



Cardiovascular Pharmacology

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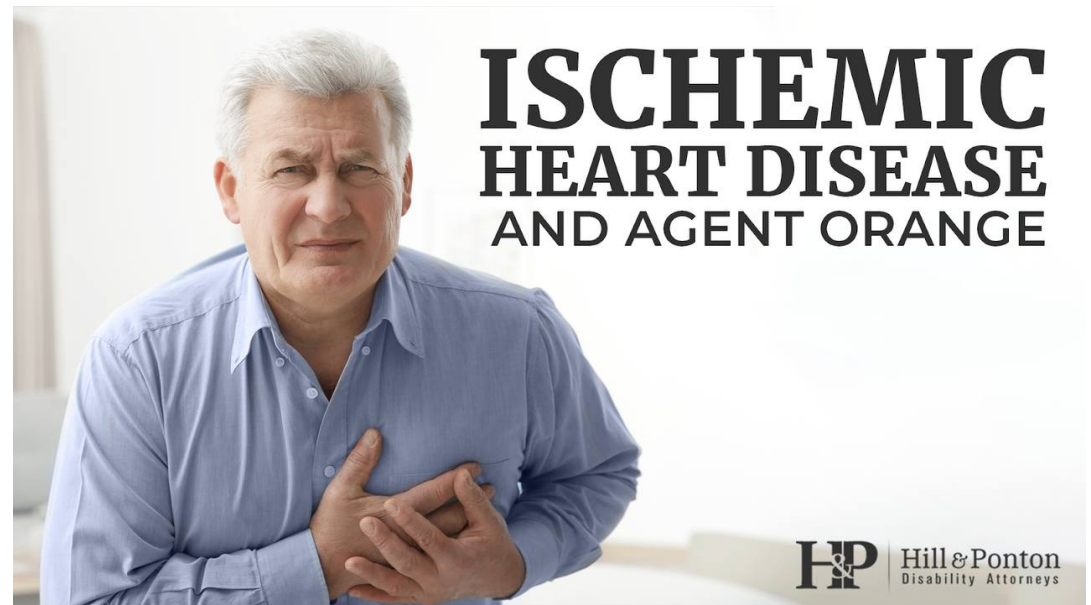


Ischemic Heart Diseases

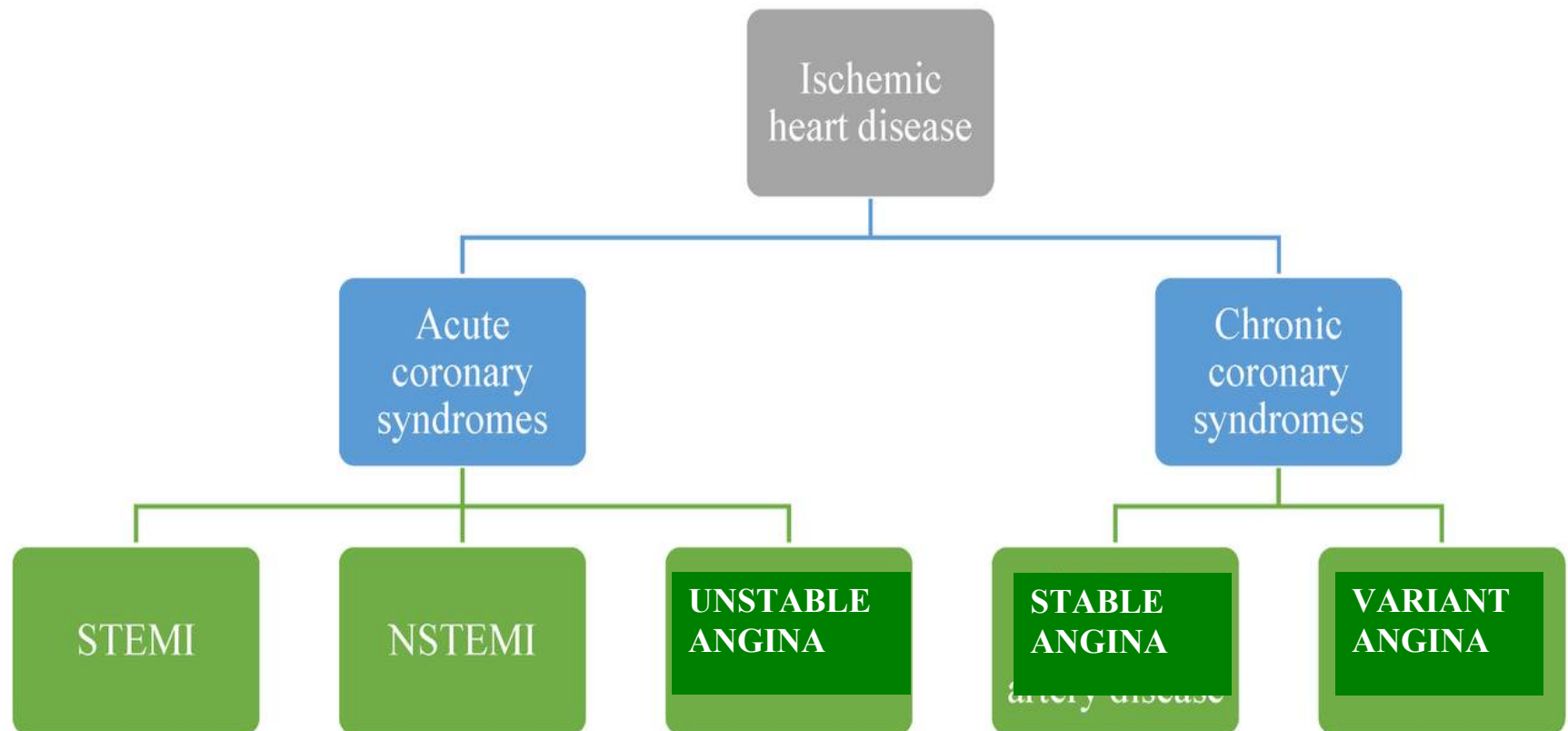
- Ischemic Heart Disease (IHD) or Coronary artery diseases (CAD) is the most common cause of angina and acute coronary syndrome and the most common cause of death world wide.
- WHO has estimated that 3.8 million men and 3.4 million die from cardiovascular diseases each year.

