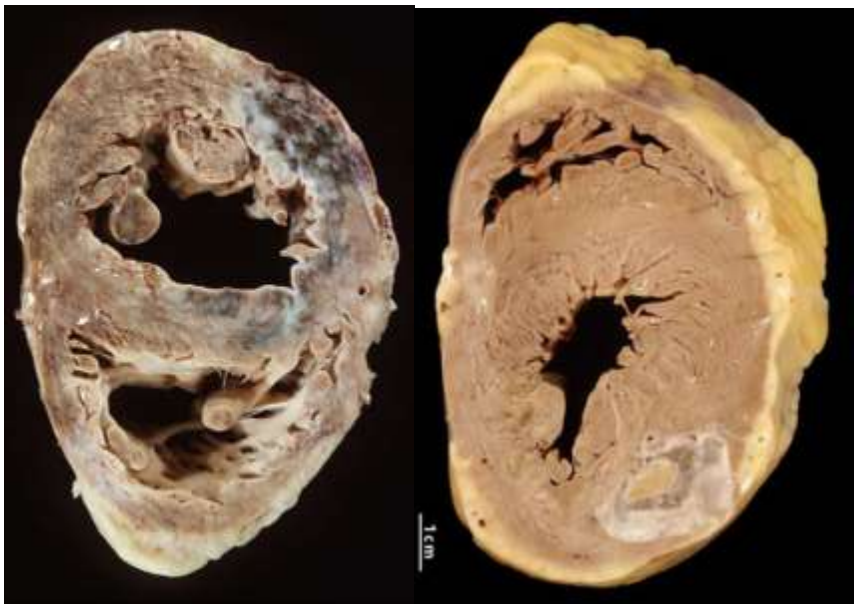
N.B.

- **The appearance of an infarct depends upon its**
  - **Extent,**
  - **And**
  - **Duration.**
- **At first (first day)**
  - Dark haemorrhagic-red.

Acute myocardial infarction (MI) indicates irreversible myocardial injury resulting in necrosis of a significant portion of myocardium (generally >1 cm).

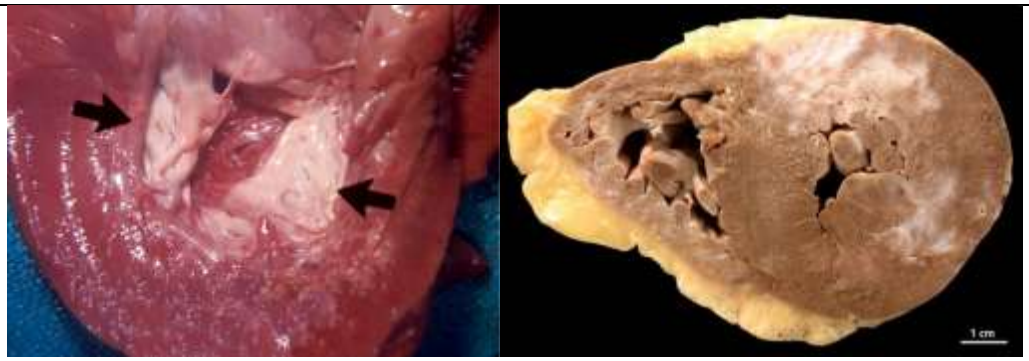
- The term "acute" denotes infarction **less than 3-5 days old,** when the inflammatory infiltrate is primarily neutrophilic.
- Acute MI may be either of the non-reperfusion type, in which case the obstruction to blood flow is permanent, or of the reperfusion type, in which the obstruction or lack of blood flow is long enough in duration (generally hours) but is reversed or restored after myocardial cell death occurs.
- Transmural infarction is sometimes complicated by myocardial rupture.
- The most common form is the **rupture of the free left ventricular wall** as shown in this image.
- There was 300 ml blood in the pericardial space **(tamponade)**.
- The patient was a 67 y/o female with biventricular concentric myocardial hypertrophy and severe coronary artery disease.
- **Rupture of the interventricular septum** is less common.
- The least common form of myocardial rupture following acute myocardial infarction is the **rupture of papillary muscles**

- **Later on (first week)**
  - Opaque yellowish or greyish-brown necrotic areas scattered in a dark - brownish area.
  - 

- **The image shows partially healed infarction of the anteroseptal wall and <u>subacute infarction</u> of the lateral wall of the left ventricle (upper left).**
- In addition, there is fibrosis of the right ventricle (lower right) and biventricular myocardial hypertrophy.
- The patient was an 82 y/o female with history of smoking, essential hypertension, and dyslipidemia.
- The frequency of myocardial infarction in women is comparatively low during their reproductive years.
- In the postmenopausal phase, there is rapid increase in the risk of coronary artery disease with declining estrogen levels.

