

# General pathology lap



## Cell injury

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# CELLULER ADAPTATION

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1. Hypertrophy : increase size of the cells.
2. Hyperplasia : increase number of the cells
3. Atrophy
4. Metaplasia

# 1. Hypertrophy

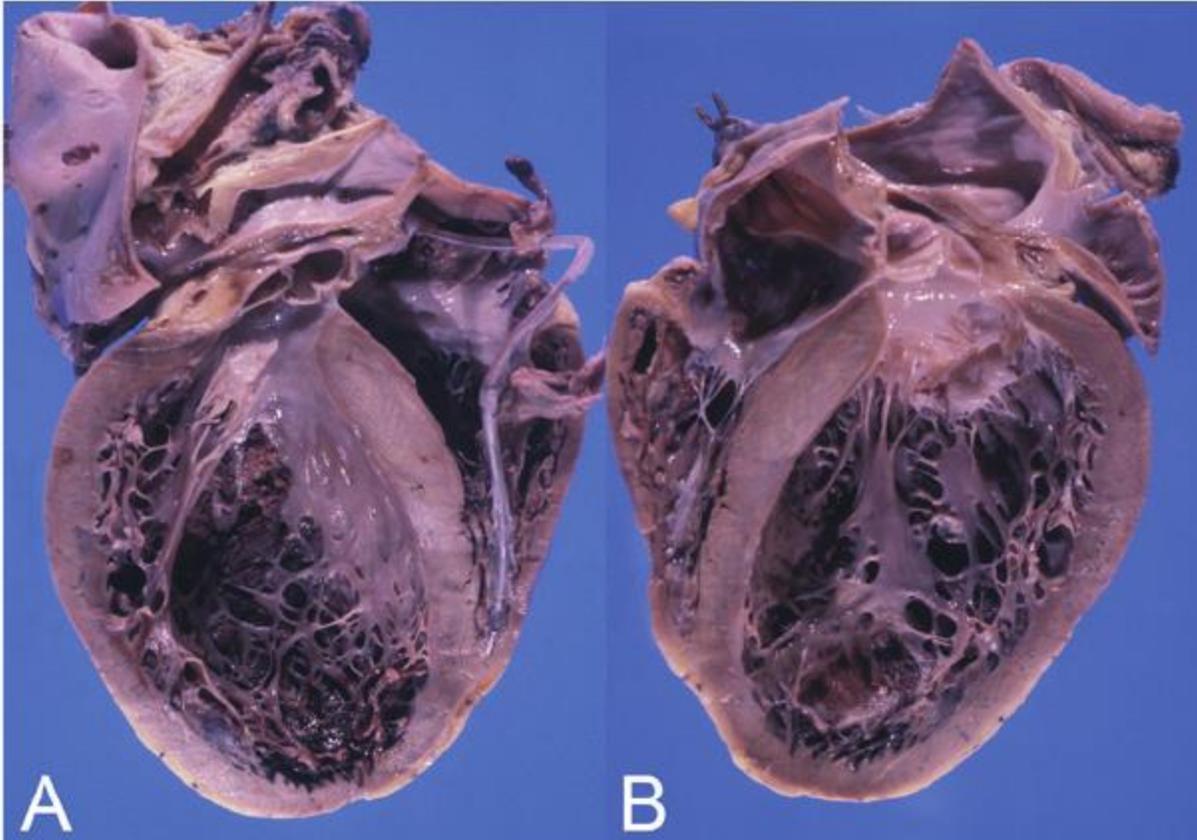


**Normal spleen**

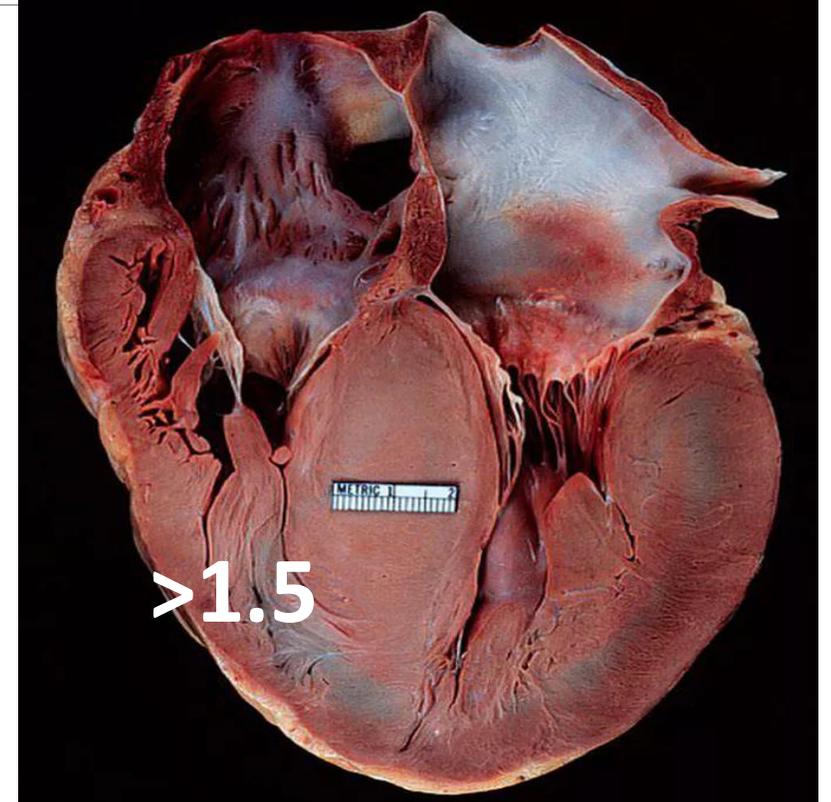


**Hypertrophy spleen**

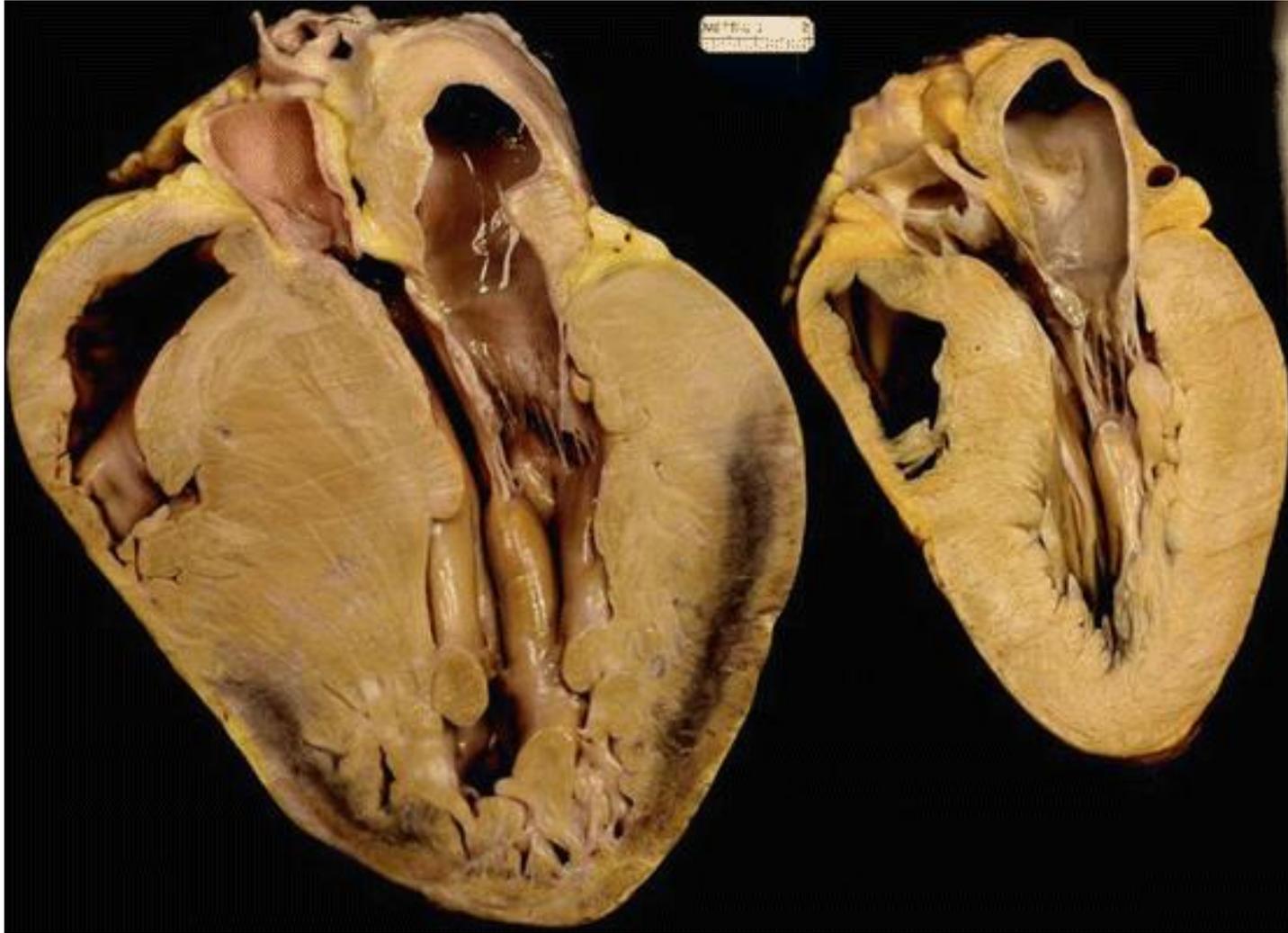
# Hypertrophic heart



**Normal**



**Hypertrophy**



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## Normal heart compare to Hypertrophic heart

