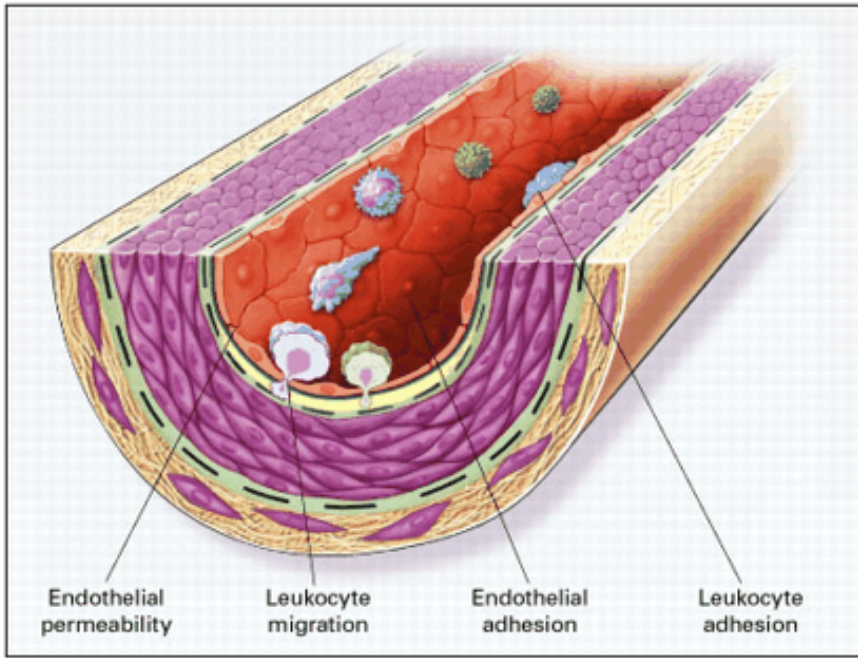


Coronary and valvular heart disease: their management

Susan Connolly

*Consultant Cardiologist, Hammersmith
Hospitals NHS Trust*

8th March 2007



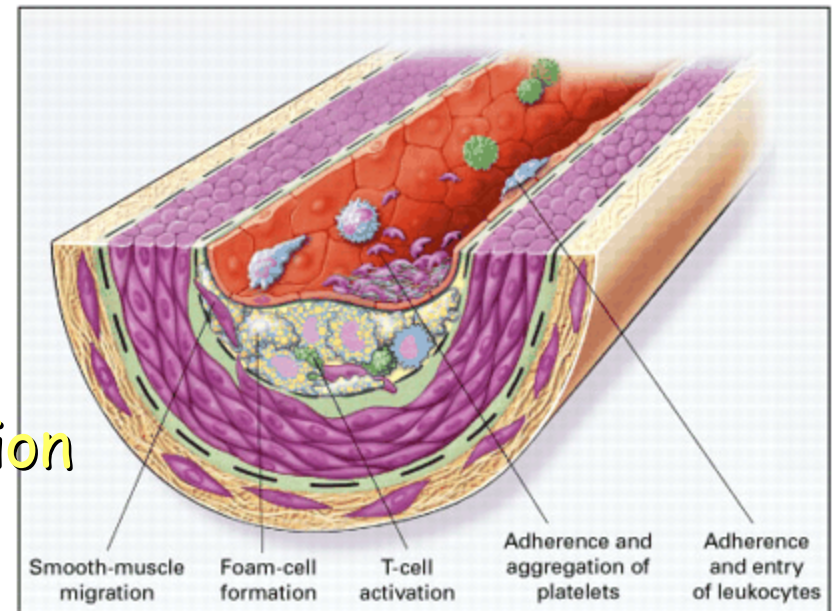
Stage 1

Endothelial dysfunction



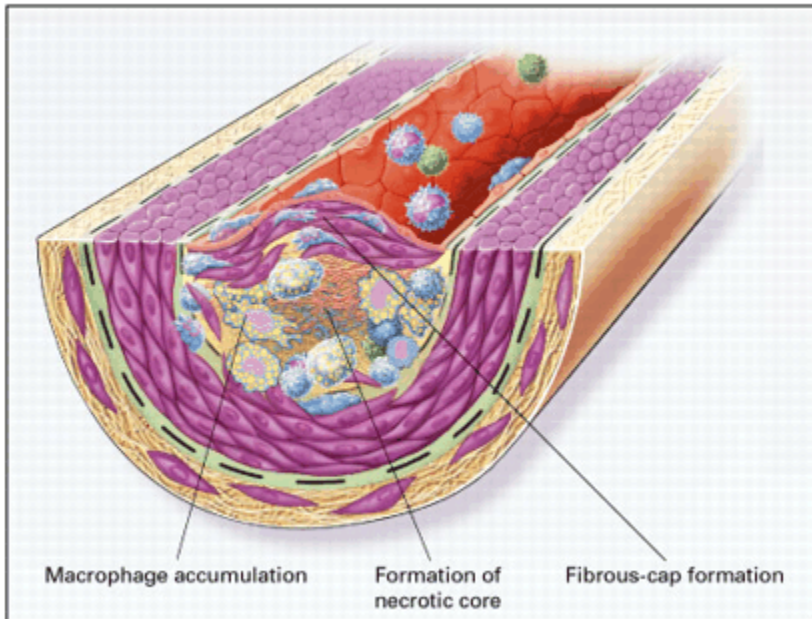
