

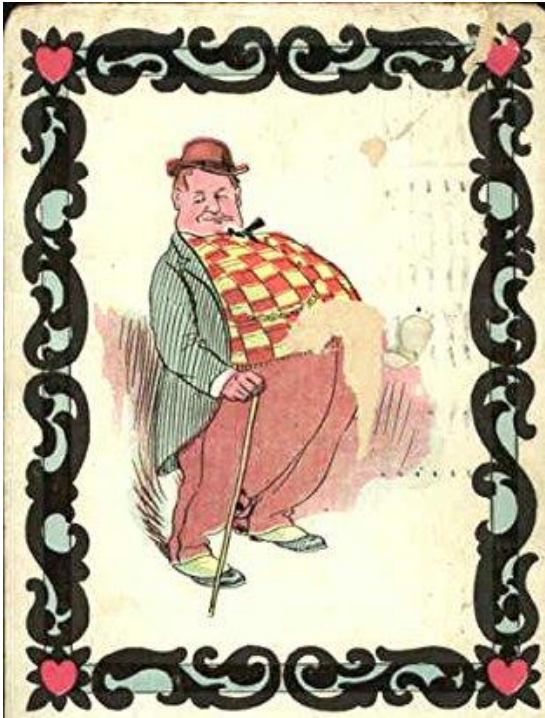
Coronary Heart Disease in Young Adults

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Which of these gentleman could have heart disease?





Mr AH

19 year old gentleman, university student

Smokes occasionally

Childhood asthma

On and off chest discomfort for 2 days – needed to take paracetamol and used thermal patches

Mr AH



Severe chest pain and profuse sweating whilst in the movie theatre

Taken straight to RIPAS Hospital

Pronounced dead by doctors 45 mins later

Cause of death: Myocardial infarction (“Heart attack”)

What this case highlights



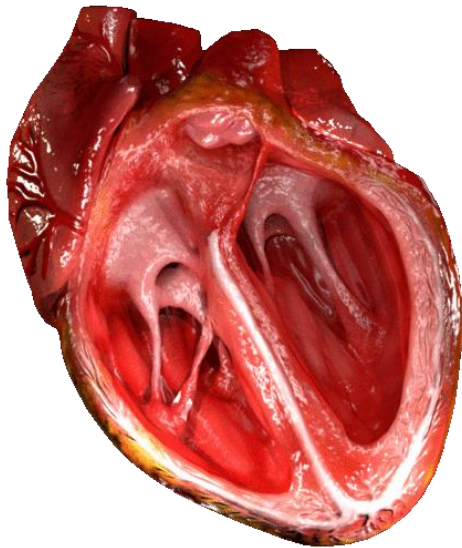
Coronary heart disease although rare, does occur in young individuals

Late recognition of symptoms can be **FATAL**



THE HUMAN HEART

The Heart



The Human Heart



Small but majestic organ

Roughly the size of your fist (250-350g)

Located inside your chest in close proximity to the lung and other major blood vessels

Never rests

The heart's function



Essentially a PUMP -> 5-7 litres of blood/minute (7600 litres/day)

Our body relies on oxygen and nutrient to function properly

These are transported to/fro the various organs by our blood via blood vessels (arteries, capillaries and veins)

The heart is the pump that ensures optimal flow of blood

The heart's function



Able to adjust according to needs, for example:

