

Approach to Cardiovascular Disease

Dr. Amitesh Aggarwal
Assistant Professor
Department of Medicine

History Taking

- Patient details
- Presenting Complaint
- History of Presenting Complaint
- Past Medical History
- Medications
- Family History
- Social History

Presenting complaint

- Usually ask the patient:
What problems brought you to the doctors today?
How can I help you?
- Ask open-ended questions (*e.g. Where is your pain?*) rather than leading ones (*Was the pain in the centre of your chest?*).
- Try not to use medical terms (*e.g. Do you have orthopnoea?*)

History of presenting complaint

- Find out more information about presenting complaint
- *Where did you experience the chest pain?* [Location]
- *What was the pain like?* [Character]
- *How severe was the pain?* [Severity]
- *How long did the pain last for?* [Duration]
- *How often do you experience the pain?* [Frequency]
- *Did the pain spread anywhere?* [Radiation]
- *What makes the pain worse?* [Exacerbating factors]
- *Does anything make it better?* [Relieving factors]
- *Did you noticed any thing else at the time? Nausea? Sweating?*
[Associated symptoms]

Past medical history

Any other medical problems

Specifically any cardiovascular problems

DM

HTN

CAD

CVA

Drug history

- Sometimes patients may consider ‘over the counter drugs’ not important
- Enquire about any herbal treatments

Family history

DM

HTN

CAD

CVA

SCD

HCM

Social history

- Ask the patient if they smoke?

Type of tobacco – Cigarettes/ beedi/ SLT? Amount per day

- Drug abuse e.g. cocaine

- Do they consume any alcohol?

If so how many units per week?

- *Living conditions - RHD*

Cardinal Symptoms

Chest pain or discomfort

Dyspnea, orthopnea, paroxysmal nocturnal dyspnea

Palpitations, dizziness, syncope

Cough, hemoptysis

Pain in extremities with exertion (claudication)

Edema

Chest pain



There are literally dozens of illnesses, injuries and conditions that can cause chest pain

Knowing common signs, symptoms and patient presentations can help you differentiate between different kinds of chest pain.

Retrosternal
 Myocardial ischemic pain
 Pericardial pain
 Esophageal pain
 Aortic dissection
 Mediastinal lesions
 Pulmonary embolization

Shoulder
 Myocardial ischemic pain
 Pericarditis
 Subdiaphragmatic abscess
 Diaphragmatic pleurisy
 Cervical spine disease
 Acute musculoskeletal pain
 Thoracic outlet syndrome

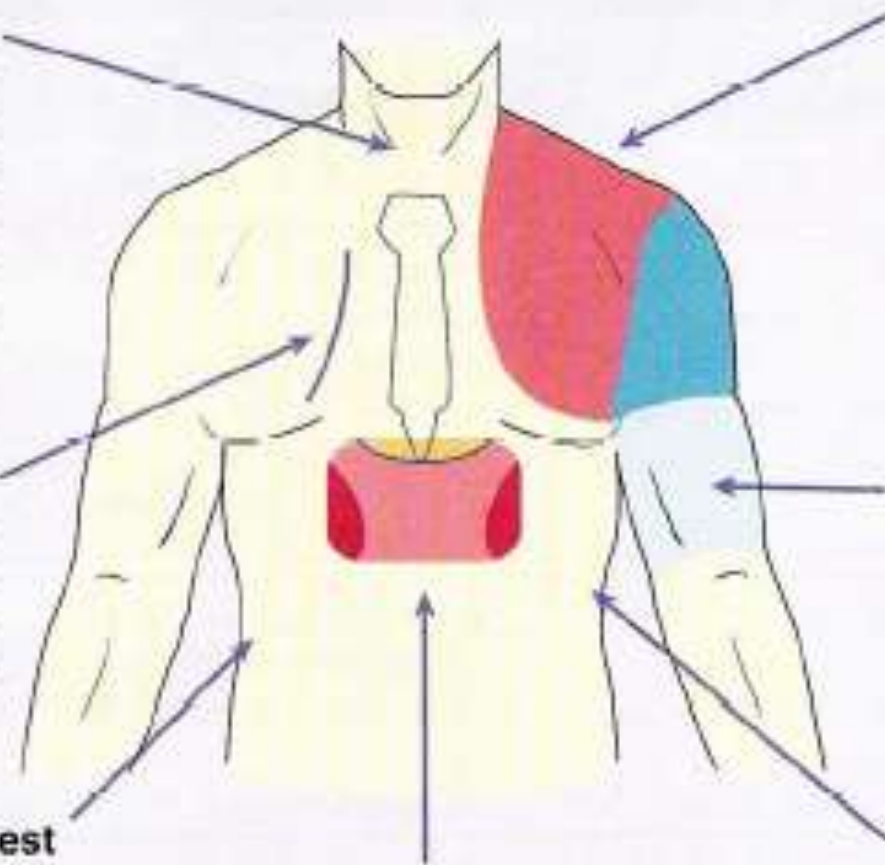
Interscapular
 Myocardial ischemic pain
 Musculoskeletal pain
 Gallbladder pain
 Pancreatic pain