- **Later still (two weeks)**
  - A hyperemic reddish zone surrounds the pale brownish or
  - Yellowish-grey necrotic soft area.
  - Lateral subacute myocardial infarction in a 71 y/o male.
  - There is necrosis of the lateral wall of the left ventricle surrounded by granulation tissue - which usually takes 10 to 14 days to become well-established.
  - The left ventricle shows impressive concentric hypertrophy.
  - A coronary angiogram showed 30% blockage of the left main coronary artery.

- **Lastly (six weeks)**
  - Pale pearly greyish-white firm fibrous tissue.

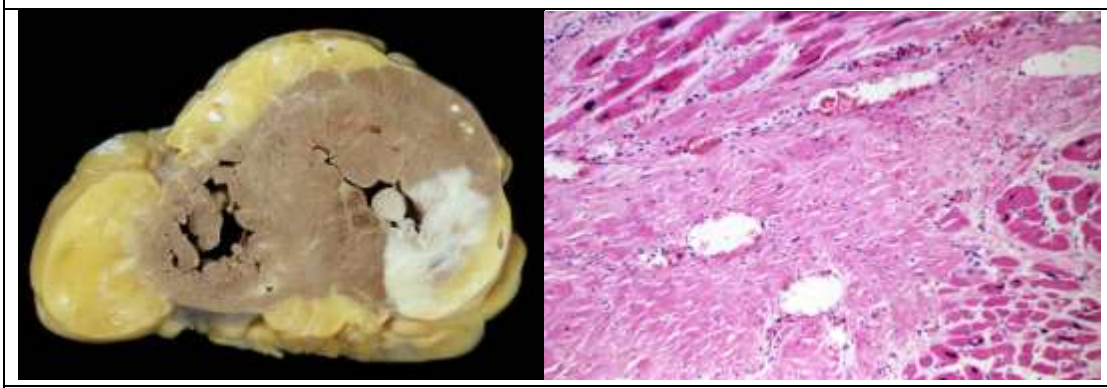


- **Organized and fibrosed thrombus** in the left ventricular wall.
- The patient had a remote history of myocardial infarction.

Myocardial Scarring 1 -3.253				
Heart	Size: Is diminished			
Myocardium	Shows patchy fibrosis			

Chronic myocardial infarction in a 73 y/o female.

- The image shows myocardial infarction scar and subacute necrosis of both ventricles.
- There was history of arterial hypertension and chronic smoking.
- The patient had 3-vessel coronary artery disease.
- There is also concentric hypertrophy of both ventricles.



Healed myocardial infarction of the posterior and lateral walls in a 70 y/o male.

- There is biventricular concentric myocardial hypertrophy.
- There is also scarring of the posterior papillary muscle.
- The patient had history of hypertensive cardiomyopathy and tricuspid and mitral valve insufficiency.
- Additional findings at the autopsy included stenosis of the right coronary artery and the anterior interventricular branch of the left coronary artery.

Myocardial Scarring 1 -3.253				
Heart	• Size: Is diminished			
Myocardium	• Shows patchy fibrosis			
The fibrosis	• Pale whitish-grey streaks or patches • Irregularly-distributed • **Particularly present at:**			

	• Apex • Left ventricle (anterior wall) • Papillary muscle • Interventricular septum	
Ventricular cavity (left):	• Shows thrombi • Mural • Numerous • Adherent to the wall • Brownish-greyish	

N.B. I

- Occlusion of small vessels leads to myocardial atrophy followed by scaring without the production of an actual infarct.
-
- **The causes of occlusion in general are:**
  1. **Atheromatous narrowing of vessels (arteriosclerosis).**
  2. **Thrombosis in an already atheromatous artery.**
  3. **Syphilitic aortitis of the root of the aorta sealing the mouths of the near-by coronary artery.**
  4. **Embolism.**
  5. **Rarely small vegetations from a valve may block small branches.**

N.B. 2

Occasionally, calcification may occur on top of a scarred area of gradual ischaemic atrophy or a healed infarct of ischaemic necrosis.