Example :Hypertensive heart

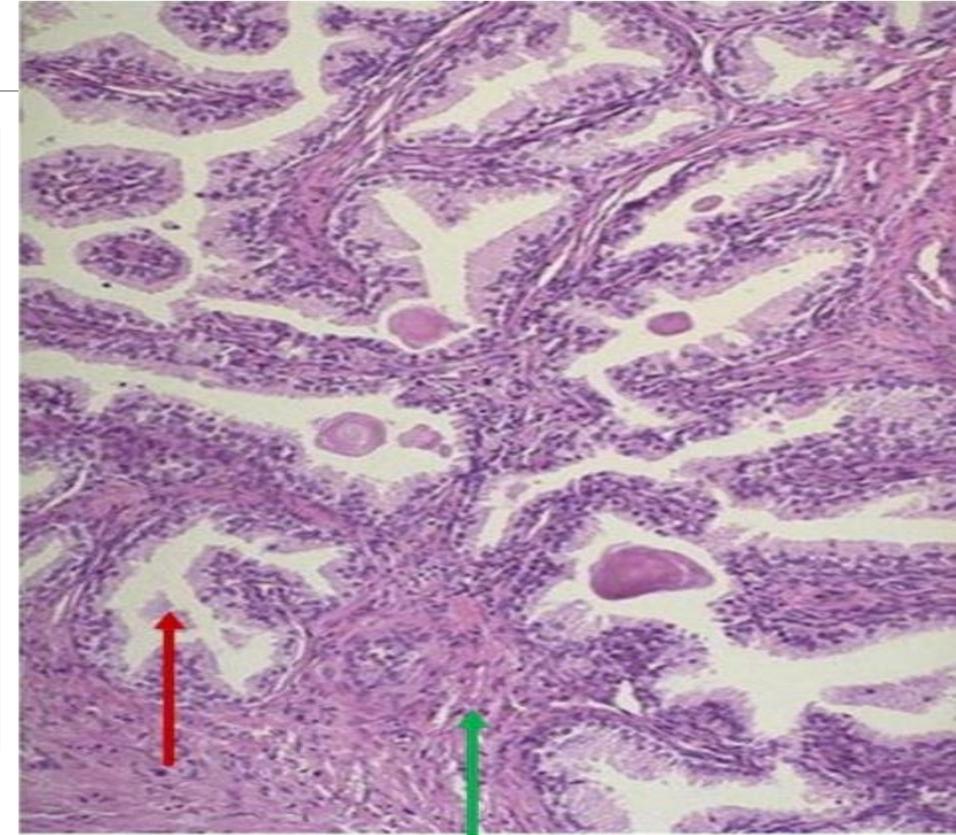
# 2. Hyperplasia



**Normal prostate**



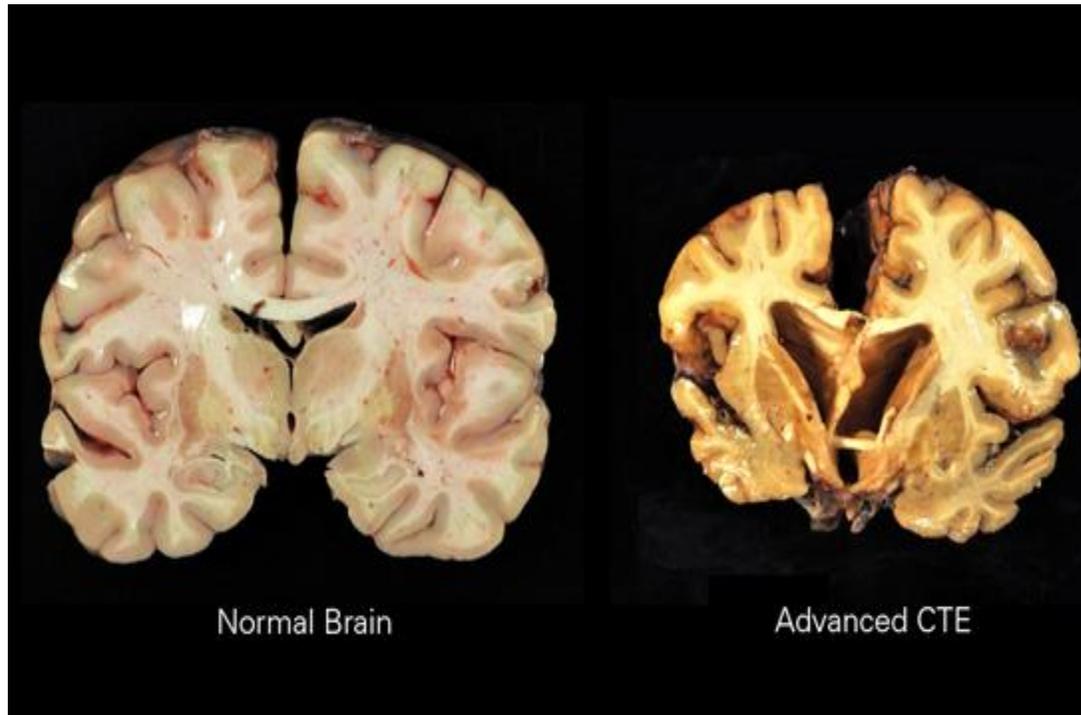
**Benign prostatic hyperplasia**  
- Urethra narrower