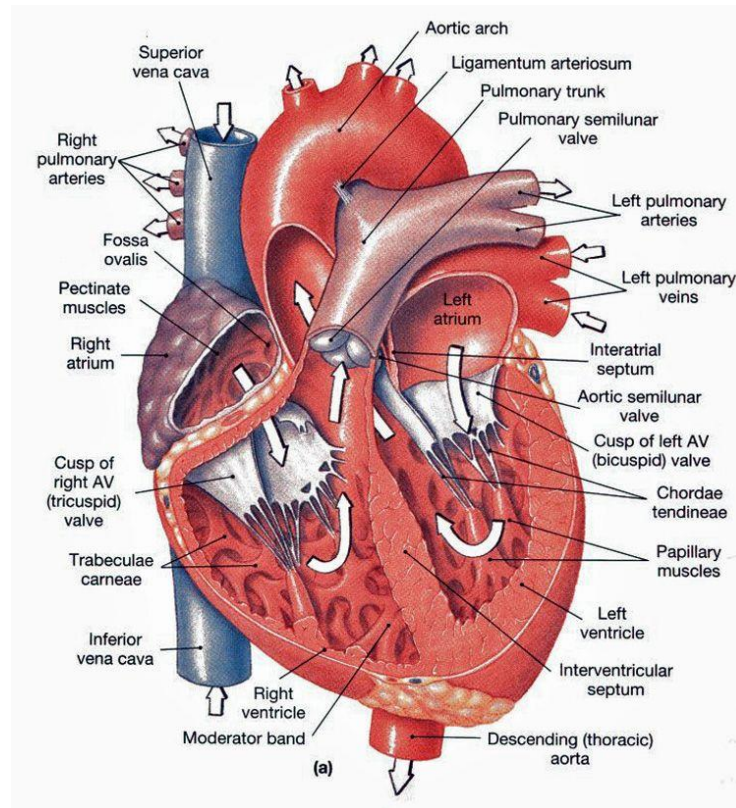
- Faster heart rate during exercise
- Slower heart rate during sleep

Heavily influenced by other factors such as hormones and drugs

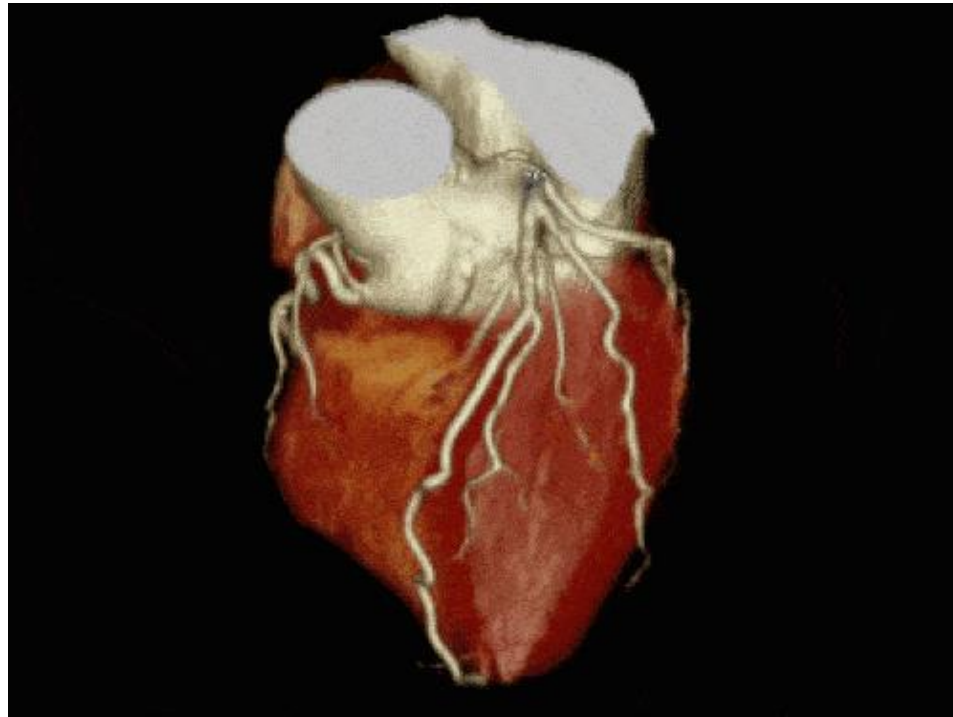


WHAT IS CORONARY HEART DISEASE?