Stage 2

Fatty streak formation



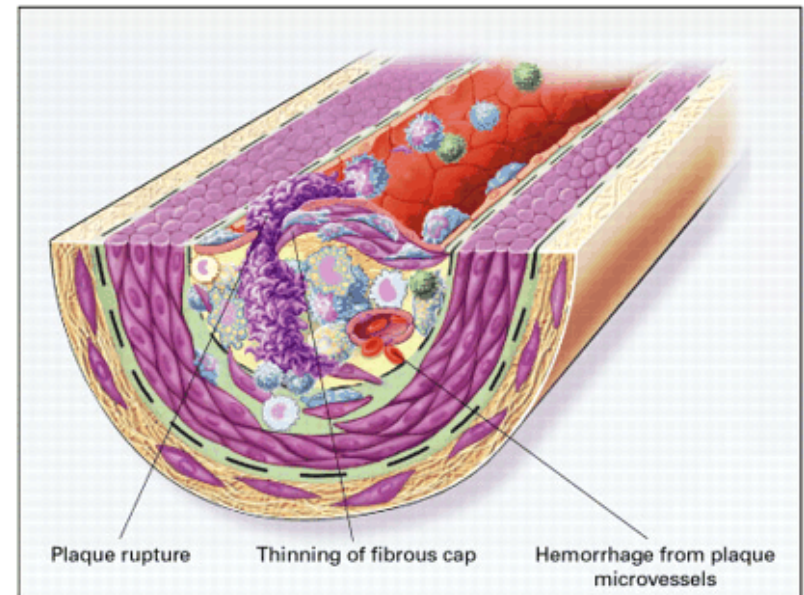
Stage 3

Fibrous Plaque Formation

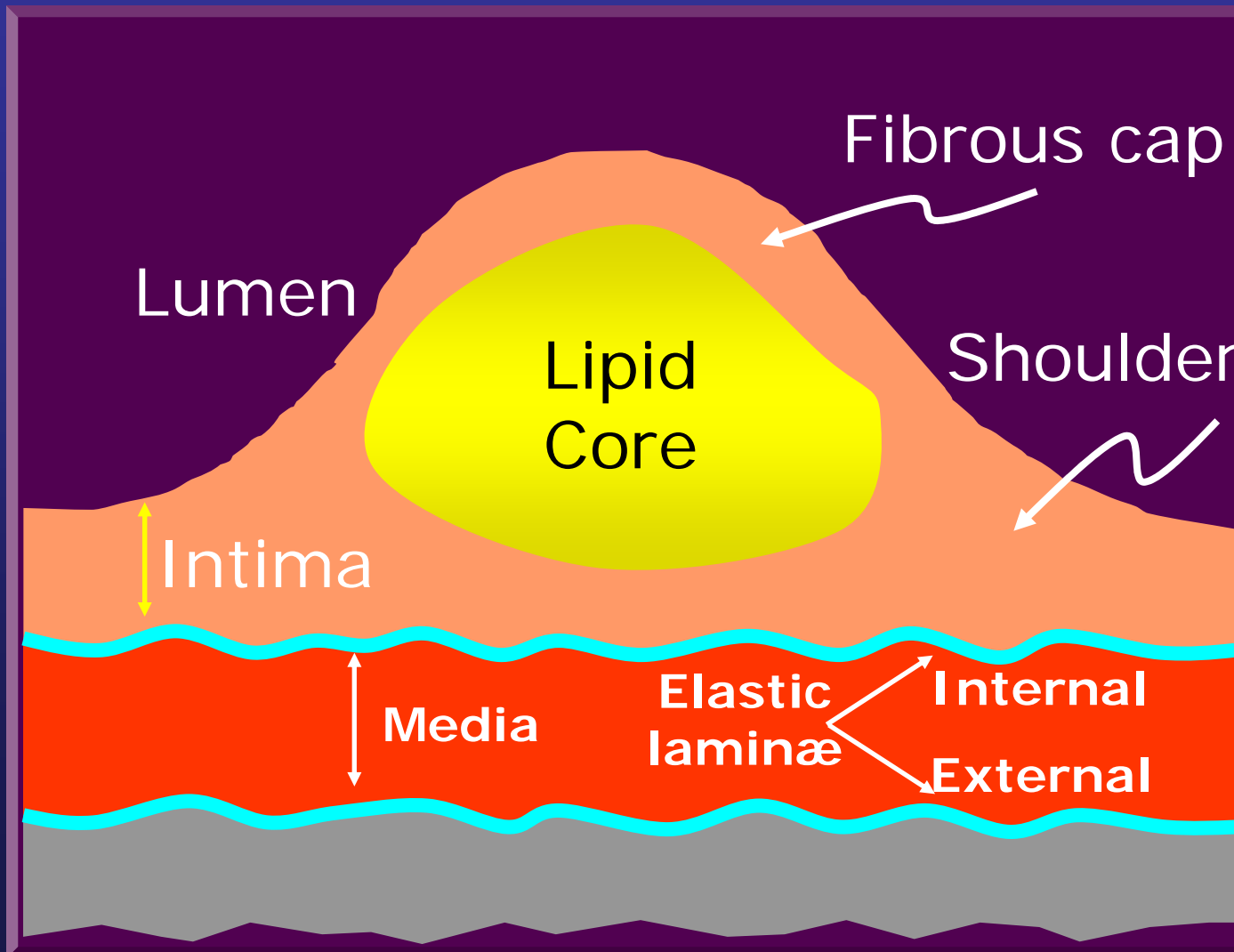


Stage 4

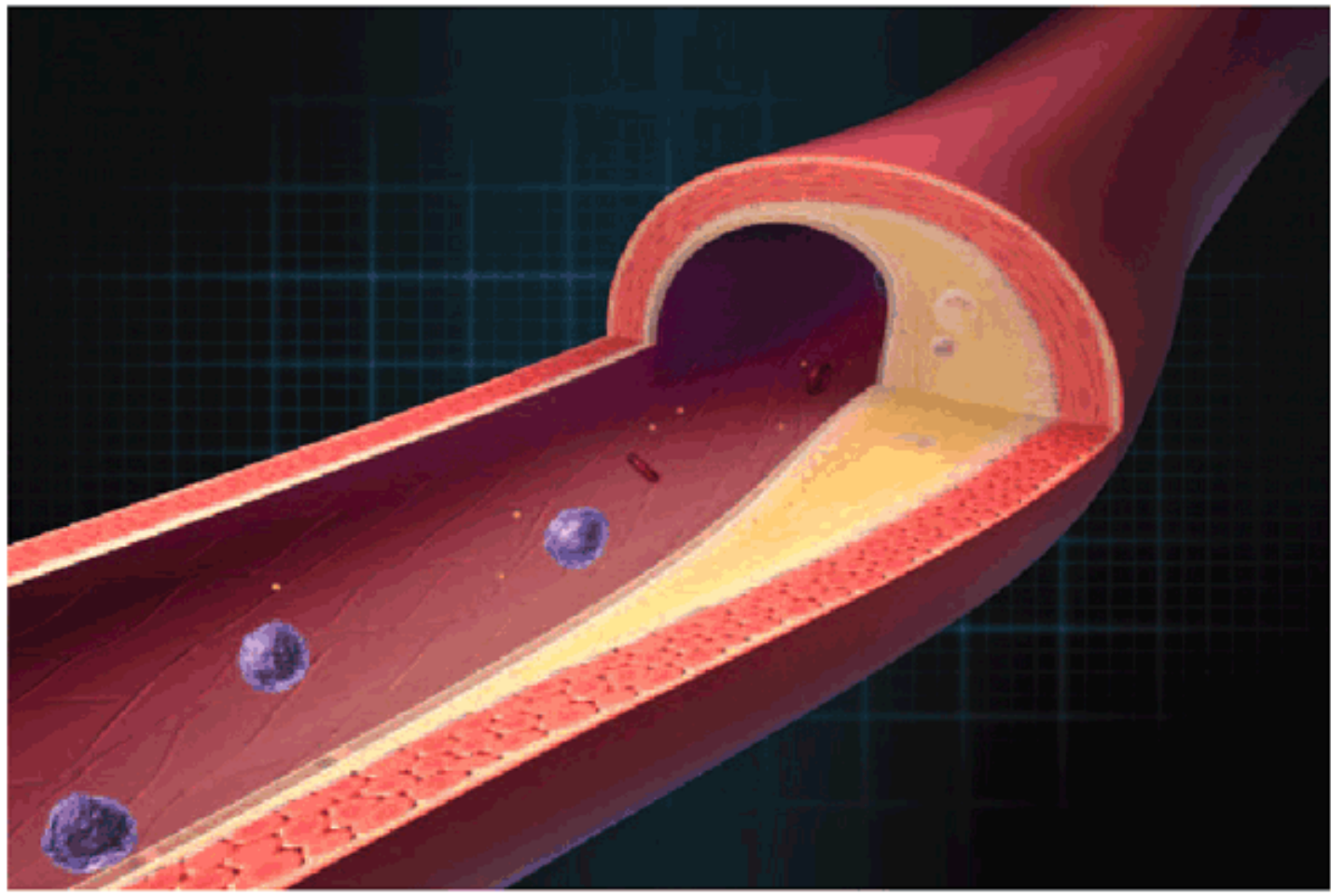
Plaque Rupture and Thrombosis



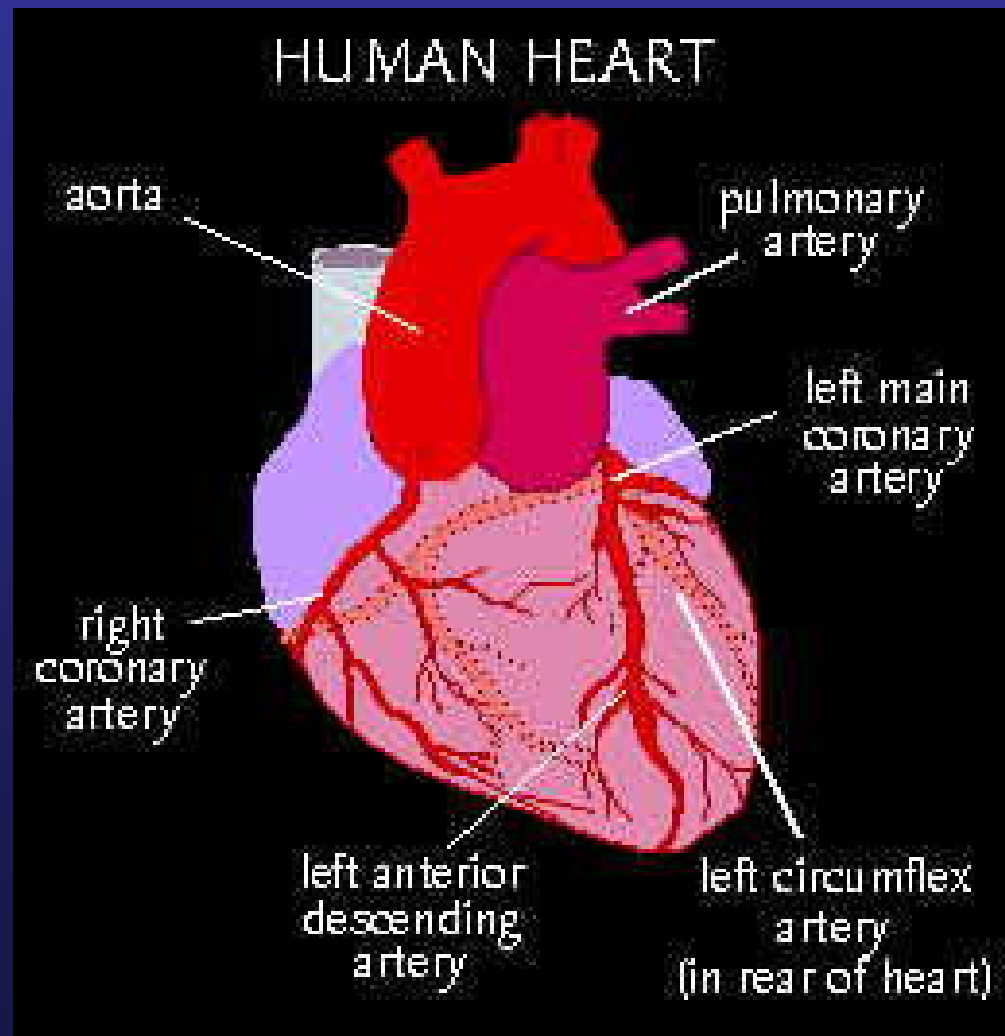
Anatomy of Atherosclerotic Plaque



