Session 10:
The Stethoscope and Beyond:
Cardiac Diagnoses Not to Be Missed

Learning Objectives

1. Incorporate the most identifiable physical findings, patient history, and additional tests as needed to determine the etiology of abnormal heart sounds detected via auscultation.

2. Distinguish between benign heart sounds and those requiring prompt work-up and intervention.
Dr Elyse Foster is director of the University of California, San Francisco Adult Echocardiography Laboratory and Adult Congenital Heart Disease Service. She specializes in the assessment of cardiac function using echocardiography, including exercise and pharmacologic stress testing for ischemia detection. She also has a special interest in adult congenital heart conditions and valvular disease.

Dr Foster earned a medical degree at Tufts University School of Medicine. She completed a residency in internal medicine at Boston Medical Center, where she also completed a fellowship in cardiovascular diseases. Dr Foster is on the executive committee of the International Society of Adult Congenital Heart Disease and is on the women in cardiology committee for the American College of Cardiology. She is board certified in both internal medicine and cardiovascular disease.

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The presenting faculty reports the following:

Dr Foster receives research support from Abbott Structural Heart.
Learning Objectives

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• Distinguish between benign heart sounds and those requiring prompt work-up and intervention

Outline - Practical Implications for Primary Care

Cardiovascular Case Presentation
• Use of your eyes
• Use of your hands
• Use of your ears... the stethoscope

Diagnoses not to be missed

Case 1: 23-year-old woman

• She complains of recent palpitations
• Physically very active
  – No dyspnea, chest discomfort, or exercise impairment
  – Competitive athlete: volleyball
• Aware of an occasional “flop” in her chest when she is lying in bed
  – No faintness, tachycardia, or syncope

Case 1: 23-year-old woman, cont’d

• No personal history of any cardiac problem, murmur, or childhood illness
• Current medications: birth control pills
• No family history of cardiac issues

Faculty Disclosures

• Dr Foster receives research support from Abbott Structural Heart.
Case 1: 23-year-old woman, cont’d

- Physical exam
  - Wt 132 lbs, Height 72”
  - BP 112/50 mmHg in both arms; pulse regular, 58/min
  - I/VI decrescendo diastolic murmur at the left sternal border
- Labs (at a recent gynecological exam): normal
- ECG today: normal

Case 1: Pre-Question 1

In this patient, what is a likely provisional diagnosis?

1. Anxiety
2. Hypertrophic cardiomyopathy
3. Mitral valve prolapse and regurgitation
4. Dilated ascending aortic root
5. Rheumatic heart disease

Case 2: 81-year-old man

- Complains of exertional dyspnea
- Has gradually limited his exercise over the last 6 months due to shortness of breath
  - No chest discomfort
  - No palpitations or syncope
  - Possible mild ankle edema recently noted
  - No history of any cardiac problem

Case 2: 81-year-old man, cont’d

PMH
- 10-year history of hypertension
- Borderline hypercholesterolemia
- Hyperuricemia

Current medications
- amlodipine/benazepril 5/20 mg daily
- Allopurinol 300 mg daily
- Vitamin D 1,000 iu daily

Case 2: 81-year-old man, cont’d

- Physical exam
  - Wt 165 lbs, Height 69”
  - BP 139/60 mmHg; pulse regular, 73/min
  - III/VI harsh systolic murmur over the precordium, radiating to neck... increases with bearing down
  - Jugular pressure 6 cm
  - Mild hepato-jugular reflux
  - Trace pedal edema
- Labs: Normal
- ECG: LVH with very deep T wave inversions
Case 2: Pre-Question 1

In this patient, what is the most likely diagnosis?

1. Coronary artery disease and prior infarction
2. Hypertensive heart disease with diastolic heart failure
3. Significant mitral regurgitation
4. Calcific aortic stenosis
5. Hypertrophic cardiomyopathy

Cardiovascular Exam

Use your:

- Eyes
- Hands
- Ears
- … and Brain

Cardiovascular Exam: Using Your Eyes

- Appearance of the patient
- Carotid artery impulse
- Jugular venous height
- Jugular venous contour
- Chest wall cardiac impulse

Cardiovascular Exam: Using Your Eyes

Appearance of the Patient

- ? Tall
- ? Unusually short
- ? “Marfanoid”
- ? Cyanotic
- ? Abnormal palate
- ? Chest wall deformed

Cardiovascular Exam: Using Your Eyes

Carotid artery impulse:

- One upstroke… rapid
- Does not vary with breathing
- No change with abdominal pressure
- No change with the “Valsalva maneuver”

Cardiovascular Exam: Using Your Eyes

Jugular veins:

- An undulatory rhythmic pattern
- In normal rhythm, two waves visible
- In atrial arrhythmia:
  - Atrial fibrillation – single wave
  - Atrial flutter – multiple waves
- External jugular veins can be used…
  …but venous valves or neck muscles can interfere
Cardiovascular Exam: Using Your Eyes

Jugular veins:
- Normal height is less than 5 cm…
- Falls with normal inspiration
- Increases with increased thoracic pressure (e.g., Valsalva maneuver)
- In abnormal hearts, height increases with abdominal pressure (e.g., "hepato-jugular reflux")

Cardiovascular Exam: Using Your Hands

- Shake the patient’s hand…
- Carotid artery impulse: a rapid "tap"
- Chest wall deformation
- Chest wall tenderness
- Precordial palpation
- Liver size and pulsation
- Abdominal aorta size
- Peripheral pulses

Cardiovascular Exam: Using Your Ears…
...the Stethoscope

- Acoustic?
- Electronic?
- Bell? Diaphragm?
- Short or long tubing?

IMPORTANT:
- Know what to listen for…
- Know how to integrate those sounds with that patient…
- Practice makes perfect…
Case 1: 23-year-old woman with palpitations …revisited

- **Physical exam**
  - Wt 132 lbs, Height 72" 
  - BP 112/50 in both arms; pulse regular, 58/min 
  - I/VI decrescendo diastolic murmur at the left sternal border 
  - Long fingers

**Case 1: Post-Question 1**

In this patient, what is a likely provisional diagnosis?

1. Anxiety
2. Hypertrophic cardiomyopathy
3. Mitral valve prolapse and regurgitation
4. Dilated ascending aortic root
5. Rheumatic heart disease

**Case 1: Question 2**

In this patient, what would you recommend as the next diagnostic test, if any?

1. No further testing is warranted at present
2. Echocardiography
3. Magnetic resonance angiography (MRA)
4. CT angiography of the pulmonary artery
5. Genetic testing

Case 2: 81-year old-man with dyspnea, revisited…

- **Physical exam**
  - III/VI harsh systolic murmur over the precordium, radiating to neck… increases with bearing down
  - Jugular pressure 6 cm
  - Mild hepato-jugular reflux
  - Trace pedal edema

**Case 2: Post-Question 1**

In this patient, what is the most likely diagnosis?

1. Coronary artery disease and prior infarction
2. Hypertensive heart disease with diastolic heart failure
3. Significant mitral regurgitation
4. Calcific aortic stenosis
5. Hypertrophic cardiomyopathy

**Case 2: Question 2**

In this patient, what would you recommend as the next diagnostic test, if any?

1. No further testing is warranted at present
2. Echocardiography
3. Treadmill stress test
4. CT angiography of the coronary arteries
5. Cardiac catheterization
Cardiovascular Exam
Using Your Hands, Eyes, and Ears

✔ Still very important – even in our high-tech era
✔ Very cost effective
✔ Allows easy follow-up over time
✔ …But it does take experience

Questions
?