Ischemic Heart Diseases

- Clinical presentations of IHD categorized as either acute coronary syndrome (ACS) or chronic coronary syndrome (CCS)



Ischemic Heart Diseases/CAD





Risks for Ischemic Heart Disease

- Hypertension
- Smoking
- Dyslipidemia
- DM or impaired glucose tolerance
- Obesity
- Sedentary lifestyle

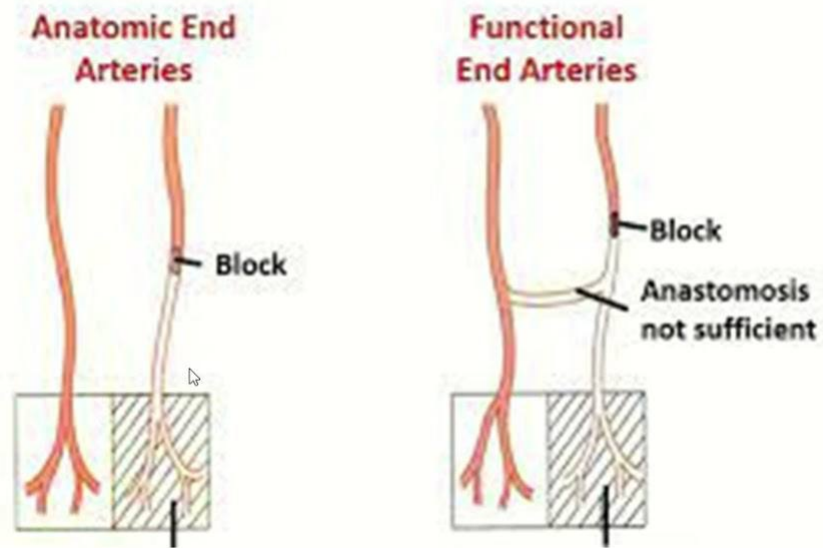


Pathophysiology of IHDs

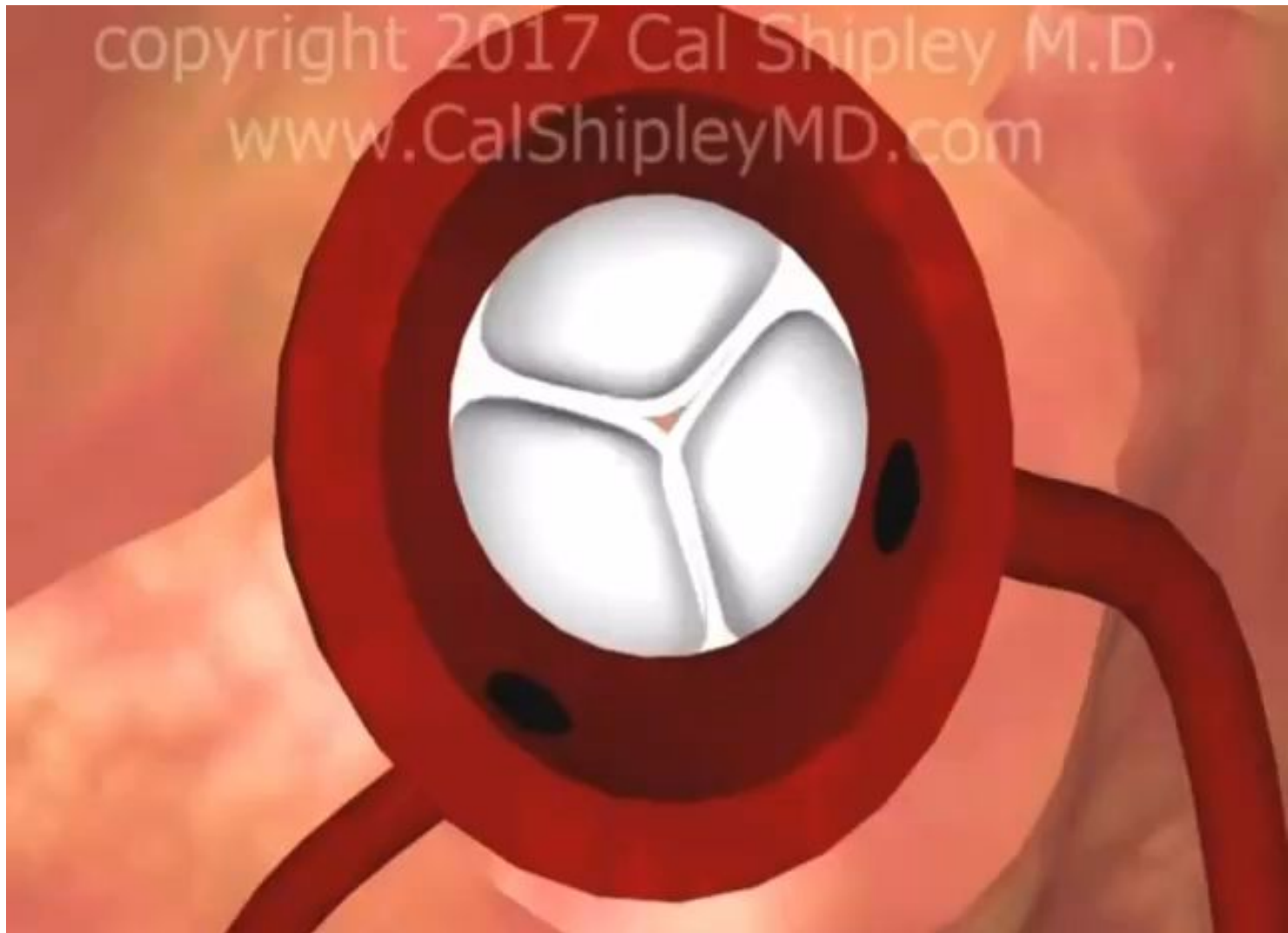
Peculiarities of coronary circulation:

1. End arteries (functional end arteries)
2. Blood flow (increased perfusion) during diastole
3. Maximum oxygen extraction
4. More susceptible to atherosclerosis

:Peculiarities of coronary circulation



:Peculiarities of coronary circulation





Pathophysiology of IHDs

Normally Balanced Cardiac Work

- Heart Work = CA Perfusion (blood supply)
(Contractility X HR) (Oxygen Demand) = (O₂ delivery)