Plaque Formation with Compensatory Adaptation



Anatomy of the Coronary Vessels



Coronary Artery Disease - Spectrum

Stable
Angina

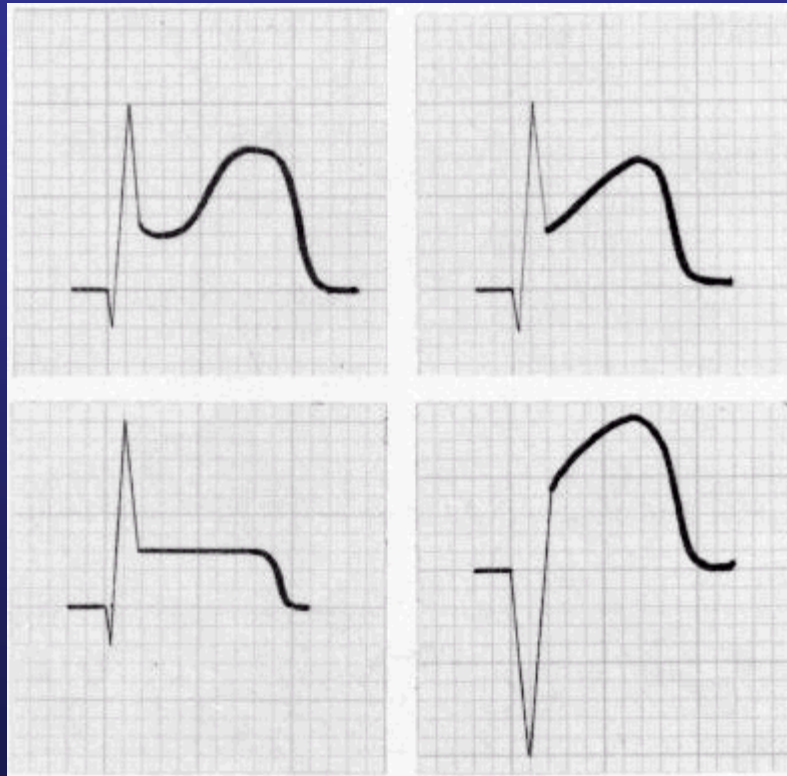
Unstable
Angina

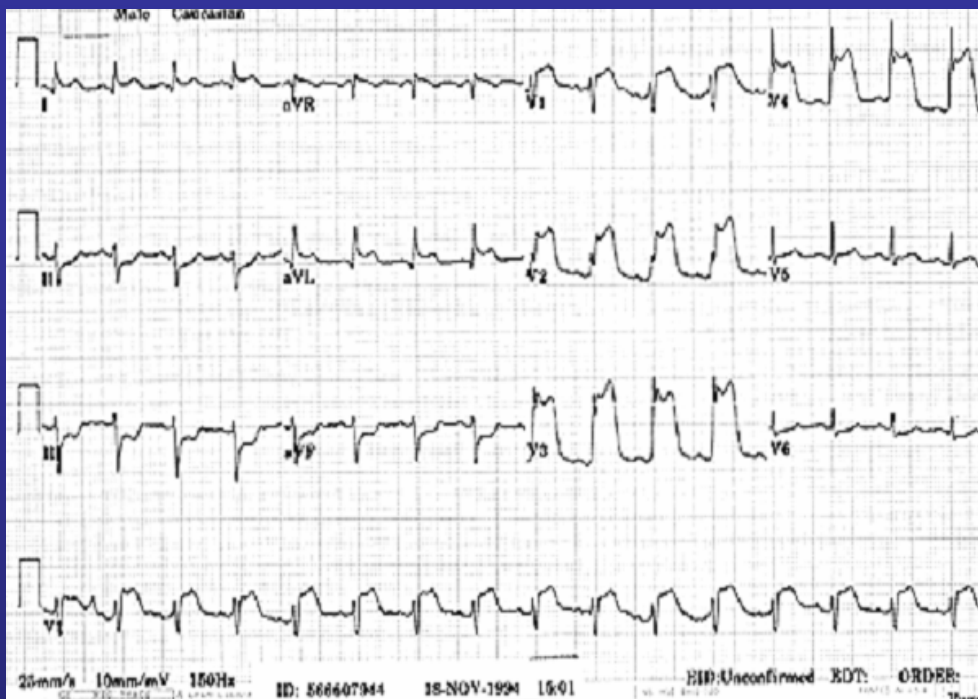
Non STEMI

STEMI



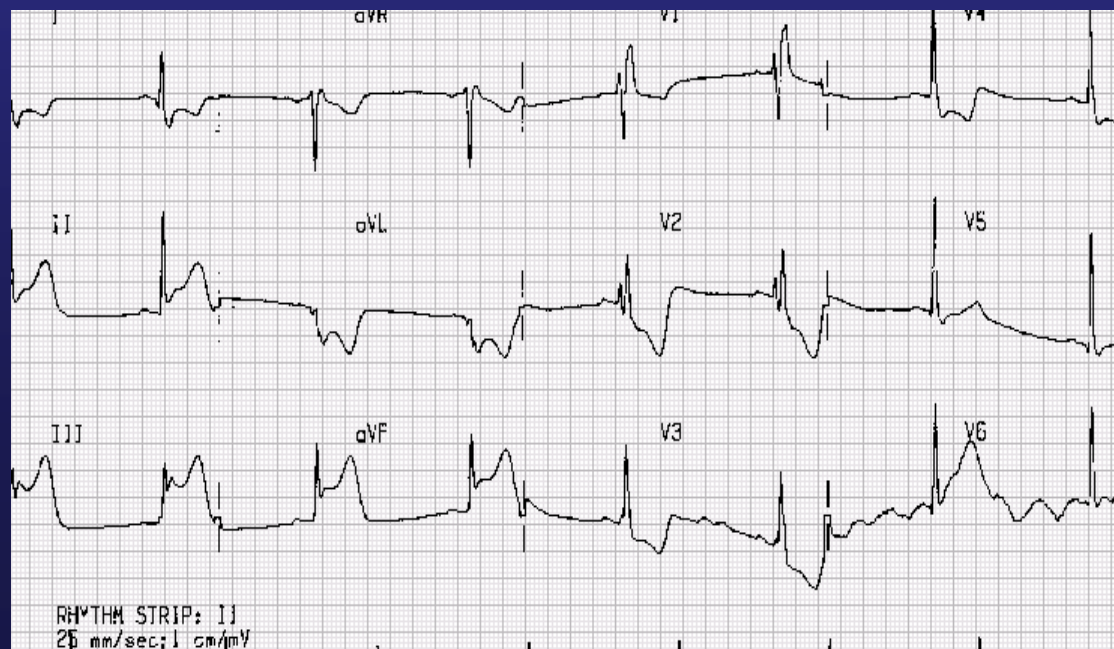
ST Elevation