Arms
 Myocardial ischemic pain
 Cervical/dorsal spine pain
 Thoracic outlet syndrome

Right Lower Anterior Chest
 Gallbladder pain
 Distention of the liver
 Subdiaphragmatic abscess
 Pneumonia/pleurisy
 Gastric or duodenal penetrating ulcer
 Pulmonary embolization
 Acute myositis
 Injuries

Epigastric
 Myocardial ischemic pain
 Pericardial pain
 Esophageal pain
 Duodenal/gastric pain
 Pancreatic pain
 Gallbladder pain
 Distention of the liver
 Diaphragmatic pleurisy
 Pneumonia

Left Lower Anterior Chest
 Intercostal neuralgia
 Pulmonary embolization
 Myositis
 Pneumonia/pleurisy
 Splenic infarction
 Splenic flexure syndrome
 Subdiaphragmatic abscess
 Precordial catch syndrome
 Injuries



Cardiac causes of chest pain

Myocardial ischaemia

- Retrosternal pain, radiate into arms, throat or jaw.
- Constricting character, is provoked by exertion and relieved rapidly by rest
- In cardiac emergencies, pain is similar in location and character to angina but is usually more severe, more prolonged, and unrelieved by rest

Pericarditis

Central chest pain, sharp in character and aggravated by deep inspiration, cough or postural changes

Aortic dissection

- Severe tearing pain in either the front or the back of the chest.
- Onset is abrupt, unlike the crescendo quality of ischaemic cardiac pain

Dyspnoea

- Subjective feeling of difficulty in breathing
- Patient complains of shortness of breath or “I can’t get enough air”.
- Caused by many conditions including: heart failure, pulmonary disease, anaemia, anxiety, obesity.
- The history often give clues to the cause
- In many patients, occurs on exertion only.
- Exertional dyspnoea is usually due to cardiac failure, chronic pulmonary disease or poor physical condition.

Orthopnoea

- Patient has more difficulty breathing in the lying position than when sitting upright.
- It is usually associated with congestive heart failure but may occur with severe lung disease.

Paroxysmal nocturnal dyspnoea

- Patient describes sudden wakening from sleep with shortness of breath.
- The patient will sometimes sit on the side of the bed to seek relief.
- Usually associated with congestive heart failure but similar symptoms may occur with asthma

Cough

Dry or productive of frothy sputum, occurs on exertion or lying flat, accompanied or preceded by dyspnoea.

Hemoptysis

- Blood tinged sputum : Pulmonary oedma.
- Frank haemoptysis : M. S.
Pulmonary embolism and infarction

Cardiac asthma

Breathlessness precedes cough

History of CVD

Sputum is abundant, frothy and bloody.

Heart enlarged

Basal crackles

ECG abnormal

Pulmonary asthma

Cough precedes breathlessness

History of COAD/ BA/ chronic cough for years

Sputum is scanty and mucoid

Heart is usually small

Predominant wheeze/ silent chest

ECG usually normal

Ankle swelling

- Some patients present with ankle swelling due to edema from heart failure.
- Such ankle edema is usually symmetrical and worse in the evening.
- If the heart failure progresses the oedema can ascend up the legs, and in severe cases to the lower abdomen/sacral areas.

