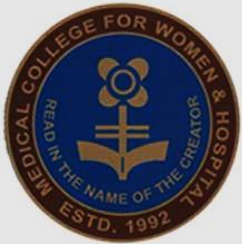
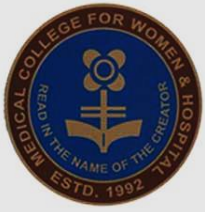


HAEMODYNAMIC DISORDERS, THROMBOEMBOLIC DISEASE and SHOCK



TOPIC 6 HYPERAEMIA & CONGESTION

Professor Tamanna Choudhury
HOD, Pathology
MCWH

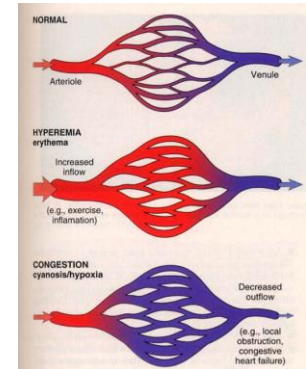


References:

- **Robbins & Cotran Pathologic Basis of Disease- 9th edition**
- **Davidson's Principles and Practice of Medicine-23rd edition**
- **IMAGES- Above mentioned books & internet**



HYPERAEMIA & CONGESTION

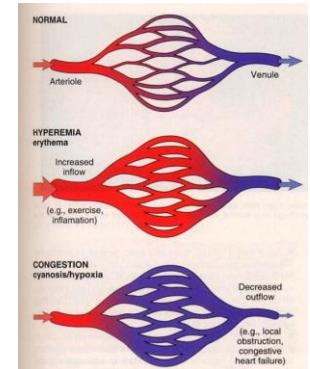


Increased blood volumes within tissues

Underlying mechanism and consequences are different



HYPERAEMIA



- An active process
- Arteriolar dilatation
- Resulting in **redness** of the tissue – because of increased oxygenated blood



Hyperaemia



Examples:

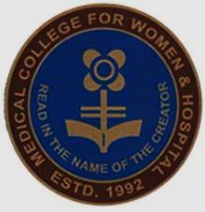
Muscular exercise

Febrile illness

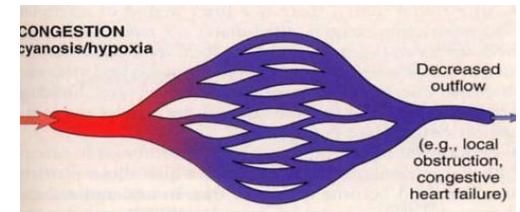
Blushing

in skin

Acute inflammation - at the site affected
(e.g., acute appendicitis)



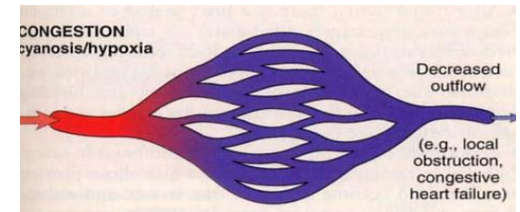
Congestion



- Passive process
- Reduced outflow of blood from a tissue
- Blue-red in color



Congestion



Examples:

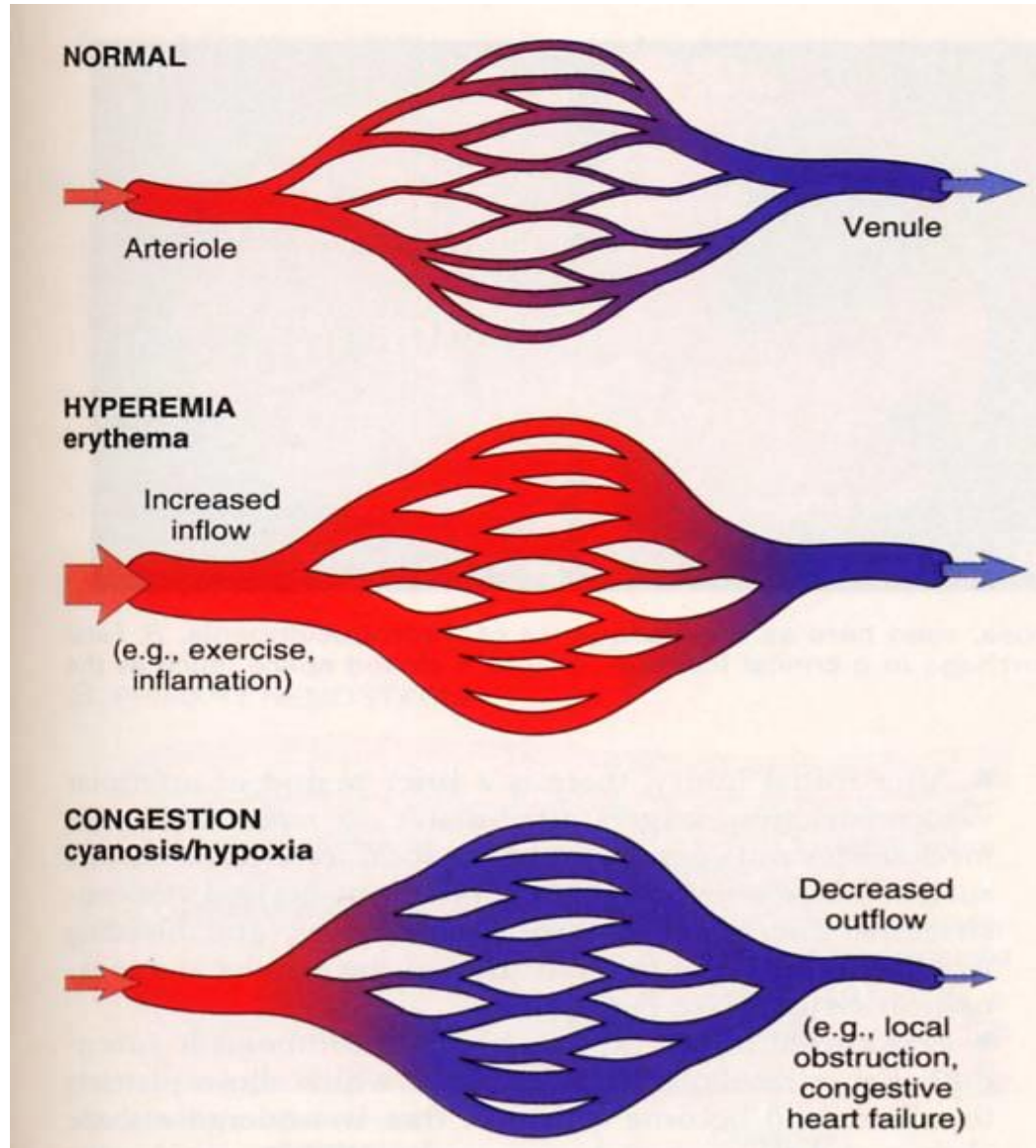
Systemic

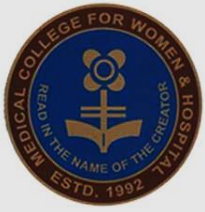
- Affects **pulmonary circuit** in **LVF**
- May affect the **entire body**, sparing the lungs, in **right ventricular decompensation**

Local

- External compression- neoplasm
- Vessel lumen occlusion – thrombus, emboli

Hyperaemia versus congestion





HYPERAEMIA & CONGESTION

HYPERAEMIA

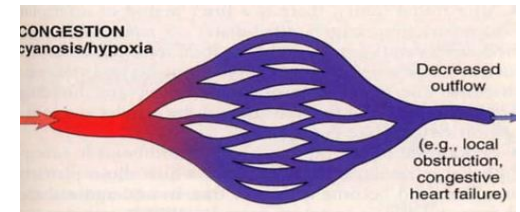
- Active Process
- Increased blood flow-arteriolar dilation
- Affected tissues turn **red** (erythema) due to Increased delivery of oxygenated blood

CONGESTION

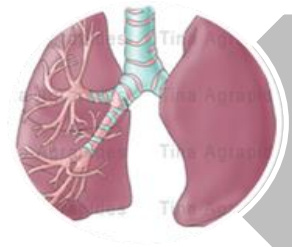
- Passive Process
- Reduced outflow of blood from a tissue
- Systemic or localized
- Leads to edema as a result of increased hydrostatic pressure