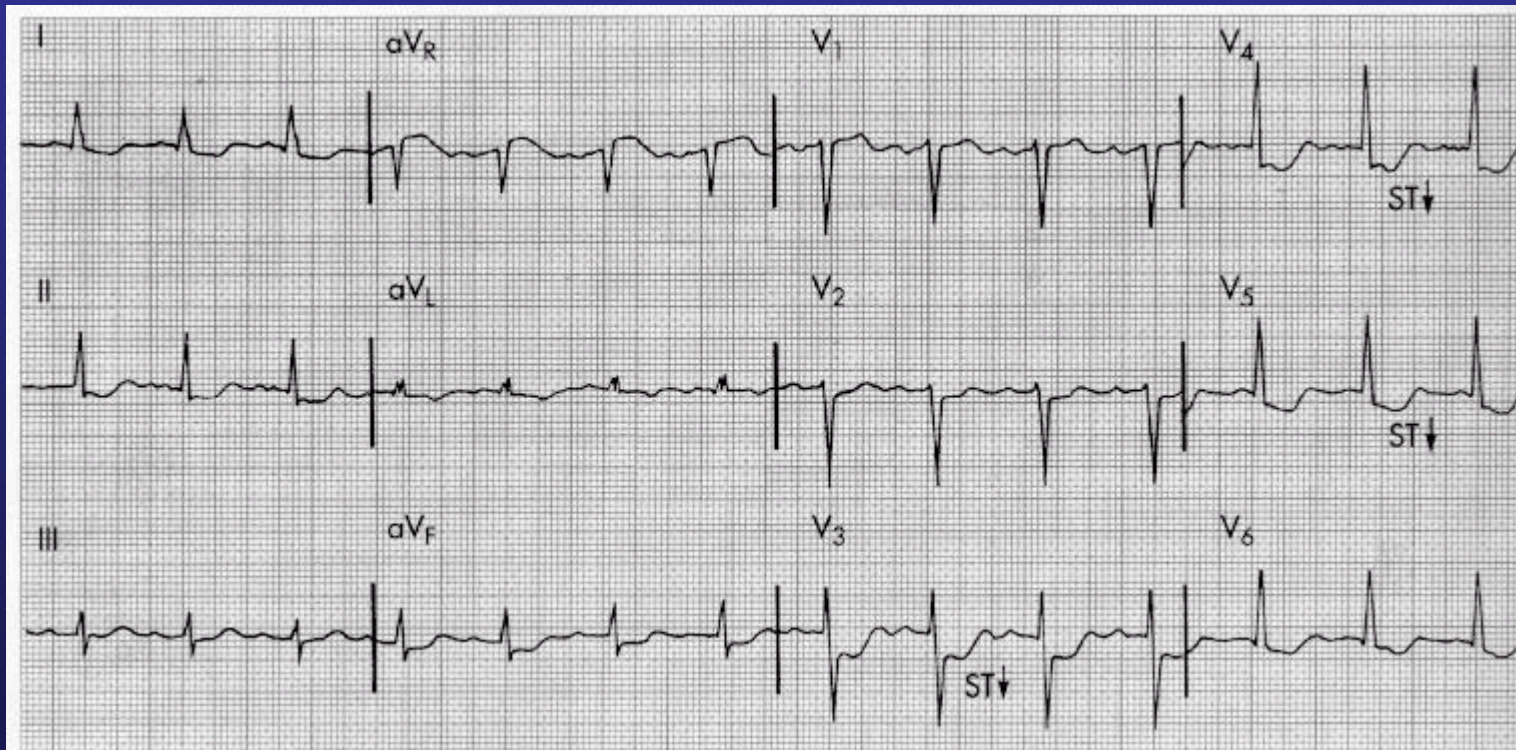


Anterior STEMI

Inferior STEMI



NSTEMI v UNSTABLE ANGINA



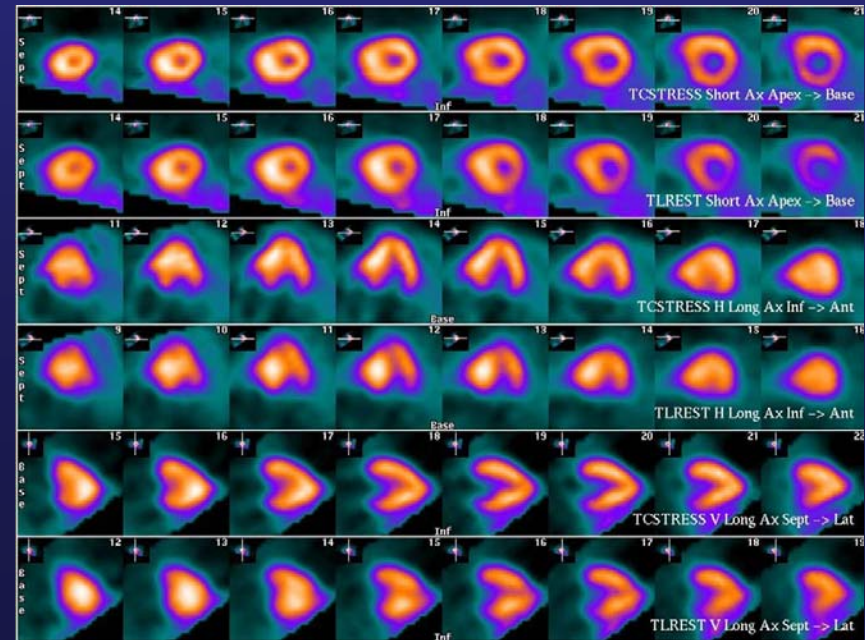
Rapid Access Chest Pain Clinic

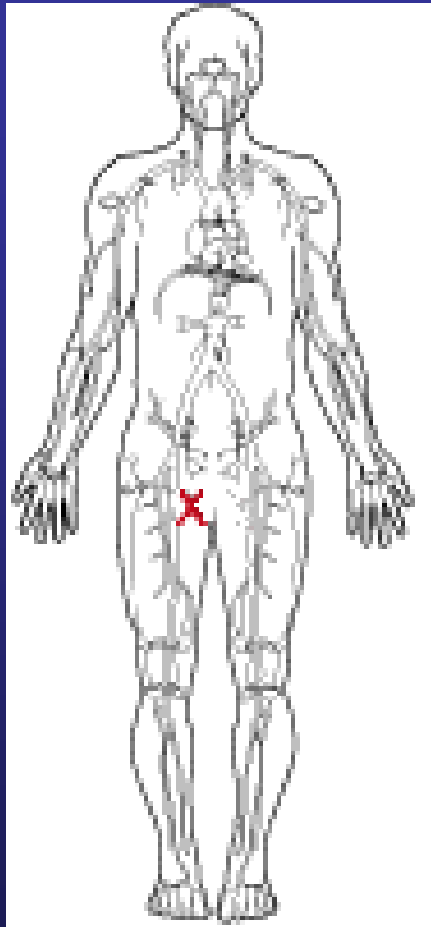


Clinical assessment and functional test

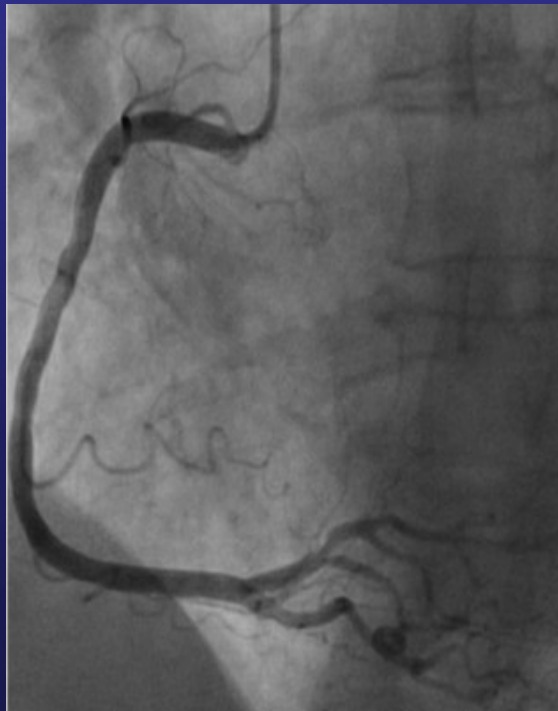