SYSTEM	HISTORY
Cardiac	DOE Orthopnoea PND
Renal	Starts with face/ periorbital Anasarca Other signs
Hepatic	Usually rare Associated pleural effusion, ascites

Palpitations

- An unexpected awareness of the heartbeat.
- Ask the patient to describe exactly :
- Fast?

Regular? Irregular?

Skipped beats?

How long they lasted for?

Any other symptoms - e.g. dyspnoea? Chest pain?

Syncope

- Transient loss of consciousness resulting from cerebral anoxia, usually due to inadequate blood flow
- Did they lose consciousness?
Under what circumstances did this occur?
Did the patient experience any warnings?
Was recovery spontaneous?
Did the patient take time to recover?
Did any bystanders notice any abnormal movements?
- It is always very useful to obtain a corroborative history from a relative or witness.

Claudication

- Claudication in Latin meaning to limp
- Patients notice pain in one or both legs (usually calves) when they walk more than a certain distance
- This distance is called claudication distance
- Suggests possible peripheral vascular disease with a poor blood supply to the affected limb
- Eventually, with increasing severity - rest pain

Congenital Heart Disease

To Be Asked Only if Patient Is an Infant

- Frequent pneumonias (increased lung blood flow)
- Excess perspiration (sign of failure in infants)
- Mother aware of infant's heartbeat or vibration or thrill

To Be Asked if Patient Is an Infant, Child, or Adult

- Murmur at birth?
- Pregnancy with rubella
- Normal growth and development
- Family history of congenital heart disease
- Cyanosis
- Mental retardation, Squatting

Physical examination

- General Appearance
- Ophthalmologic Examination
- Jugular Veins
- Carotid Pulse
- Cardiac Inspection and Palpation
- Auscultation
- Abdomen
- Extremities
- Examination of the Skin

General Inspection

1. Does the patient look acutely ill, chronically ill, or well?
2. Are there any features characteristic of certain syndromes?
3. Go with the probabilities

Long thin people have long thin valves (MVP)