Anatomy of the heart



Coronary artery



Coronary artery



The heart is mostly muscle

Needs nutrients and therefore adequate blood supply to function properly

This is supplied via the coronary arteries

There are 3 main coronary arteries supplying the heart

Coronary heart disease

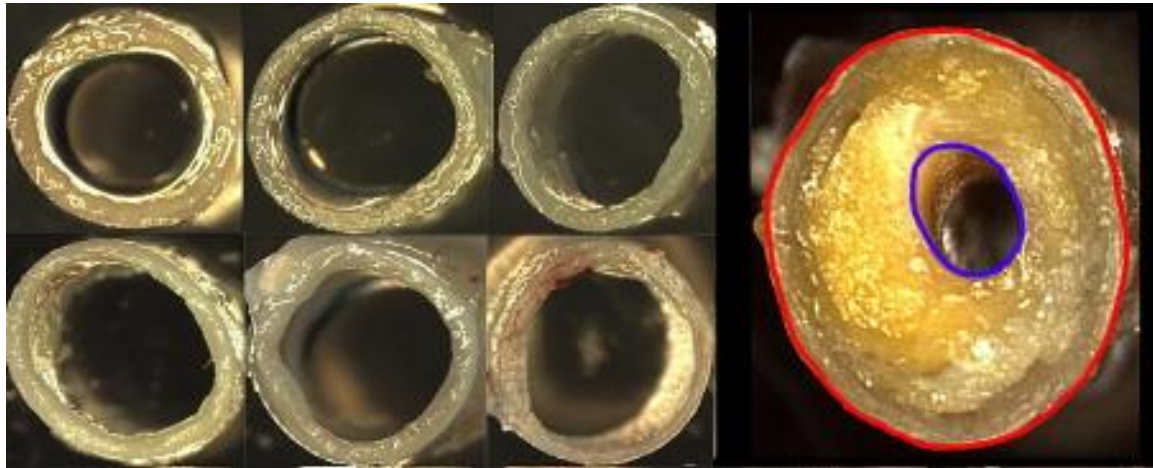


Usually refers to blockage of the coronary artery

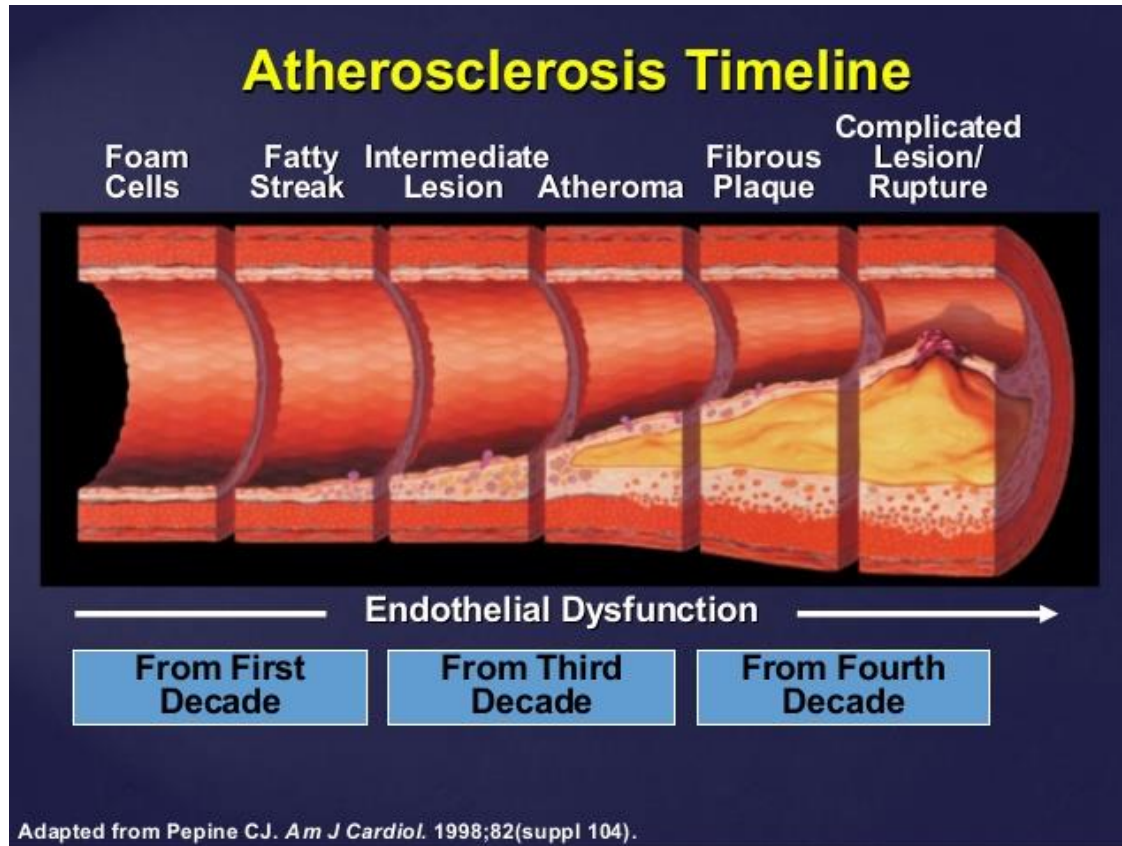
This leads to impediment in blood flow to the heart muscle