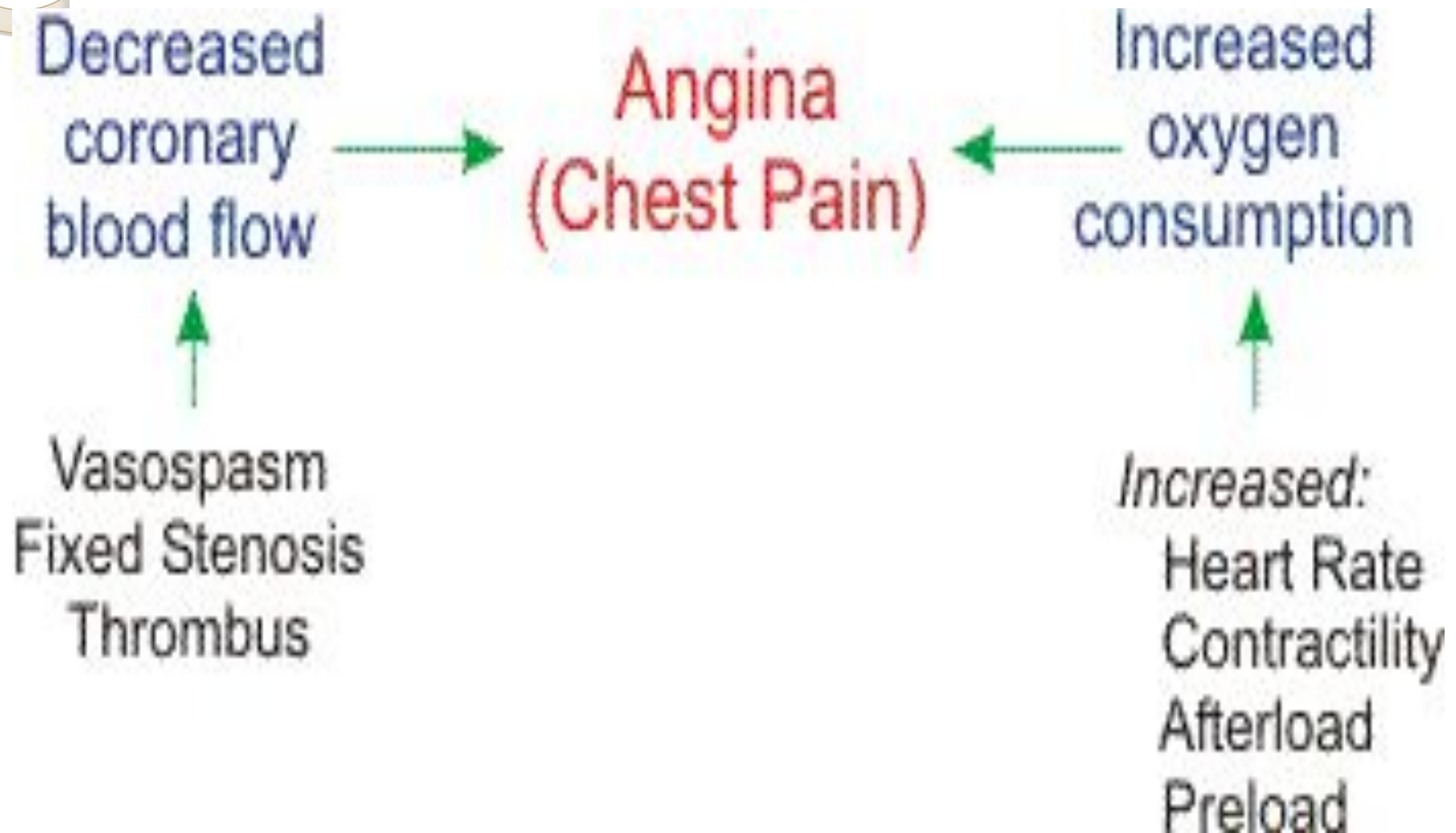


Pathophysiology of IHDs

The primary cause of IHD is an imbalance between myocardial O₂ demand and O₂ supplied by coronary vessels. This imbalance may be due to:

- Decrease in myocardial **oxygen delivery**
- Increase in myocardial **oxygen demand**
or both