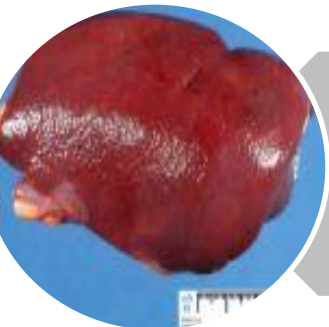
Congestion



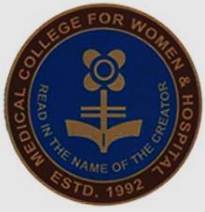
Liver - *Nutmeg liver*



Lungs - *Brown induration*

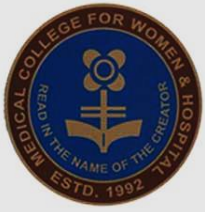


Spleen - *Gandy-Gamma nodule*



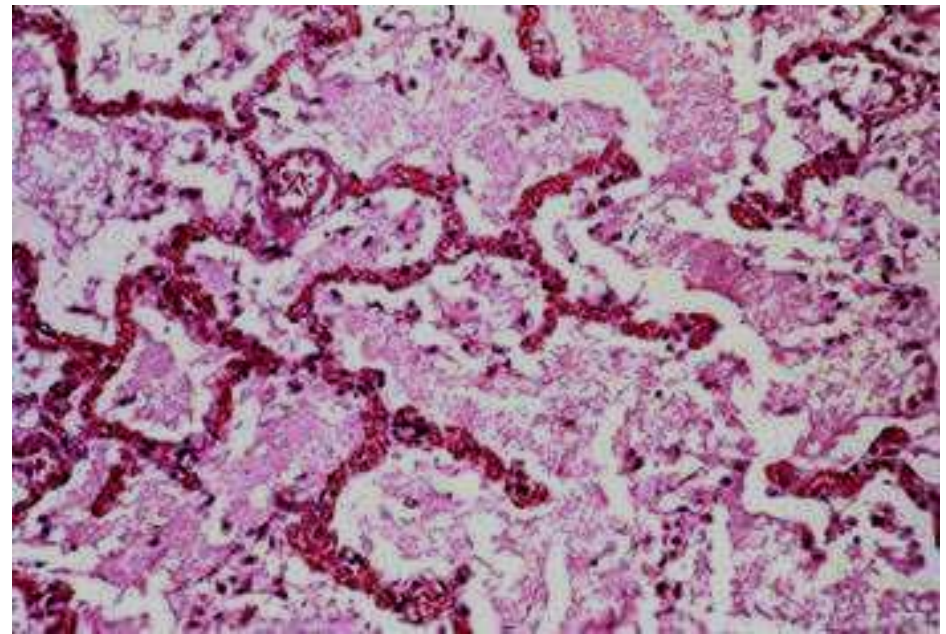
Congestion of Lung

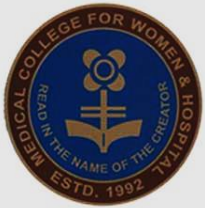
- Acute
- Chronic- **BROWN INDURATION**



ACUTE CONGESTION OF LUNG : MORPHOLOGY

- The alveolar septa are prominent due to marked congestion of the capillaries.
- The alveolar lumens contain pale-staining edema fluid.