Vicious cycle as heart will have to work harder

Coronary heart disease



Progression of coronary heart disease



Risk factors for coronary heart disease



Non-modifiable:

- Age
- Male gender
- Family history
- Race

Risk factors for coronary heart disease



Modifiable:

- Obesity
- Dietary factors
- Sedentary lifestyle
- Smoking
- Drugs and substance abuse
- Diabetes
- High cholesterol levels

Epidemiology



Cardiovascular disease contributes to **17.5 million** deaths worldwide

Heart disease (without stroke) is the **second leading cause of death in Brunei** behind cancer. It contributed to **12.9% of deaths** in 2016

Worrying trend in Brunei -> young adults with cardiovascular disease



*My Heart,
Your Heart*

ICD-10 CODE	TYPE OF DISEASE	AGE-GROUP IN YEARS																														
		<35		35 - 44		45 - 54		55 - 64		65 - 74		75+		TOTAL																		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	T																
1	100 - 109, 120 - 152	Heart Diseases															6	5	15	6	34	4	30	18	15	16	30	32	130	81	211	
i	100 - 109	Acute Rheumatic Fever & Chronic															0	0	0	0	1	0	1	1	1	0	0	0	0	3	3	6
ii	120 - 125	Ischaemic Heart Diseases															1	0	12	1	27	3	2	14	13	9	24	24	99	51	150	
	121	Acute Myocardial Infarction															1	0	7	0	12	3	2	8	8	5	8	9	48	25	73	
	120, 122 -	Other Ischaemic Diseases															0	0	4	2	15	0	0	6	5	4	16	15	50	27	77	
iii	126 - 152	Forms of Heart Diseases															5	5	5	5	8	1	7	3	1	7	6	8	28	27	55	
2	110 - 115	Hypertensive Diseases															3	1	1	4	2	1	3	6	5	8	16	22	30	42	72	
3	160 - 169	Cerebrovascular Diseases															5	1	2	1	12	10	14	5	20	8	20	25	73	50	123	
4	170 - 198	Other Diseases of the Circulatory System															0	0	3	0	0	2	0	1	5	2	0	2	8	7	15	
	170	Atherosclerosis															0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	171 - 198	Others															0	0	3	0	0	2	0	1	5	2	0	2	8	7	15	
1 to 4	100 - 198	All Cardiovascular Diseases															14	7	21	11	48	17	47	30	45	34	66	81	241	180	421	

Symptoms of coronary heart disease (stable state)



Chest pain – mainly on exertion or exercise

Breathlessness – on exertion

Easy fatigue

Chest pain after heavy meals

Symptoms in unstable situation/ heart attack



Severe chest pain at rest – may radiate to neck or arms

Profuse unexplained sweating

Nausea

Upper abdominal pain

Escalation of usual stable symptoms



*My Heart,
Your Heart*

**SEEK URGENT MEDICAL
ATTENTION!!**

Where to seek medical attention?