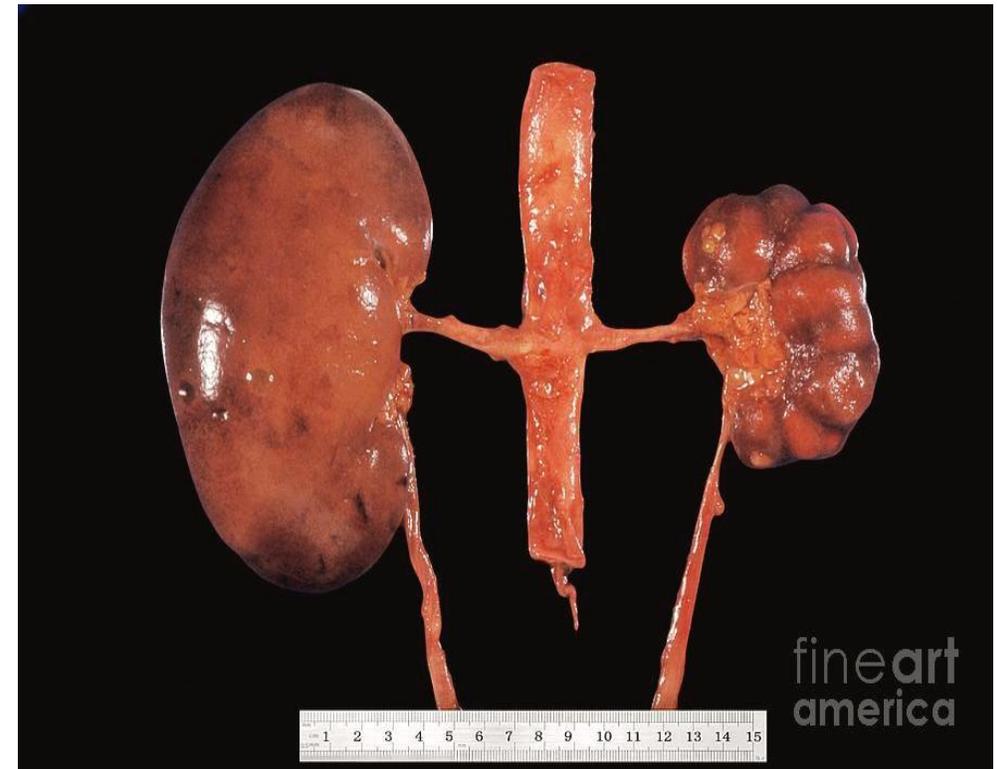
**Microscopic picture of Benign prostatic hyperplasia**

# 3. Atrophy

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**Cerebral atrophy (ischemic)**



**Atrophic Kidney (ischemic)**



**Disuse atrophy lower limb**



**Neuropathic Muscle atrophy  
(cutting nerve supply)**

# 4. Metaplasia (chronic irritation)

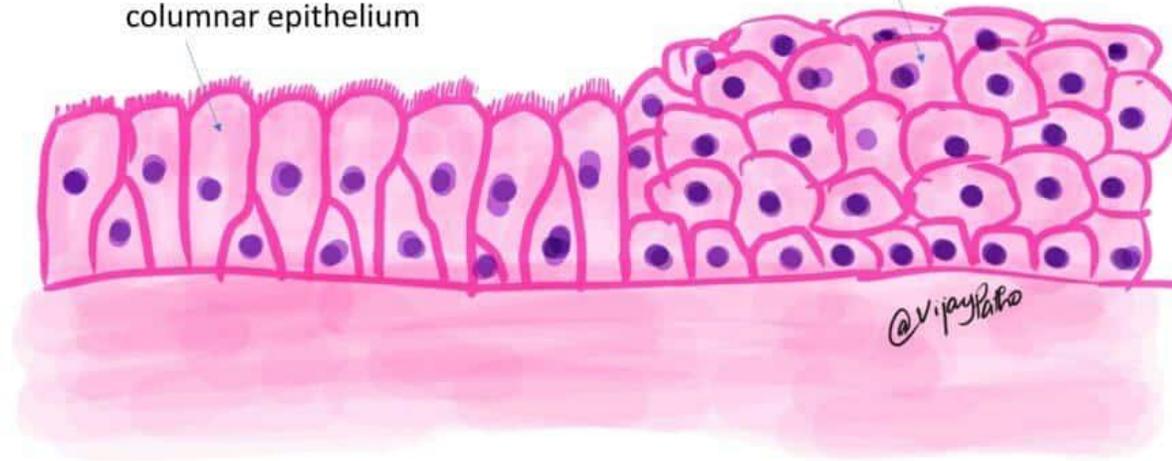
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## SQUAMOUS METAPLASIA