Young-think bicuspid aortic valve

Middle age-think rheumatic AV disease

Elderly -think degenerative AV disease

Examination - Hands



Clubbing



Splinter Haemorrhages



Osler's nodes

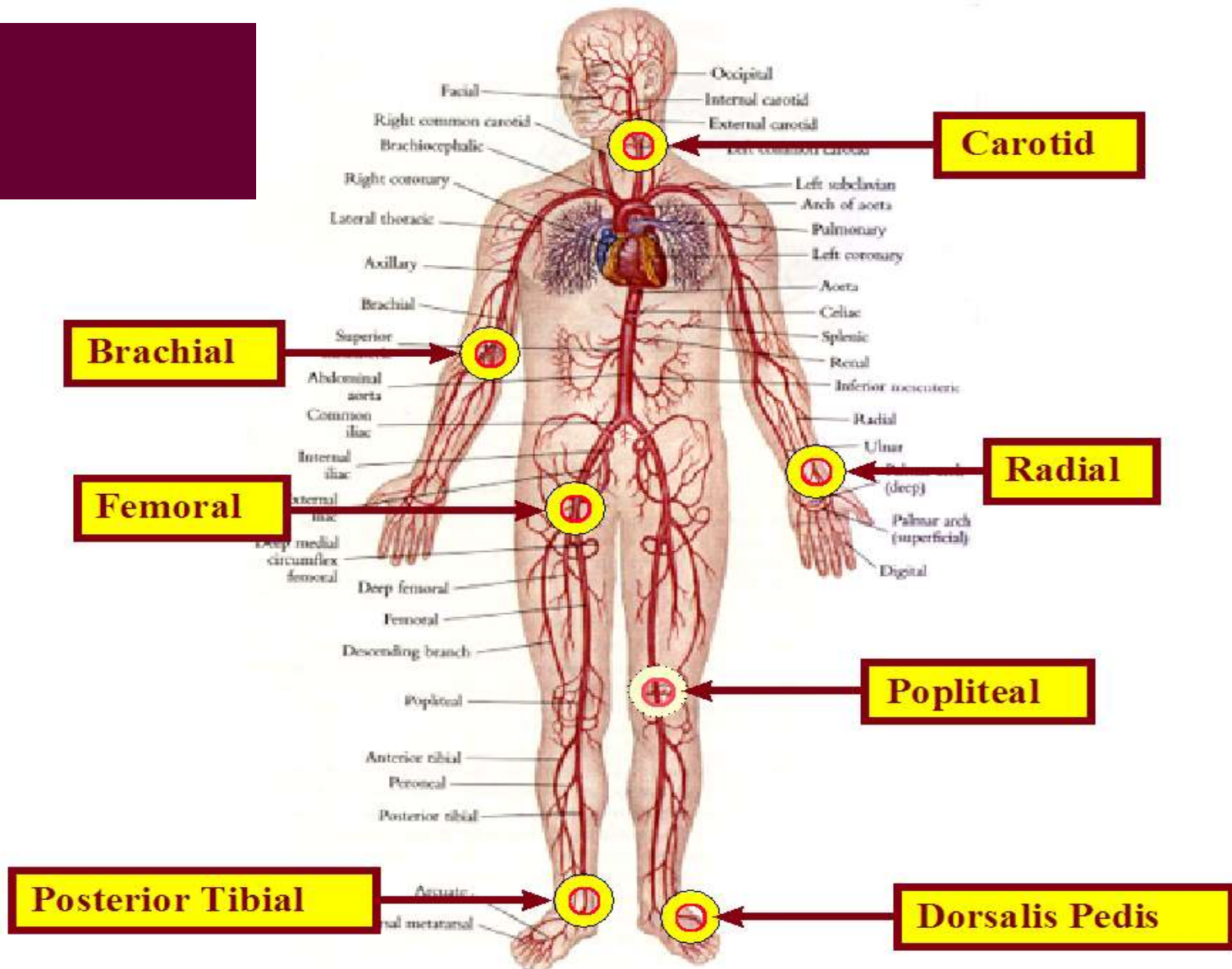


Janeway Lesions



Xanthomata

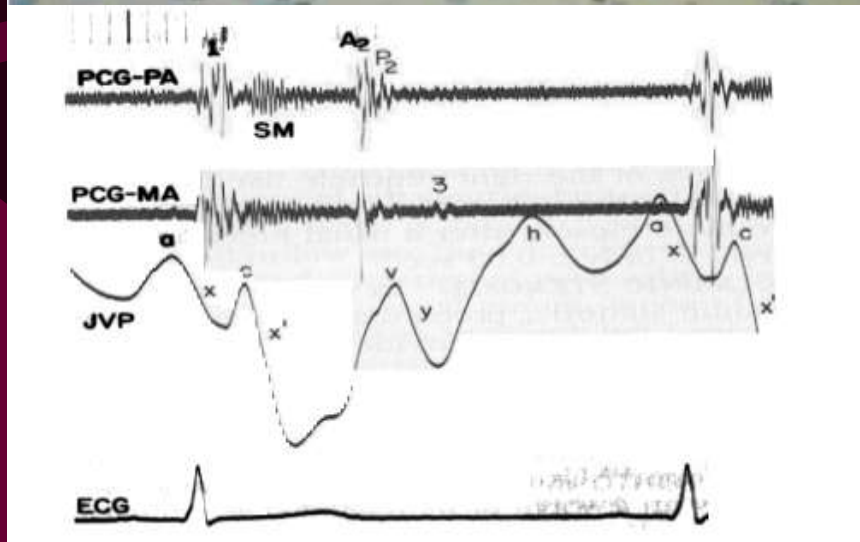
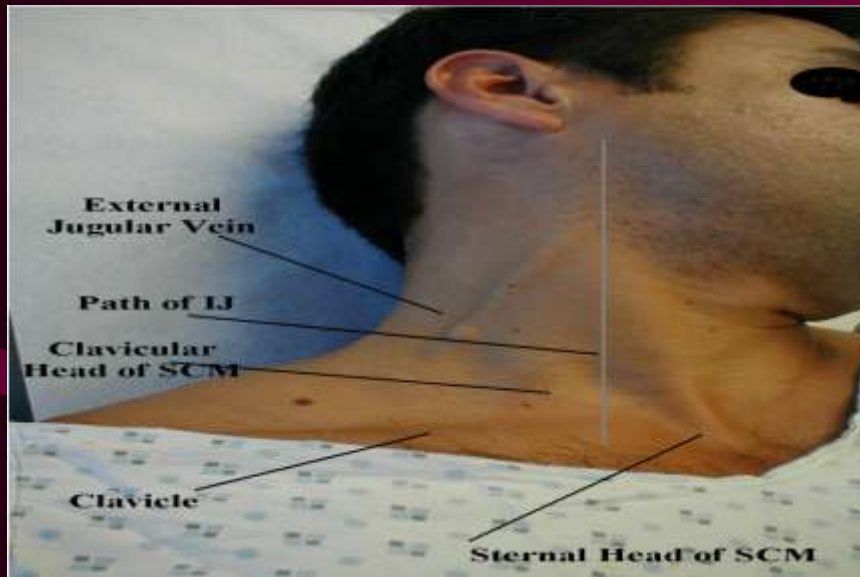
Examination - Pulse