Pathophysiology of IHDs

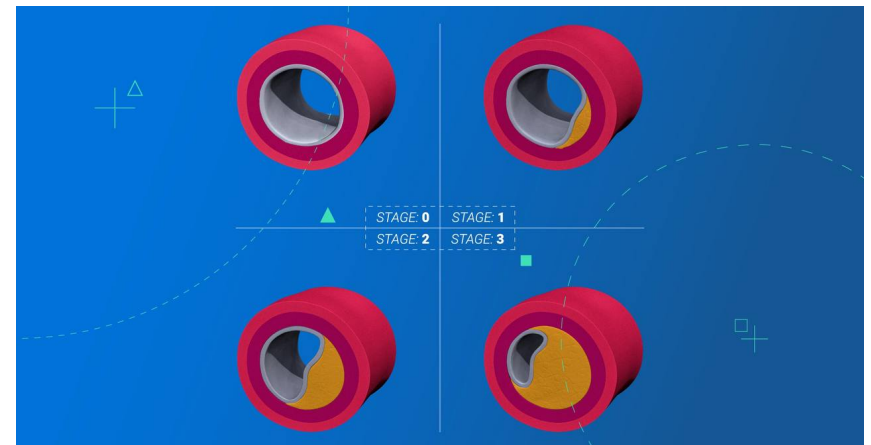
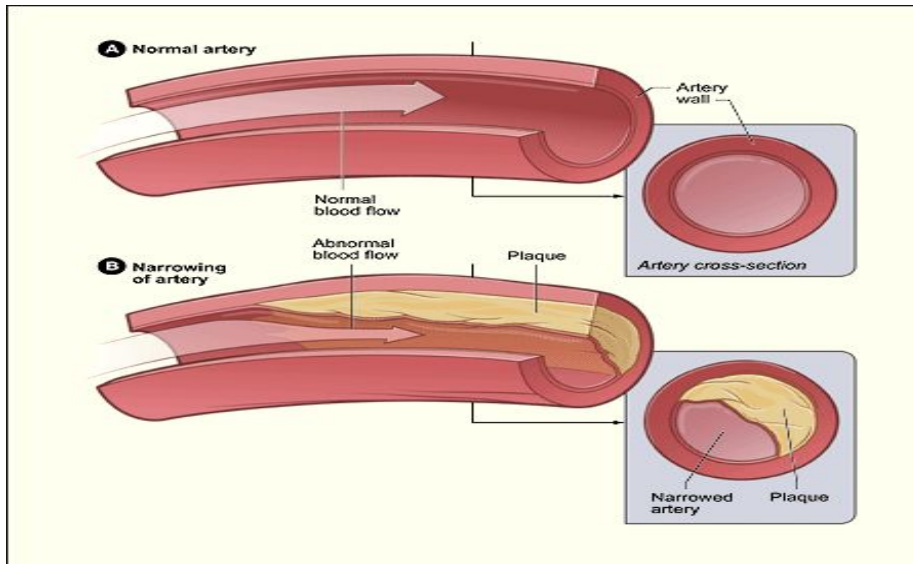




Pathophysiology of IHDs

- Stable Angina (Effort Angina): ischemia is due to fixed atheromatous stenosis of one or more coronary arteries, and is brought on by exercise and stress.

Pathophysiology of Stable Angina

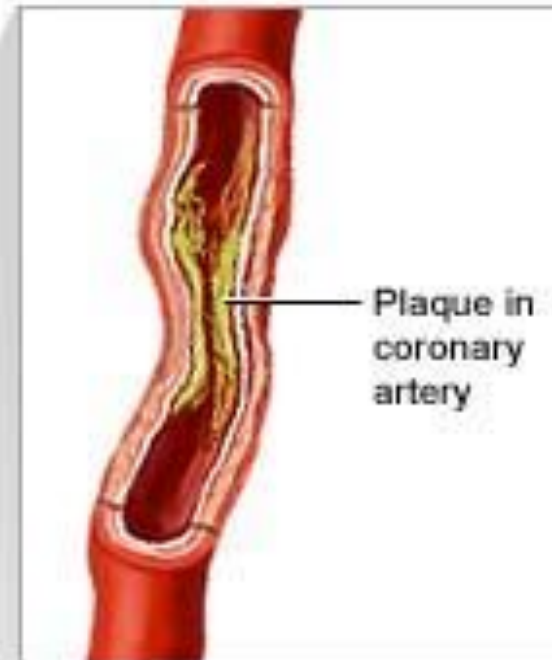


Pathophysiology of IHDs

- Unstable Angina : ischemia caused by dynamic obstruction of the coronary artery due to plaque rupture or erosion with superimposed thrombosis. It occurs suddenly at rest, and becomes progressively worse, with an increase in the number and severity of attacks.
- .

Pathophysiology of Unstable Angina

Insufficient blood flow to the heart muscle from narrowing of coronary artery may cause chest pain





Pathophysiology of IHDs

- Myocardial Infarction: myocardial necrosis caused by acute occlusion of a coronary artery due to plaque rupture or erosion with superimposed thrombosis.
- Depending on the site, size and severity of infarction, it subsequently leads to myocardial dysfunction with arrhythmias, heart failures....