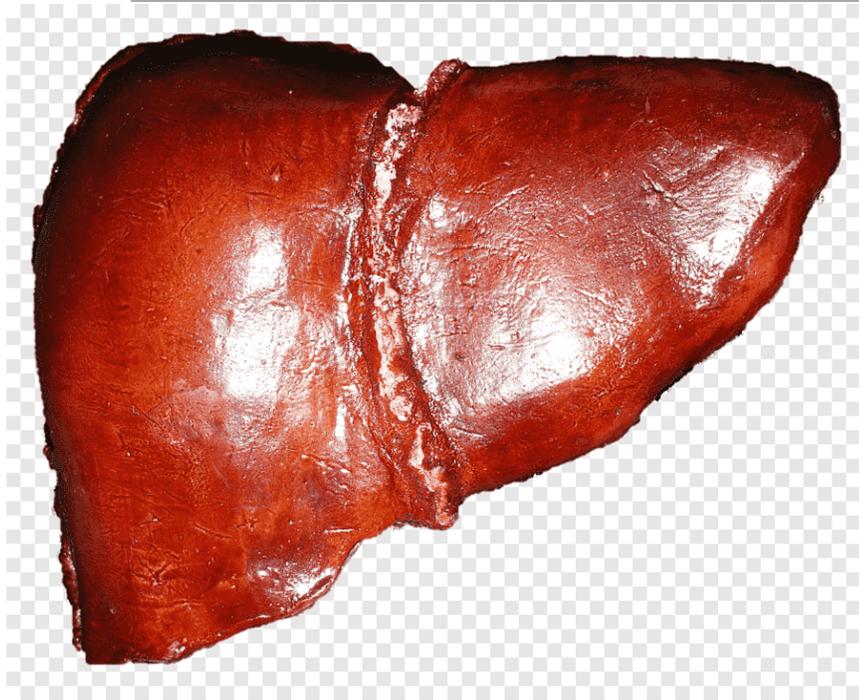
Bronchus

Pseudostratified ciliated columnar epithelium

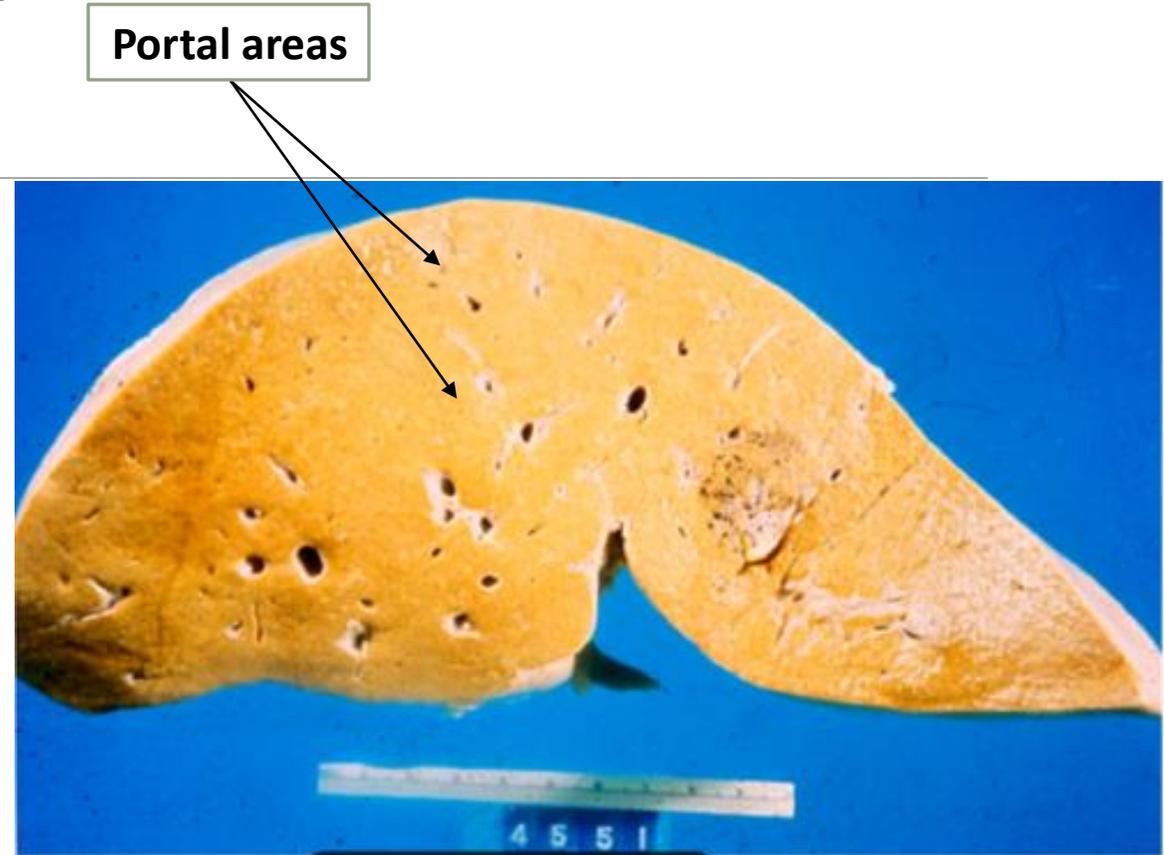
Squamous epithelium



# Disturbance of lipid metabolism (reversible)



**Normal liver**