Examination - Pulse

- Rate
- Rhythm
- Regularity
- Vessel wall
- Character (carotid artery)
- Volume (carotid artery)
- Radio-femoral delay (coarctation of the aorta)
- Carotid auscultation
- Palpability of all pulses

Normal JVP Waveform



- **a wave** - atrial systole
- **x descent** – onset of atrial relaxation
- **c wave** - small positive notch in the 'x' descent due to bulging of the AV ring into the atria in ventricular contraction.
- **v wave** - after the x' descent - slow positive wave due to right atrial filling from venous return
- **y descent** - rapid emptying of the RA into RV due to TV opening

Specific JVP patterns

Condition	Pattern
Normal waveform	X' deeper than Y
Tricuspid regurgitation	CV wave
Complete heart block	Irregular cannon A waves
Tamponade	↑ JVP brisk X' > Y
Constriction	↑ JVP brisk X' & Y descents X' less exaggerated than Y
RV infarction	↑ JVP –low amplitude

Precordium - Inspection

- Scars
 - Median sternotomy
 - CABG
 - Valve replacement
 - Lateral thoracotomy
 - Infraclavicular (pacemaker)
- Pectus excavatum



Sternotomy scar



Pectus excavatum

Palpation

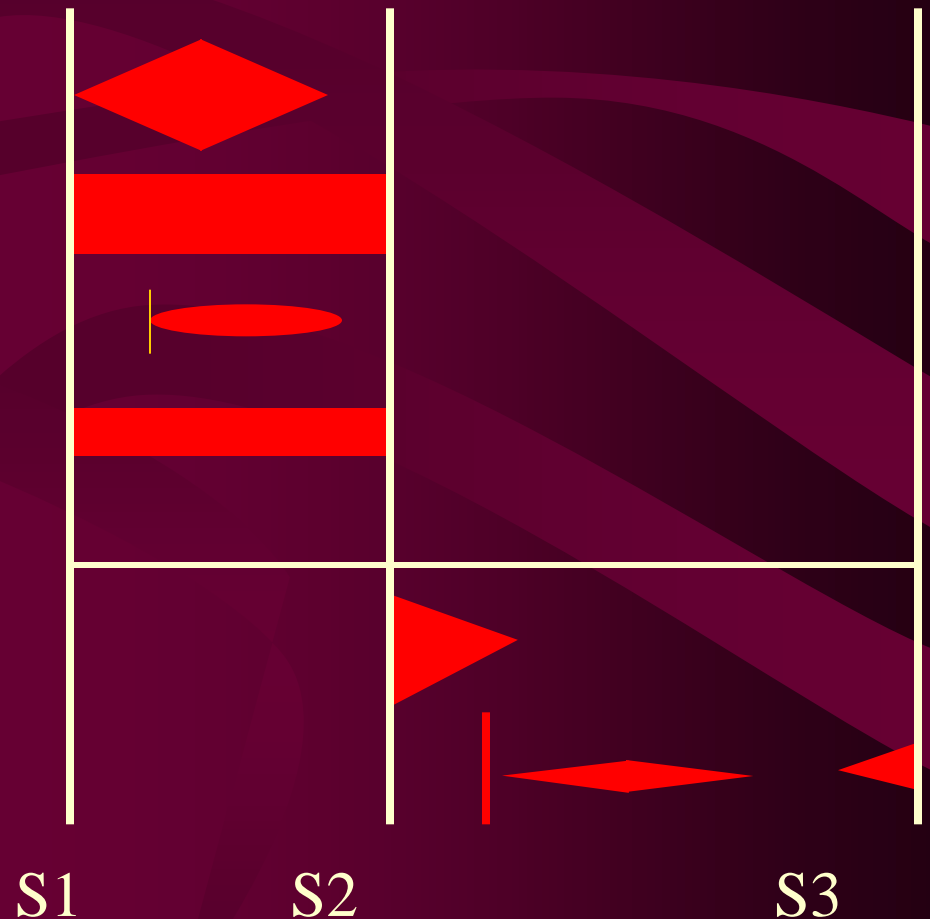
- Point of Maximal Impact (PMI)
- Thrills
- Palpable sounds
- Apex- sustained, hyperdynamic