Nearby health clinics if symptoms are stable and infrequent

If symptoms appear unstable -> go to nearest Emergency Department

Time is muscle!!!



What is typically done by your doctors

Detailed history

-> This helps categorize severity/urgency of symptoms

Examination

- Examining your pulse
- Listening to your heart sounds

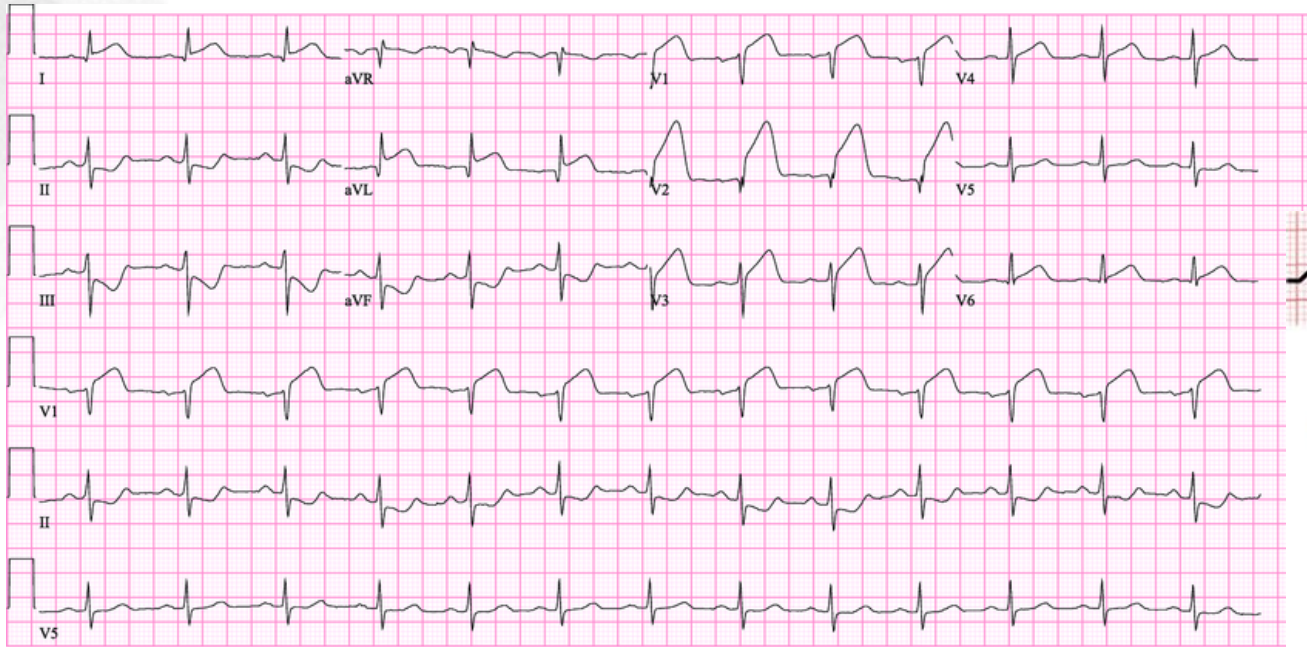
Send you for investigations



*My Heart,
Your Heart*

CARDIAC INVESTIGATIONS

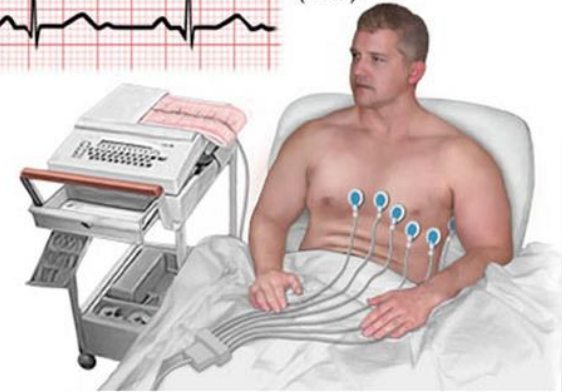
ECG



25mm/s 10mm/mV 40Hz



Electrocardiogram (ECG)