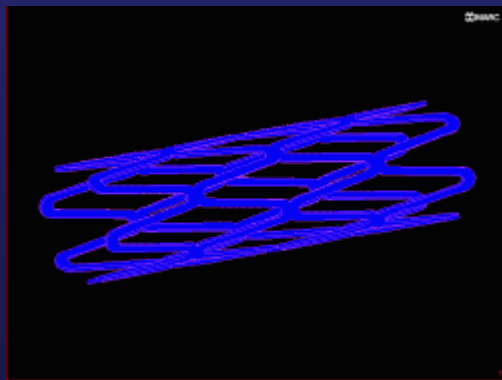
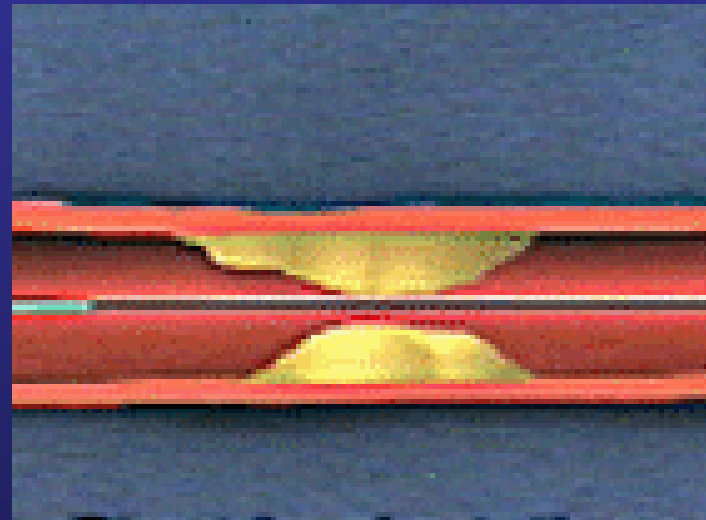
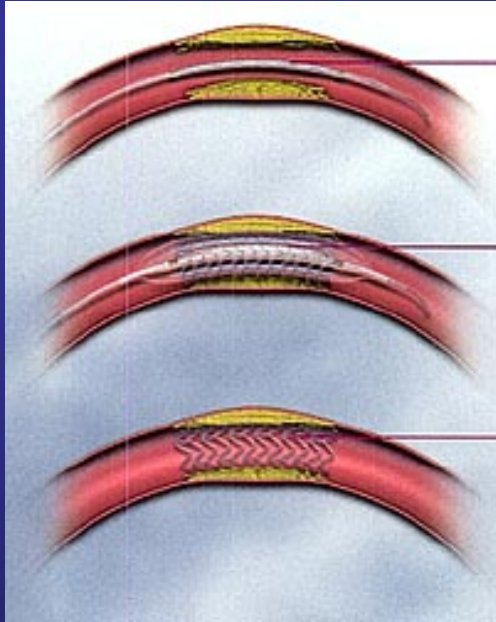
Reassurance or medical treatment or referral for coronary angiography

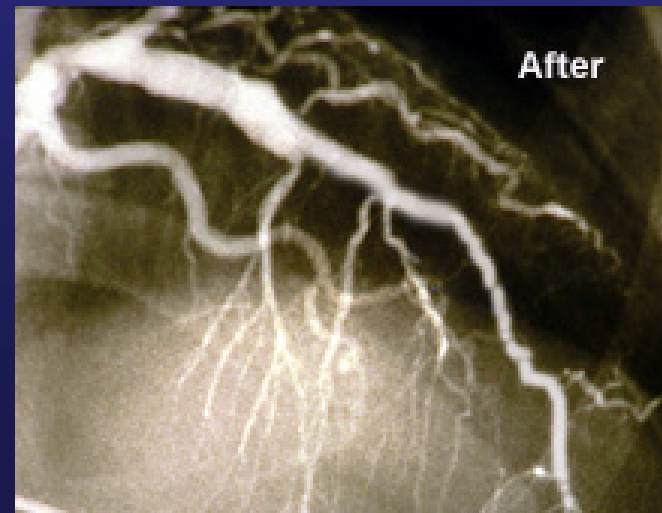
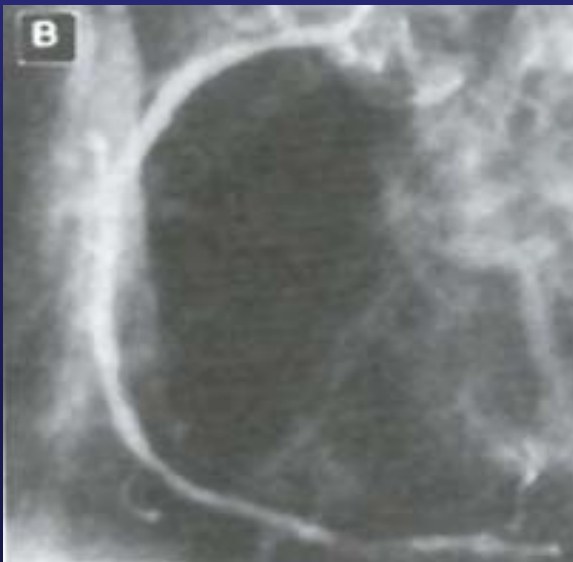
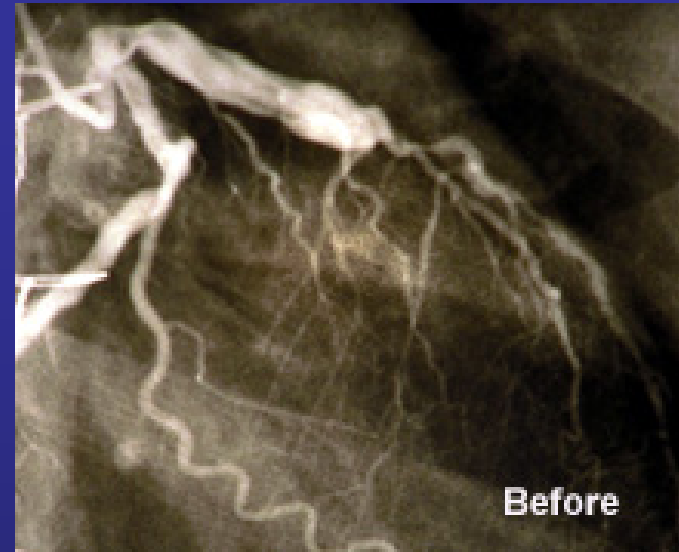