**Cross section  
- Diffuse lesion  
e.g. fatty change of liver**

# Irreversible cell injury

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## 1. Apoptosis

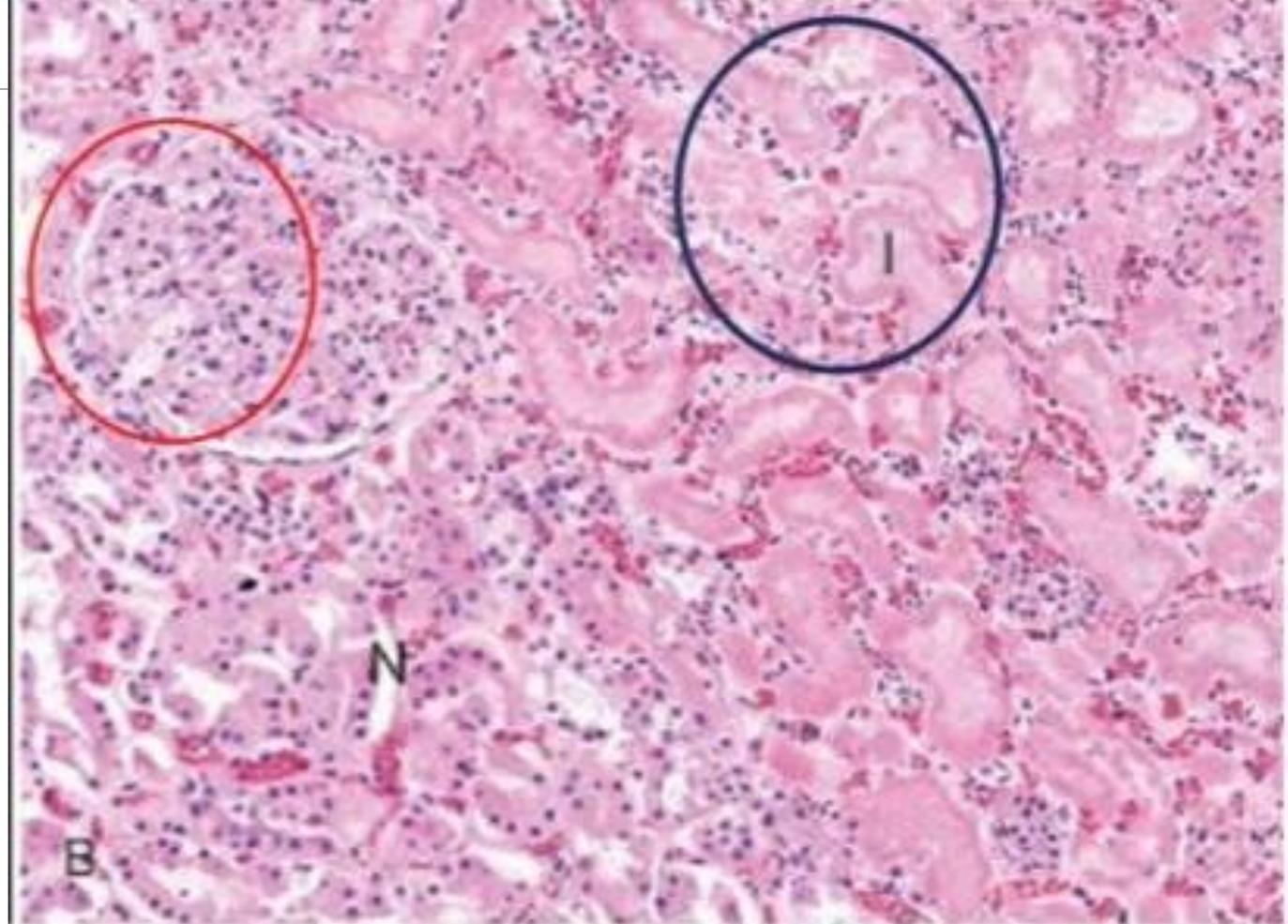