CHRONIC CONGESTION OF LUNG: MORPHOLOGY

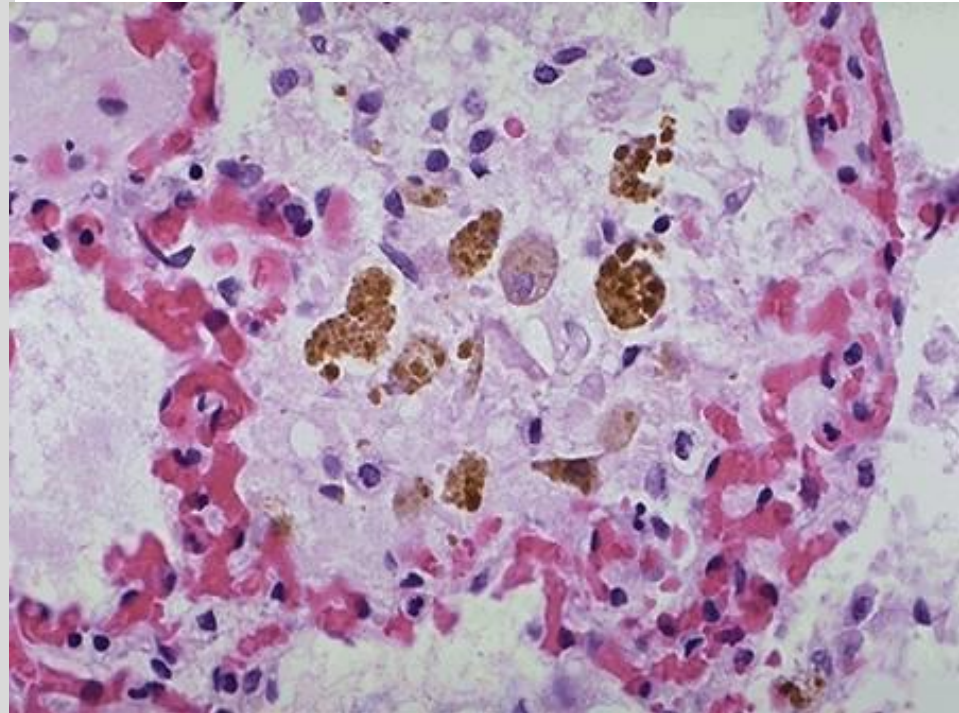
Gross:

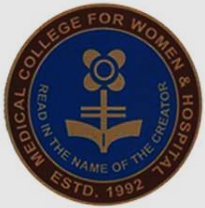
- **Brown induration**

Microscopic:

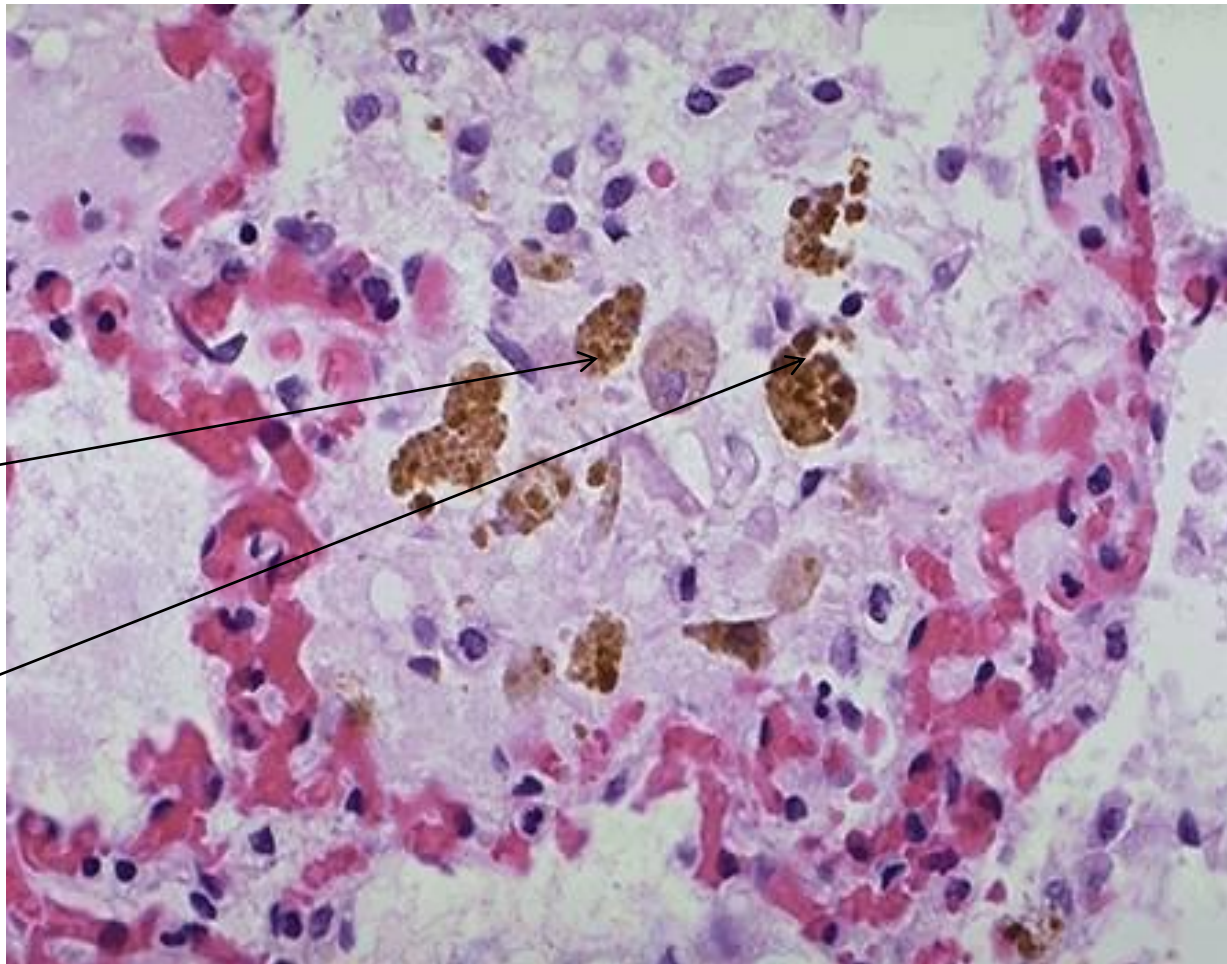
- Alveolar septa – thickened and fibrosis
- Alveolar spaces contain hemosiderin laden macrophages (heart failure cell)