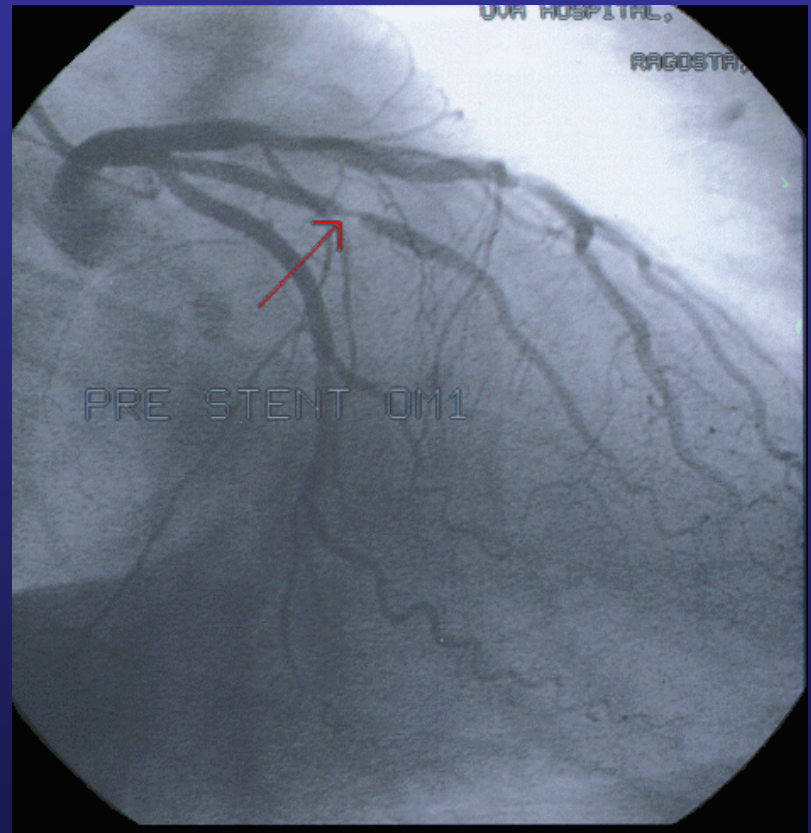
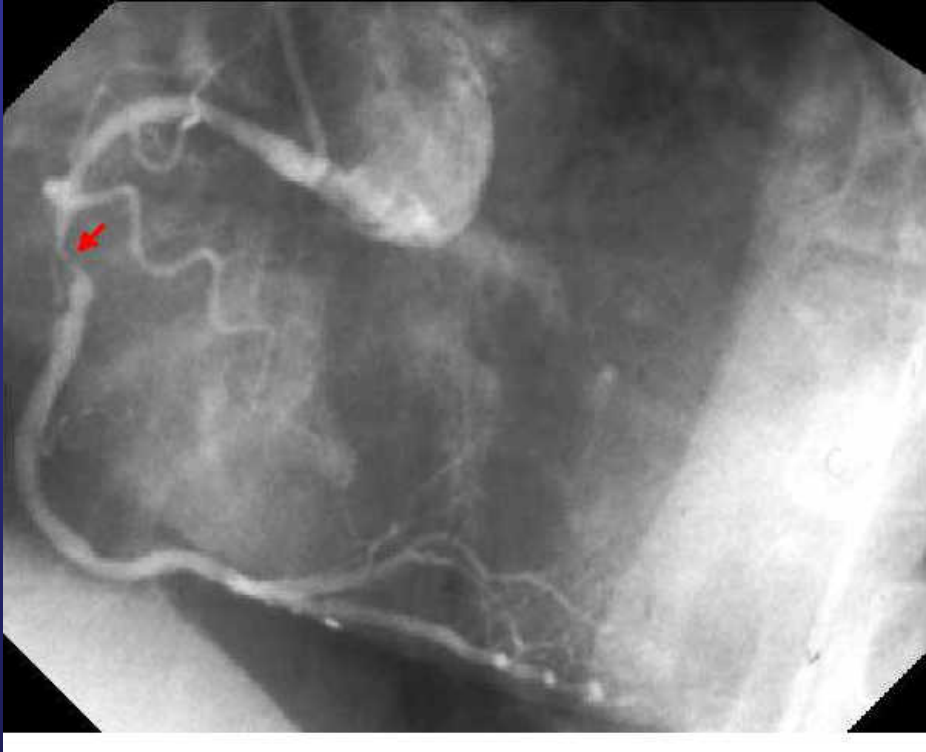


Path of Catheter

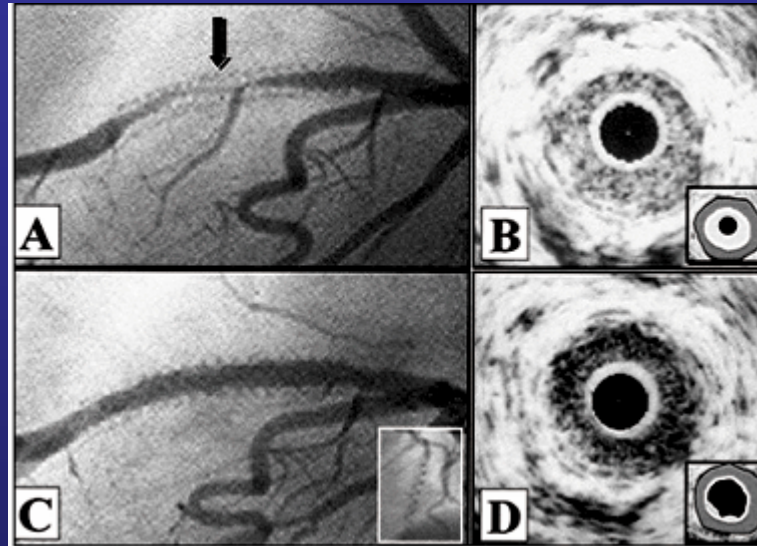








Drug -Eluting Stents



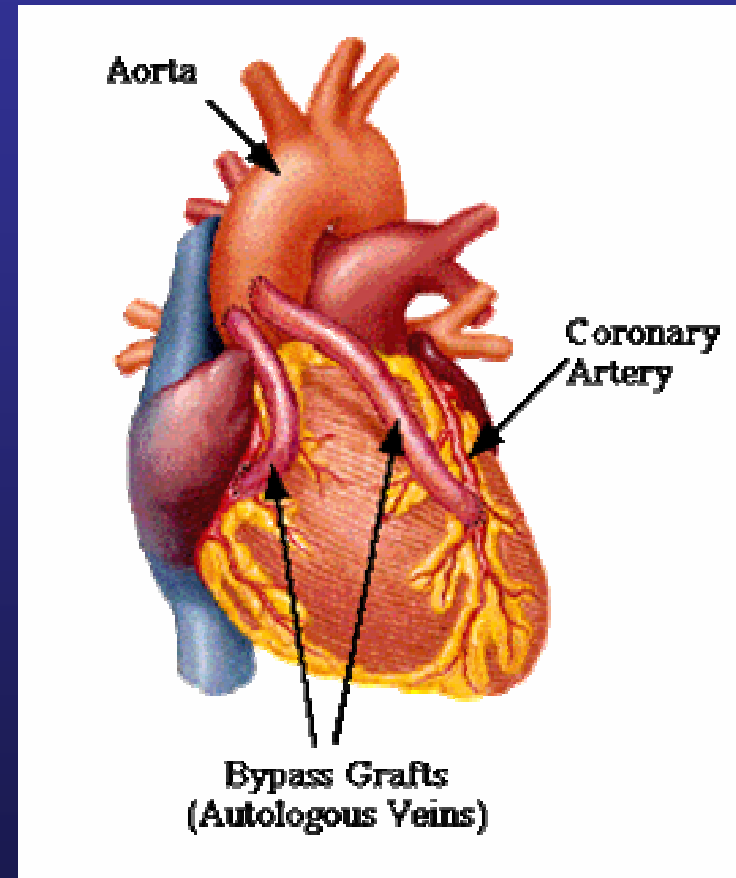
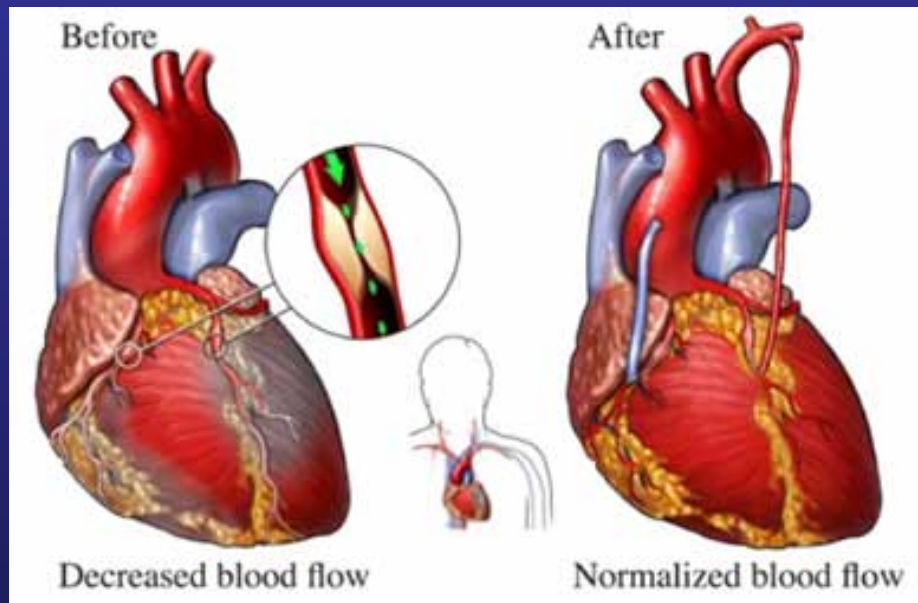
PERSPECTIVE