## 2. Necrosis

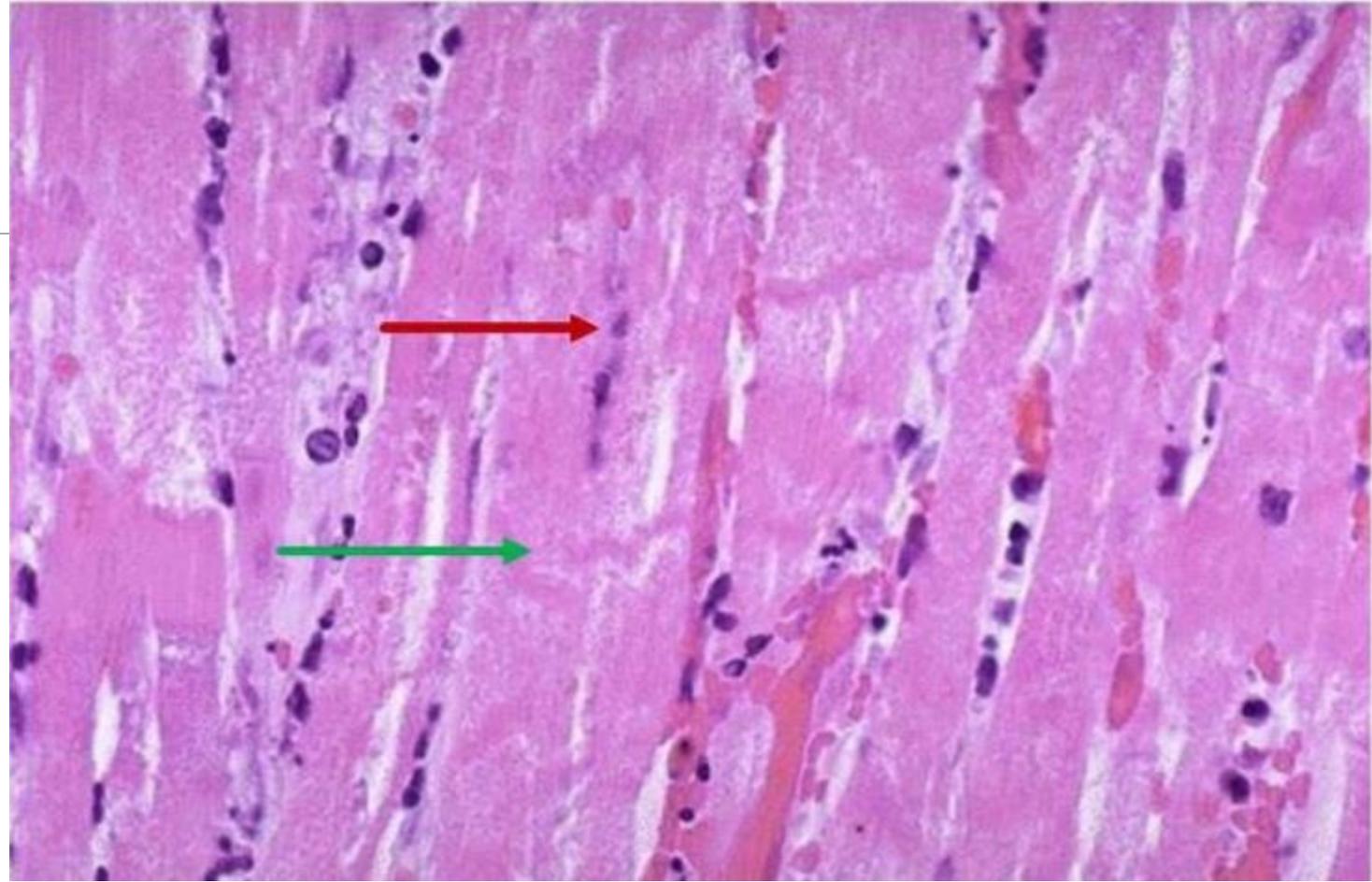
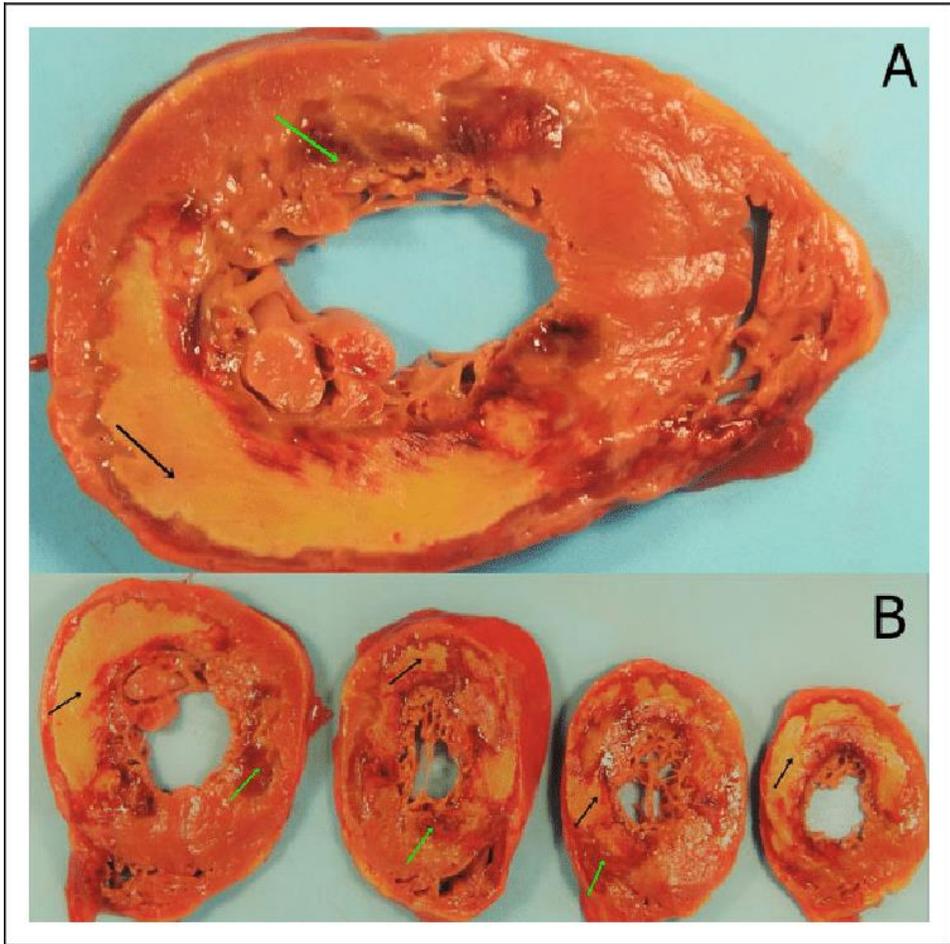
- A. Coagulative necrosis
- B. Liquifactive necrosis
- C. Caseating necrosis
- D. Fat necrosis
- E. Fibrinoid necrosis
- F. Gangrenous necrosis

