



## Case 1

61 year-old man

- Treated hypertension and hyperlipidemia: well-controlled
- ECG: left bundle branch block (LBBB)
- Screening calcium scan (EBCT) done 2009
  - Total score 547 (>75 %ile for age)
  - LM 25, LAD 155, RCA 264, Cx.103
- Exercise testing
  - Exercise duration 12.5 METS
  - Nuclear stress: "fixed septal defect due to bundle branch block"
  - Echo stress: "normal ejection fraction and wall motion"
- This year he presented to an ER with chest pain; he ruled out for MI but was taken to cath due to his high calcium score.
  - Cath: 30% proximal RCA; luminal irregularities in the LAD and LCA.

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## Case 2

47-year-old male dentist and marathon runner with history of childhood asthma and atrial fibrillation since 1999. Drinks alcohol socially once or twice weekly

### Atrial Fibrillation History:

March 1998: first episode AF, spontaneously converted

September 2007: initiated warfarin and atenolol followed by cardioversion

February 2009: atrial fibrillation walking up stairs; reinitiated warfarin and atenolol followed by cardioversion

March 2009: pulmonary vein isolation: six-week follow up with only one brief episode of AF, nothing sustained. Six and twelve-month follow up: No atrial fibrillation

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## Case 3

75-year-old male ex-smoker with exemplary cardiovascular risk factors evaluated in 2006 (age 69) for dyspnea and a positive stress test

2006 SPECT: Symptom-limited stress ECG showed 3 mm downsloping ST depression at 8.2 METs.

Resting EF 55%; stress EF 60%; TID ratio 1.2; 4% reversible defect RCA distribution

CT Angiogram: Ca<sup>++</sup> score 598 (82 %-tile). Prox LAD 25-49%; 1<sup>st</sup> diag. 30% ostial; prox. RCA 1-24%; mid-RCA 25-49%, and ostial PDA 1-24%

2010 SPECT : Symptom-limited stress to 7.7 METs with 3mm ST depression. New 12% reversible defect RCA distribution. EF 58%

2010 CTA: calcium score 770 (87<sup>th</sup> percentile). LAD score 495. RCA, 192



## Case 4

62-year-old male investment advisor with history of an abnormal ECG since 1988 (age 38) and echocardiographic evidence of an MI in 1996 (age 46).

5'8" 167 lbs (BMI 25) BP 132/75 with an exemplary risk factor profile. Good medical records depict excellent care and good health otherwise.

March 2011 SPECT 8.0 METs (2006: 10 METs):

ECG: positive 2mm ST depression five minutes into exercise resolving two minutes into recovery

SPECT: moderate to severe fixed perfusion defect anterior wall, post stress ejection fraction 37% (post stress EF 2006 51%)

Echocardiogram : LVID 6.0, LA 3.6, Septum 1.0, PW 1.2, resting EF 50%, and mild anteroseptal hypokinesis

ECG: QS V1-V3; IVCD (QRS 0.14)

June 2012 SPECT (10 METs): ECG and SPECT unchanged except stress EF back to 51%

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## Case 5

64-year-old physically active dentist. Due to palpitations he had an echocardiogram in December 2004 that revealed a bicuspid aortic valve, aortic root 3.8 cm, moderate LVH and mild AI.

He went to different cardiologist in March 2006. Again an echocardiogram showed a bicuspid aortic valve, an aortic root of 4.4 cm, mild AI, and an EF of 55-60%.

In March 2008 his echo showed his aortic root at **4.2 cm**, his **left atrial dimension of 3.5 cm**, a LVID of 6.1, an EF of 57%, and moderate AI. A CT of the chest to r/o a thoracic aneurysm showed the aortic root at 4.7.

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## Case 6

75-year-old retired school teacher with controlled hypertension. As part of the physical exam she had an echocardiogram that led to a chest CT.

Chest CT December 2009

Aortic root 4.1 cm

Ascending aorta is prominent measuring 3.9 cm in the mid-ascending segment.

Proximal Aortic Arch 3.9 cm

Descending thoracic aorta 2.7 cm

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## Case 6 . . . Cont.

Same retired 75-year-old school teacher two years later:

Chest CT December 2011:

Study described as “unchanged” from December 2009

Aortic root 4.2 cm (was 4.1 cm 2009)

Ascending aorta 4.1 cm in the mid-ascending segment (was 3.9 cm in 2009)

Proximal Aortic Arch 4.2 cm (was 3.9 cm in 2009)

Descending thoracic aorta **3.2 cm** (was 2.7 cm in 2009)

No evidence of dissection.

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## Case 7

65-year-old mechanical engineer with statin-treated hyperlipidemia and well-controlled hypertension. In May 2010 due to non-specific abdominal pain he had an abdominal ultrasound that showed an abdominal aorta of 4.3 cm

(a) Scenario

May 2012 abdominal ultrasound reveals AAA 4.3 cm

(b) Scenario

Same as (a) except that AAA size is 4.6 cm

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## Case 8

45-year old male

Background:

Family History of premature CAD with MI & death in 50s: paternal grandfather, maternal grandfather, maternal aunt, maternal uncle.

Treated and well controlled hyperlipidemia. Borderline normal BP, 5'9" 179#, asymptomatic and runs for exercise.