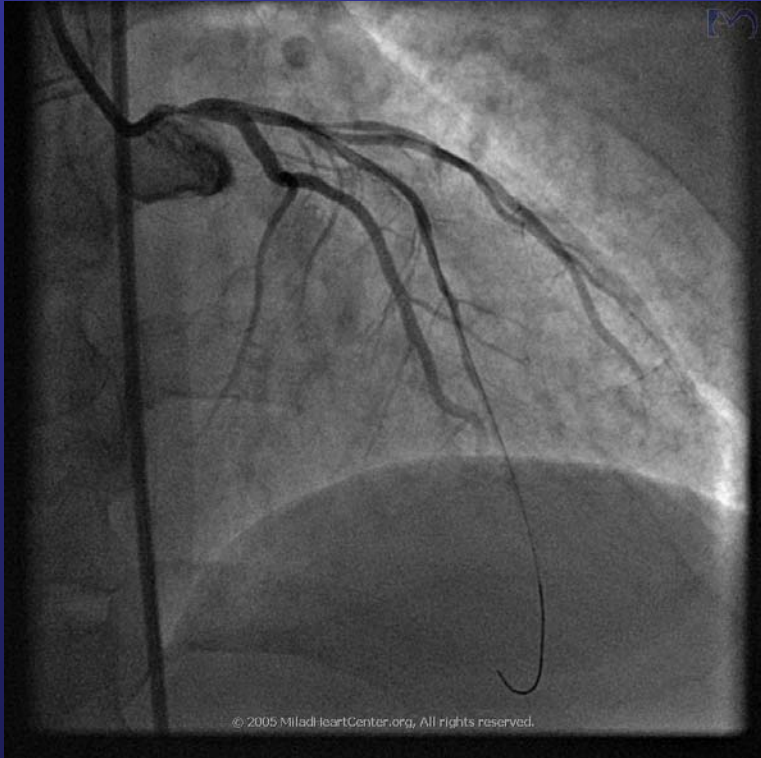
Published at www.nejm.org February 12, 2007 (10.1056/NEJMp068305)

Unanswered Questions -- Drug-Eluting Stents and the Risk of Late Thrombosis

William H. Maisel, M.D., M.P.H.

Coronary Artery Bypass Grafting





Who gets CABG?

- Left main stem
- Triple vessel disease with impaired LV
- Lesions unamenable to PCI

Chronic disease management

- Lifestyle modification - healthy food choices, physical activity, smoking cessation
- Management of "medical risk factors" - cholesterol, lipids, glucose
- Prescription of appropriate cardioprotective medication



JBS2: 2006 Guidelines for prevention of cardiovascular disease

*Heart 2005 Vol 91
Supplement V*

Priority groups for CVD prevention

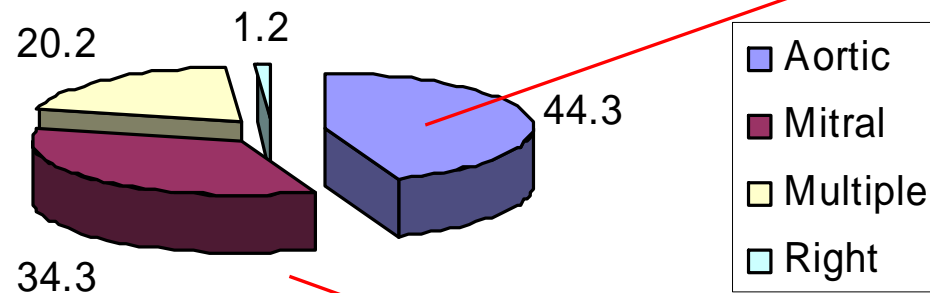
- ALL patients with atherosclerotic cardiovascular disease (CHD, Stroke, PVD)
- ALL patients with diabetes
- Asymptomatic individuals at high CVD risk $\geq 20\%$ over 10 years

(JBS CVD Risk prediction charts BNF)



- Total chol < 4 mmol/L, LDL-C < 2
- BP $< 140/85$ ($<130/80$ in diabetics or with CRF)
- Fasting blood glucose ≤ 6 mmol/L
- Smoking cessation
- Healthy food choices
- Increased physical activity

Native valvular heart disease



AS 34%

AR 10%

MS 10%

MR 25%

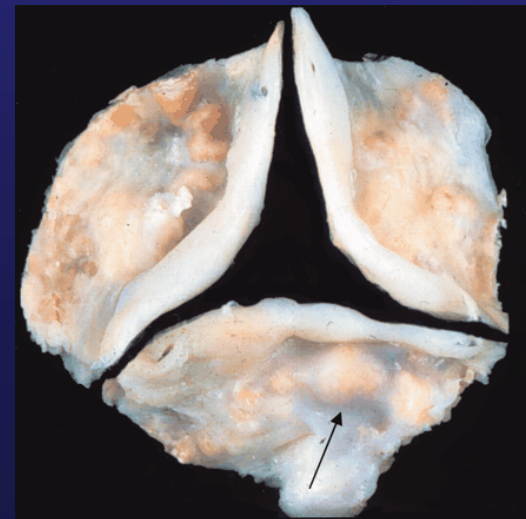
Aetiology of Valvular Heart Disease: Euroheart Survey

Table 3 Etiology of single native left-sided valve disease

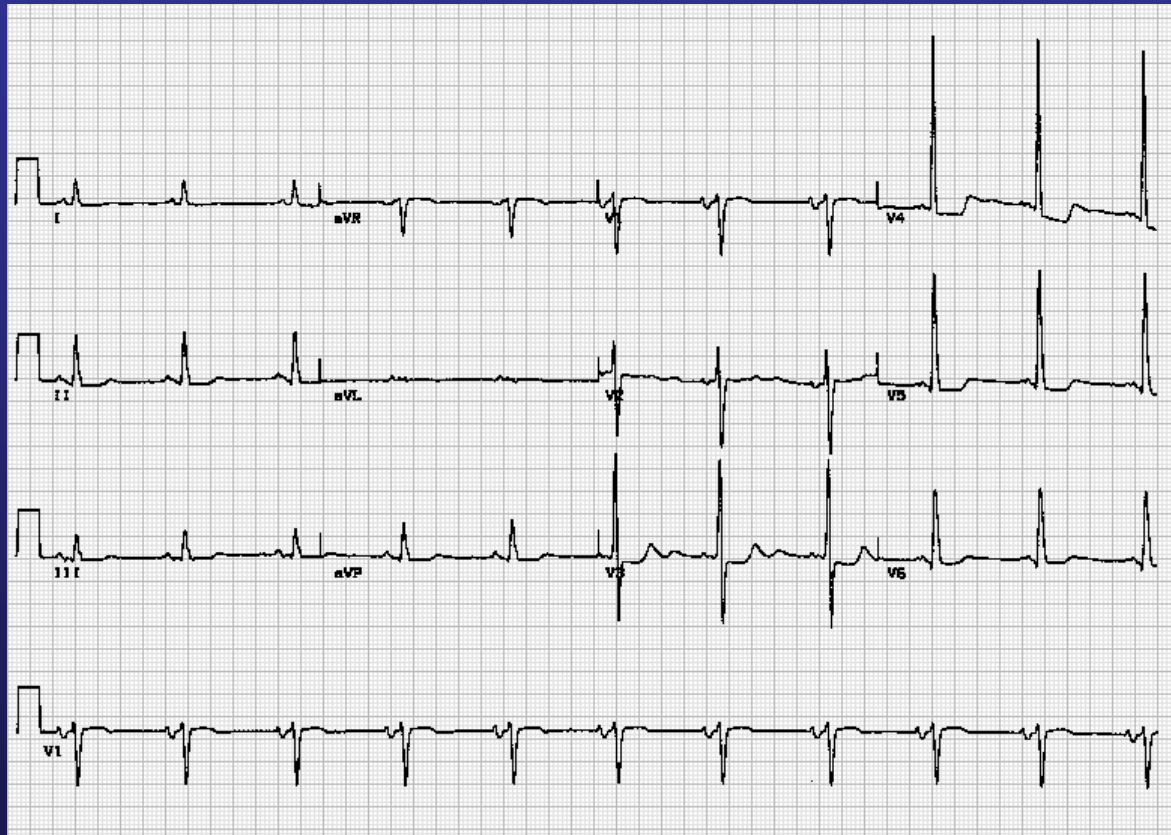
	Aortic stenosis <i>n</i> =1197	Aortic regurgitation <i>n</i> =369	Mitral stenosis <i>n</i> =336	Mitral regurgitation <i>n</i> =877
Degenerative (%)	81.9	50.3	12.5	61.3
Rheumatic (%)	11.2	15.2	85.4	14.2
Endocarditis (%)	0.8	7.5	0.6	3.5
Inflammatory (%)	0.1	4.1	0	0.8
Congenital (%)	5.4	15.2	0.6	4.8
Ischaemic (%)	0	0	0	7.3
Other (%)	0.6	7.7	0.9	8.1