Blood tests

To establish a baseline

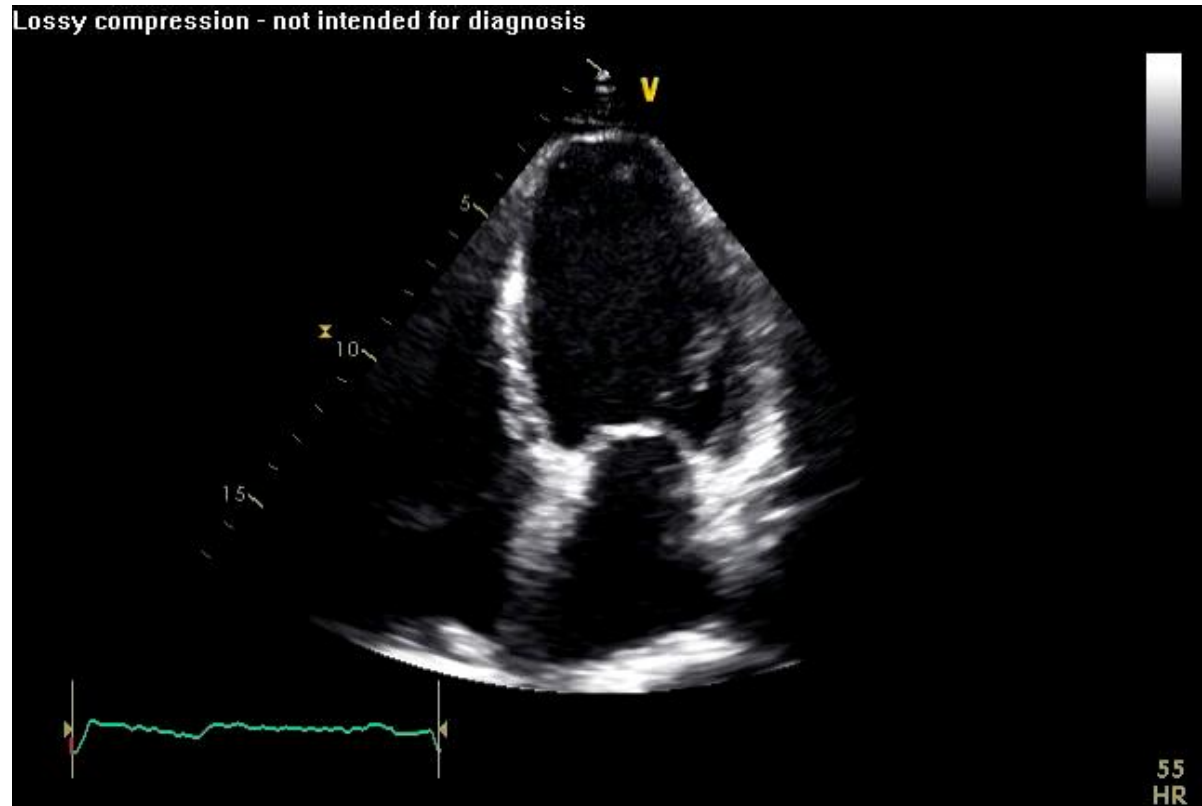
To rule out other diseases

To check whether you have had a heart attack/damage to heart muscle

Echocardiogram



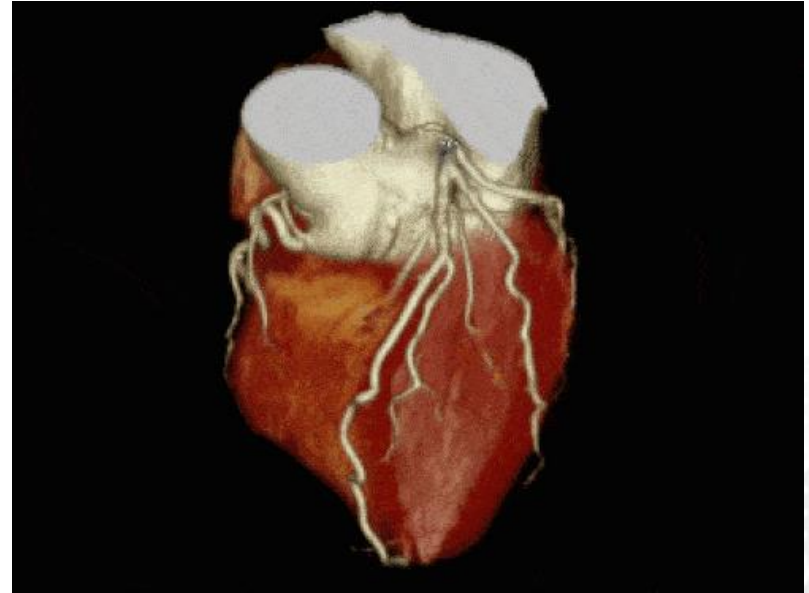
Lossy compression - not intended for diagnosis



Stress test (treadmill)



Coronary CT scan



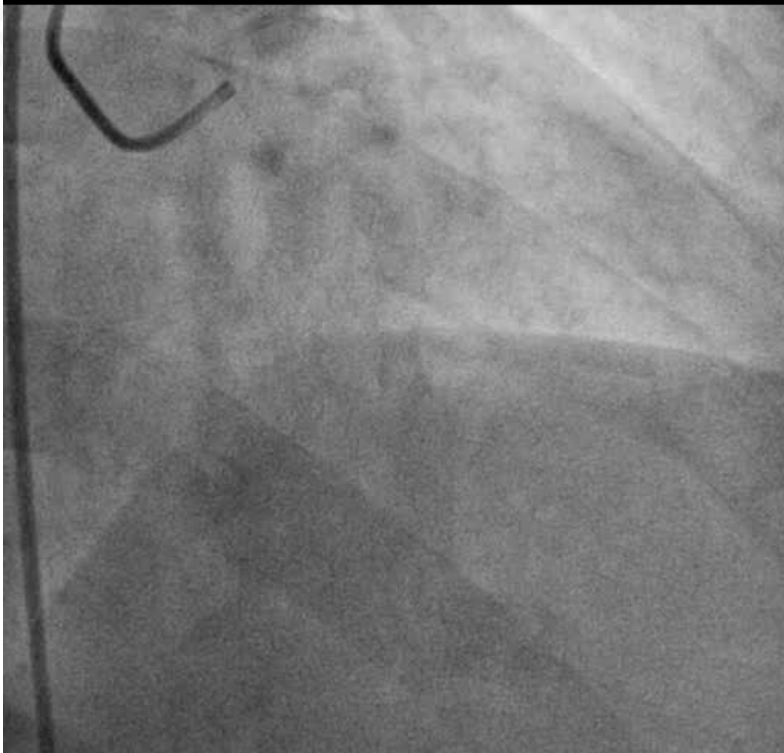
Coronary angiogram



Coronary angiogram



Lossy compression - not intended for diagnosis



Lossy compression - not intended for diagnosis



Coronary angiogram



Anabolic steroid user



WHAT ABOUT MEDICATIONS?



Medications

Depends on clinical situation

May be put on several different types of medications

Medications for coronary heart disease are usually taken lifelong

Lifestyle adjustments will be necessary



*My Heart,
Your Heart*

WHAT HAPPENS IF I LEAVE IT ALONE?

Untreated coronary heart disease



FATAL

Could lead to permanent muscle damage and weakened heart (“heart failure”)

Repeated episodes of heart attack

Irregular heart rhythms

Affects patient as well as loved ones

Key take home messages



Coronary artery disease does occur in the young

Be weary of supplements and anabolic steroids

Healthy lifestyle important

Follow medical advice and take medications as prescribed

Early recognition and treatment may prevent long-term sequelae

Thank you





*My Heart,
Your Heart*