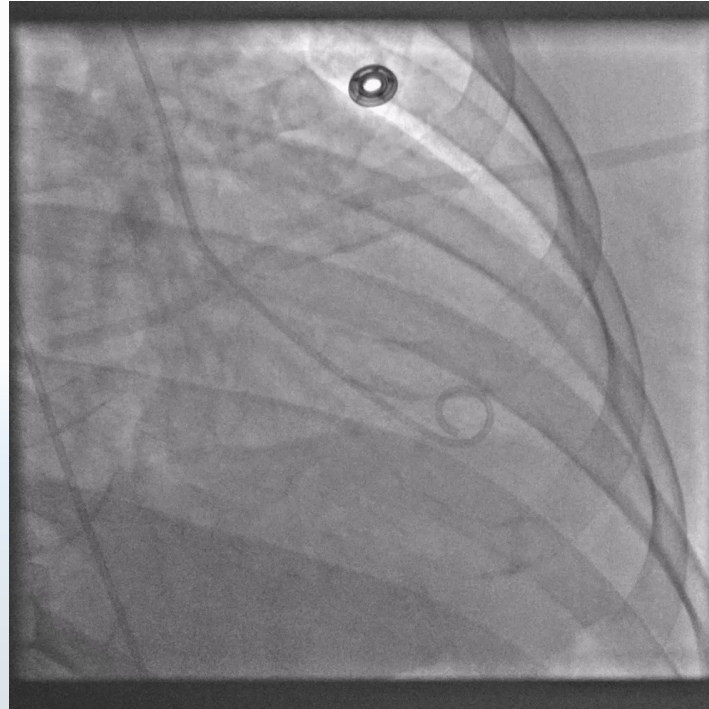












## Clinical Case # 2

- Spontaneous coronary dissection leading to MI/ACS
- Separation of the arterial walls
  - False lumen and intraluminal hematoma
- Can be responsible for 25% of ACS in women <50 years old
  - Pregnancy
  - Physical exertion
- Treatment
  - Conservative if possible



## Medical Therapy

- Dual antiplatelet therapy
  - Aspirin
  - P2Y12 inhibitor
- Beta blocker
- High intensity statin



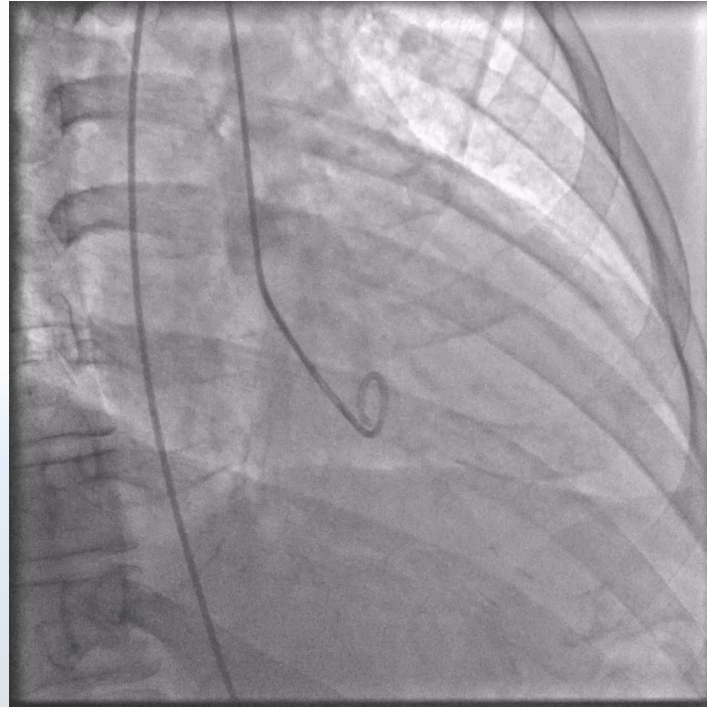
## Clinical Case # 2

- Very compliant patient
  - Continued on all medications
- Developed chest pressure at rest
  - Similar to prior symptoms
- Presented to ER
- Coronary angiography









## Summary

- Not just a disease of old men
- CAD is the leading cause of death for women
- Urgency of identifying and treating ACS
- Medical stabilization
- Appropriate aggressiveness
- Beware of outliers





Questions?



# Thank You