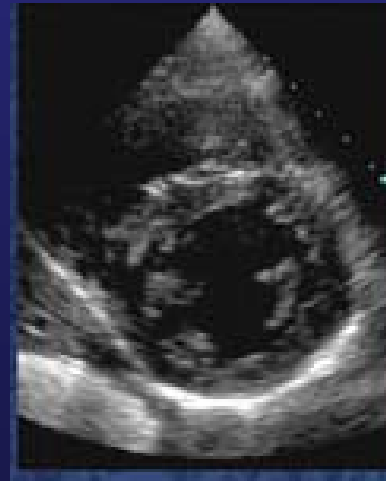
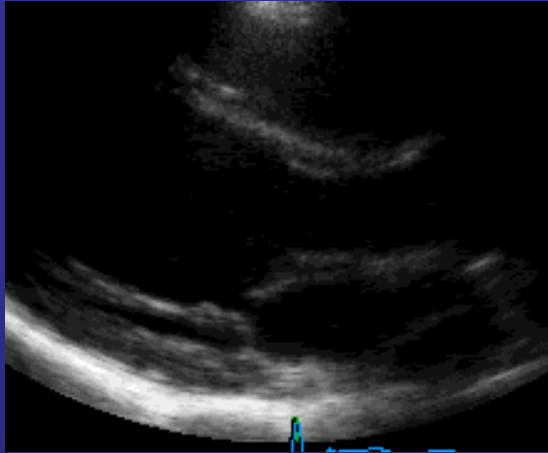
Aortic stenosis

- Breathlessness, chest pain, syncope
- Should be treated once symptoms develop and has evidence of significant aortic stenosis - clinical exam, ECG, ECHO, usually coronary angiogram (? Concomitant CABG)
- NB Antibiotic prophylaxis



ECG Left Ventricular Hypertrophy





Aortic Regurgitation

- Asymptomatic for many years
- Usually present with breathlessness and/or chest pain
- Unlike AS, even if patient is asymptomatic certain ECHO criteria may dictate surgical correction
- NB Antibiotic prophylaxis



Mitral stenosis

- Insidious onset
- Commonly SOB on exertion
- Palpitations (a fib)
- Pulmonary edema
- NB Anitibiotic prophylaxis, anticoagulation
- Usually intervened upon when symptomatic

Mitral stenosis



Percutaneous transeptal mitral commissurotomy

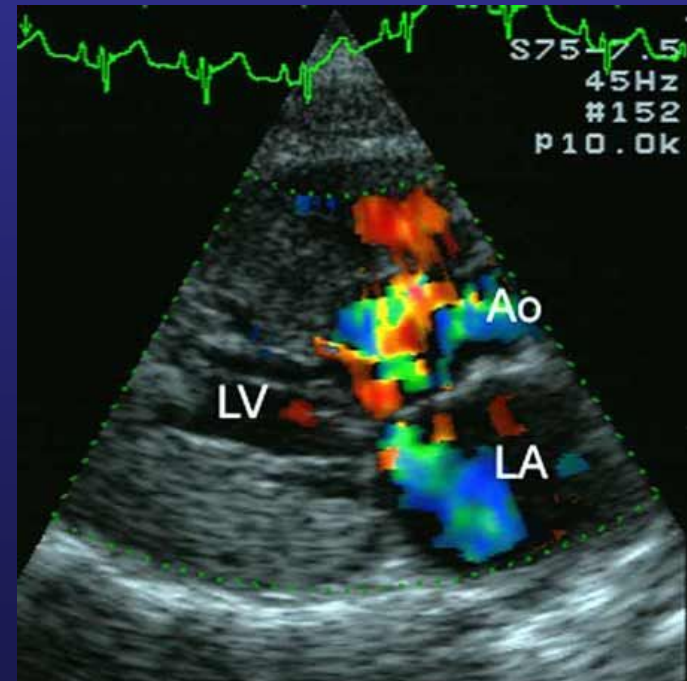


Mitral valve replacement



Mitral Regurgitation

- Degenerative/Ischemia/Infective endocarditis
- Usually gradual onset of symptoms, typically SOB followed by other symptoms of heart failure
- May present with acute pulmonary edema due to chordal rupture

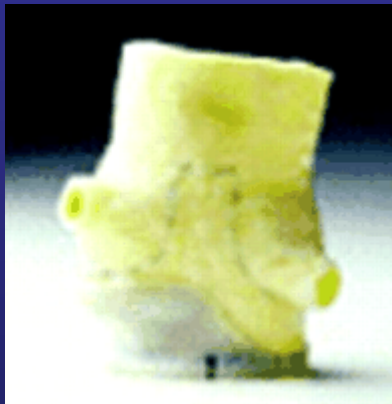


Intervention

Like aortic regurgitation

- If symptomatic
- If asymptomatic but certain ECHO criteria present
- NB AB prophylaxis, anticoag if in AF
- Repair or valve replacement

Prosthetic Valves



Thrombogenicity

Types of **prosthetic valves** and thrombogenicity

Type of valve	Model	Thrombogenicity
Mechanical		
Caged ball	Starr-Edwards	++++
Single tilting disc	Bjork-Shiley, Medtronic Hall	+++
Bileaflet	St Jude Medical, Sorin Bicarbon, Carbomedics	++
Bi prosthetic		
Heterografts	Carpentier-Edwards, Tissue Med (Aspire), Hancock II	+ to ++
Homografts		+

Intensity of anticoagulation guidelines for Europe

	European Society of Cardiology 1995 INR range	British Society of Haematology 1998 INR target
Mechanical valves*		
Aortic:		
First generation	3.0-4.5	3.5
Second generation	2.5-3.0	3.5†
Third generation	2.5-3.0	3.5†
Mitral	3.0-3.5	3.5
Bioprosthetic valves		
In sinus rhythm:		
Aortic	2.5-3.0 for three months	No anticoagulation‡
Mitral	3.0-3.5 for three months. No anticoagulation after three months	2.5 for three months. No anticoagulation after three months

Mechanical v Biological

Comparison of mechanical and biological valve prostheses

Mechanical

Durable — **valves** lasting 20-30 years

Thrombogenic — patients require lifelong anticoagulant therapy

Preferred in younger patients with >10-15 years life expectancy

Preferred in patients who require lifelong anticoagulant therapy

Biological

Limited life span — 10% of homografts and 30% of heterografts fail within 10-15 years

Low thrombogenic potential — lifelong anticoagulation is not required

Preferred in older patients with <10-15 years life expectancy

Preferred in those who cannot (or will not) take lifelong anticoagulant therapy

That's it!

Questions?