Heart Failure Cells

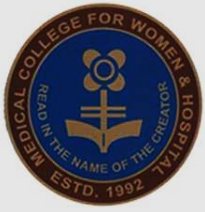




Heart Failure Cells

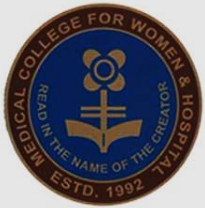


Heart failure cells



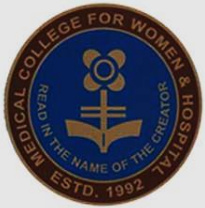
CONGESTION OF LIVER

- Acute hepatic congestion
- Chronic hepatic congestion- **NUTMEG LIVER**

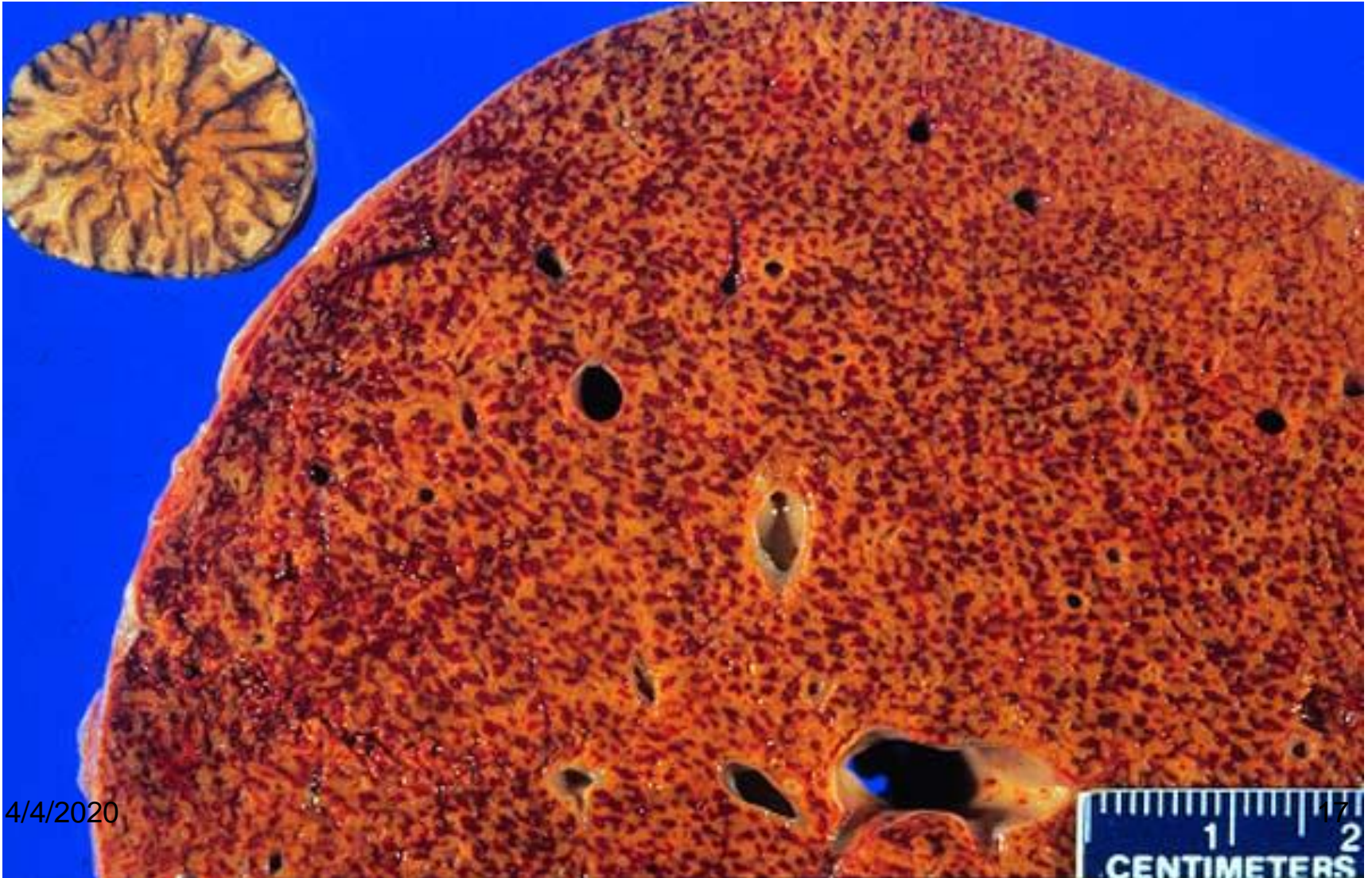


NUTMEG



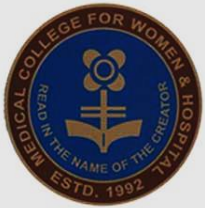


Nutmeg liver



4/4/2020





Liver with chronic passive congestion

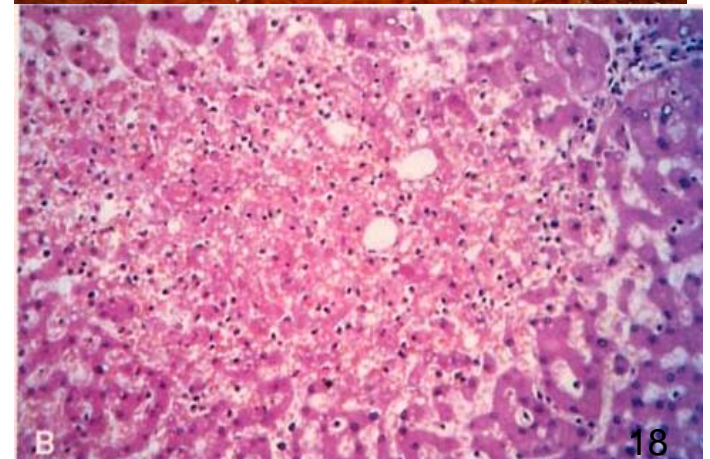
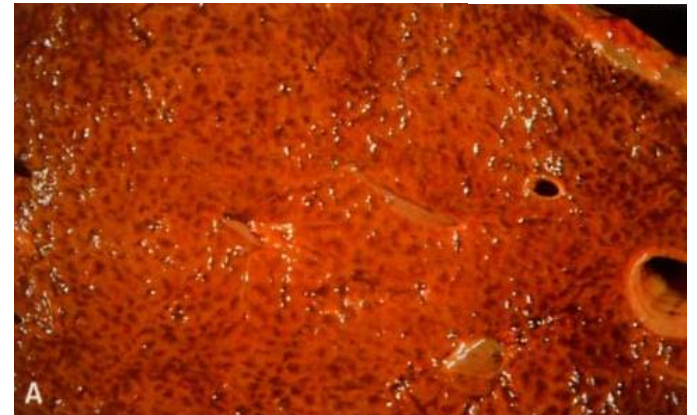
Gross

- Central areas are red and slightly depressed compared to the surrounding tan viable parenchyma- forming a **nutmeg** pattern

Microscopic

- Centrilobular necrosis and ultimate fibrosis

Nutmeg liver



Practice questions

- Define hyperemia. What is the mechanism of hyperemia? Give few examples of hyperemia.
- Define congestion. Give examples.
- What are the differences between hyperemia and congestion?
- What is nutmeg liver?
- What is brown induration of lung?
- What is heart failure cell?