Auscultation

- Timing of murmur
 - Systolic
 - Diastolic
 - Continuous
- Site of maximal intensity
- Loudness
 - Grades I-VI
 - Thrill
- Pitch
- Radiation
- Dynamic manoeuvres
 - Respiration
 - Left-sided ↑ on exp.
 - Right-sided ↑ on insp.
 - Valsalva
 - Squatting

Common Murmurs and Timing

- Systolic Murmurs
- Aortic stenosis
- Mitral insufficiency
- Mitral valve prolapse
- Tricuspid insufficiency
- Diastolic Murmurs
- Aortic insufficiency
- Mitral stenosis



Characteristics of the not so Innocent Murmur

- Diastolic murmur
- Loud murmur - grade 4 or above
- Regurgitant murmur
- Murmurs associated with a click
- Murmurs associated with other signs or symptoms e.g. cyanosis
- Abnormal 2nd heart sound – fixed split, paradoxical split or single

Other systems

- Abdominal
- Chest
- CNS

Diagnosis

Elements of complete cardiac diagnosis include :

- *The underlying etiology*. Is the disease congenital, hypertensive, ischemic, or inflammatory in origin?
- *The anatomical abnormalities*. Which chambers are involved? Which valves are affected? Are they regurgitant and/or stenotic? Is there pericardial involvement?
- *The physiological disturbances*. Is an arrhythmia present? Is there evidence of congestive heart failure or myocardial ischemia?
- *Functional disability*. How strenuous is physical activity required to elicit symptoms? NYHA classification

New York Heart Association Functional Classification

Class	Symptoms
I	No symptoms or limitations in ordinary physical activity
II	Mild symptoms and slight limitation during ordinary activity
III	Marked limitation in activity even during minimal activity. Comfortable only at rest
IV	Severe limitation. Experiences symptoms even at rest

Laboratory Studies

- ECG
- Chest radiograph
- Blood tests to assess risk [e.g., lipid determinations, C-reactive protein] or cardiac function [e.g., BNP]
- Cardiac catheterization
- Coronary angiography
- Genetic tests to identify monogenic cardiac diseases [e.g., hypertrophic cardiomyopathy, Marfan syndrome]

Imaging modalities



Echocardiography/ 3D Echo



Stress Imaging



Myocardial Perfusion Imaging



CT Angiography/ Cardiac CT



MR Angiography/ Cardiac MR



Coronary Calcium Scoring



Carotid Intima Media Thickness

Pitfalls in Cardiovascular Medicine

- Failure to recognize important cardiac manifestations of systemic illnesses. (presence of mitral stenosis, in a patient with stroke)
- Failure to recognize underlying systemic disorders in patients with heart disease. (hyperthyroidism in elderly with AF)
- Overreliance on and overutilization of laboratory tests, particularly invasive techniques, for evaluation.
- CAG by themselves often do not provide a definitive answer to whether a patient's complaint of chest discomfort is attributable to coronary atherosclerosis

Thanks For Your Attention!

Access this powerpoint at

<http://dramiteshaggarwal.yolasite.com>

Email your queries at

dramitesh@gmail.com

