Non-atherosclerotic CAD

Rajiv Gulati, MD PhD
Professor of Medicine

Torino, 2017
Disclosures

• None
Outline: Non-atherosclerotic ACS

• Four different etiologies – case based
Case #1: 32 yr old female

- Chest pain on exertion and at rest beginning aged 28
- Mild dyslipidemia, Father died of MI
- Four ER visits with troponin +ve chest pain
- Normal echo
Case: 32 yr old female

Four weeks later
More chest pain
One month later
After ic nitrates and verapamil
Diagnosis: Mild atherosclerosis, profound spasm causing myocardial necrosis
Case #1
Coronary spasm – underdiagnosed in cath lab, overdiagnosed elsewhere

- Endothelial dysfunction +/- atherosclerosis
- Males and females
- Proximal mid and distal coronary arteries
- Focal and diffuse
- Value of intracoronary vasodilators
- Role for provocative testing in some
Case # 2: 65 yrs female farmer

- CABG 1998 for chest pain and left main stenosis
- 2003-2016 refractory chest pains
  - 21 stress tests
  - 9 angiograms
  - 4 institutions
  - GI, Pulmonology, Psychiatry
  - Narcotics, anxiolytics, antidepressants
- Referred back with worsening chest pains at rest and on exertion, mild +ve dobutamine echo (inferior)
Late sterile sternal non-union

- Obesity, COPD, osteoporosis, DM
- Bilateral IMA, CPR
- Rx Sternal plating → Immediate relief
Case #3

• 64 year old male
• HTN only risk factor
• History of occasional palpitations 2 yrs
• Acute Inferior STEMI
Next day, BP 90 systolic, EF 20%
MRI brain – multiple small infarctions

Diagnosis- Embolic MI from LAA thrombus
Rx warfarin, clopidogrel long-term
68F with fevers, chills, then MI
MI due to coronary embolus – usually thrombus

- Japanese Cerebral & CV Center AMI database
- N=53 cases vs 1724 controls, 2001-2013
- Embolic source visualized in 31%, most LAA
- A Fib History 73% vs 7%
  - But 60% CHADS$_2$ score only 0-1
- 10% recurrence over 5 years, all had A Fib
- Life-long anticoagulation recommended

Shibata et al, Circulation 2015
Final case of non-atherosclerotic ACS

41F with inferior STEMI
Intramural hematoma/spontaneous coronary dissection
Spontaneous Coronary Artery Dissection

- Under-recognized cause of MI in females
- Vascular FMD in 60%+
- Coronary tortuosity in 60%+
- High risk of PCI complications
- Manage conservatively if possible?

Tweet MS et al; Eleid MF et al
Spontaneous Coronary Artery Dissection

Another case

34 year old female
Spontaneous Coronary Artery Dissection

Managed conservatively

9 days later…
Spontaneous Coronary Artery Dissection

- Critical to consider in women without atherosclerotic risk factors.
- Non-interventional approach is emphasized, but conservative therapy may fail.

New data forthcoming!
Cath-lab cases
Non-atherosclerotic CAD

- Spasm
- Embolus
- Bone disease
- Spontaneous Coronary Artery Dissection

Diagnosed with OCT, echo and plain X-ray, not contrast!
Thank you for your time

gulati.rajiv@mayo.edu  @rajivxgulati