Had EBCT and "positive" calcium score, but we do not have results. This was followed by a CCTA for "coronary artery disease" on 7/6/09

ETT 7/20/09: 12:00, 13 METS, HR to 172 and reported as EKG negative and normal Echocardiogram response to exercise.

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## Case 8 . . . Cont.

Same 45-year-old male

CTA 2009:

There is diffuse calcified plaque throughout the proximal and mid-LAD with two potential areas of flow limiting stenosis.

Mild calcified plaque is present in the proximal and mid-left circumflex artery as well as the proximal and mid RCA without significant coronary artery stenosis

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## Case 9

60-year-old female with hypertension and chronic microalbuminuria with negative renal workup. Also sleep apnea surgery

EBCT February 2008 Zero  
Echocardiogram 2008 normal

Cooper Clinic stress test February 2008: negative; no PVCs (report)

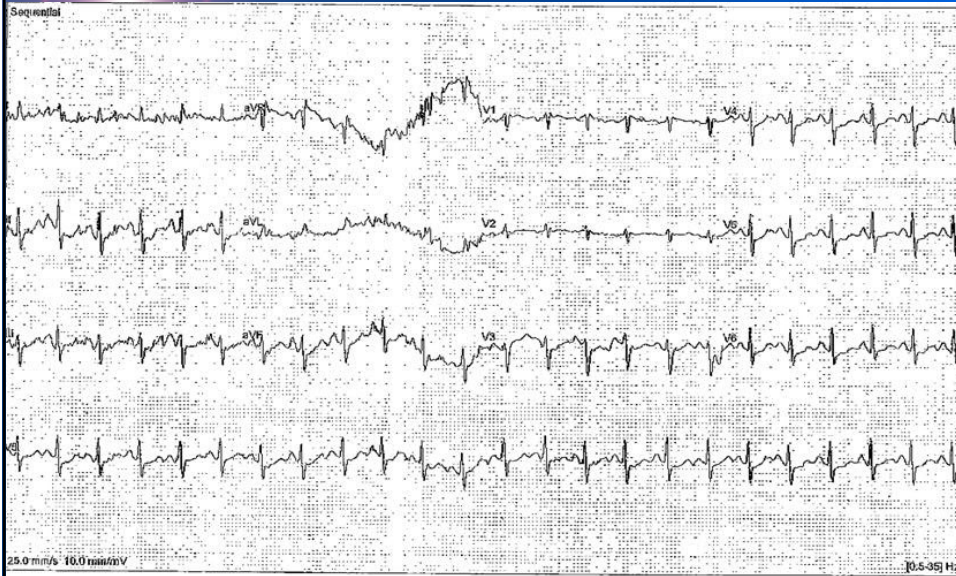
Jan 2011 stress test: rsr' pattern in V1-2; negative for ischemia no PVCs (Balke Protocol)

Dec 2011 - Stress test done as part of insurance physical

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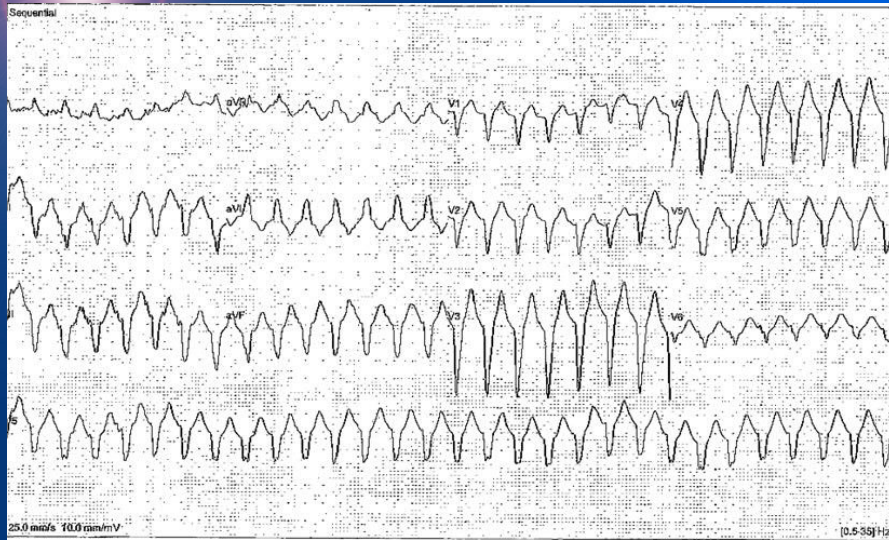


# Case 9



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# Case 9



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## Case 10

61 year-old male, 5'6" 272 pounds, with stable angina. Diabetes ten years treated with insulin (HbA1c between 7.5 – 8%). In 2007 right common femoral artery stented for PAD.

2010 : Angina with positive stress test

New Cath:

RCA: 100% obstructed

LAD: proximal stent is patent

First diagonal: moderate ostial obstruction

Circumflex: proximal stent patent

OM1 50 %; OM2 99%

“The angina may be possibly due to his chronic total occlusion – insufficient collateral's to RCA”. Treated with long acting nitrates

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## Case 10 . . . Cont.

December 2011: leg ulceration (Severe PAD?)

APS: last office visit March 2012 (one page)

“The patient has recent recurrence of chest pain”

SPECT Study – 7 minutes modified Bruce protocol (METS ?)

Resting EF 45% - no significant wall motion abnormality

No evidence of exercise induced ischemia

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