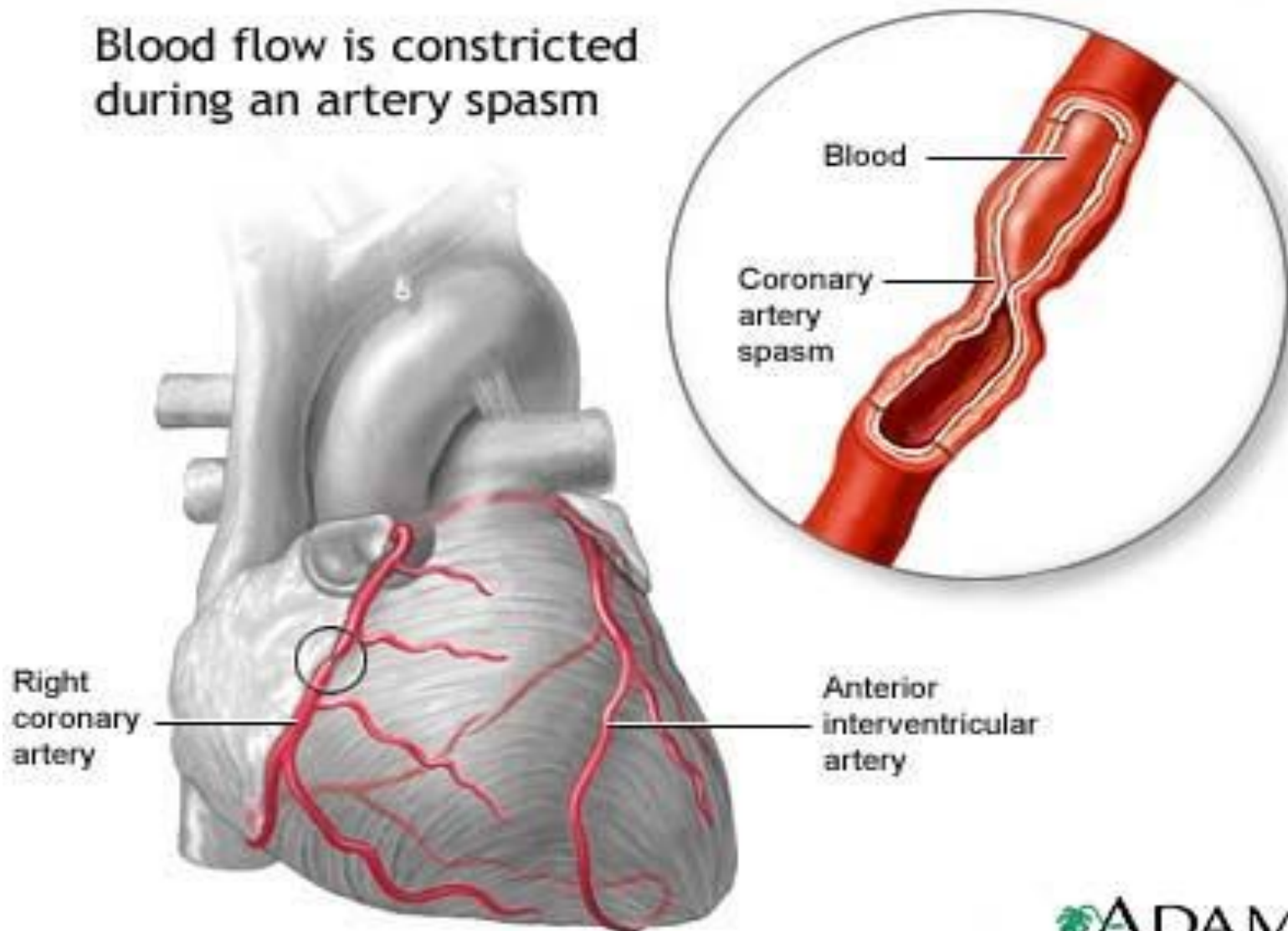


Pathophysiology of Prinzmetal Angina

- Prinzmetal Angina : the ischemia is usually due to coronary artery spasm. It occurs at rest

Pathophysiology of Prinzmetal Angina

Blood flow is constricted during an artery spasm



A person wearing a hat and a red vest is seen from behind, sitting in a yellow kayak on a calm river. The river is flanked by dense green foliage on both sides. The sky above is a deep blue, filled with numerous stars of various colors (yellow, orange, red, blue, white). The word "end" is written in a large, pink, cursive font across the center of the image. The overall mood is peaceful and contemplative.

end