# A. Coagulative necrosis



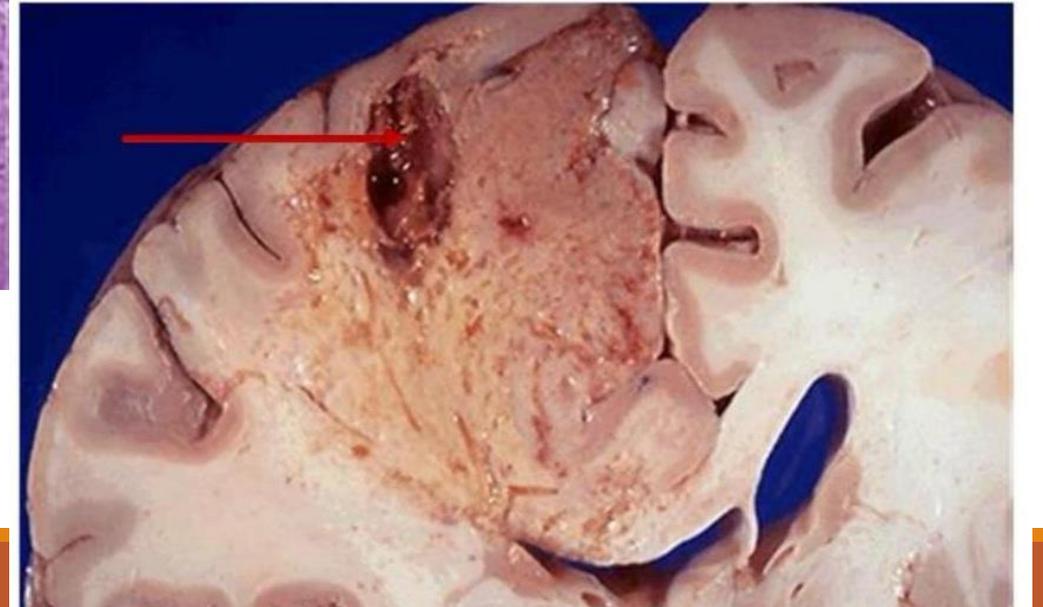
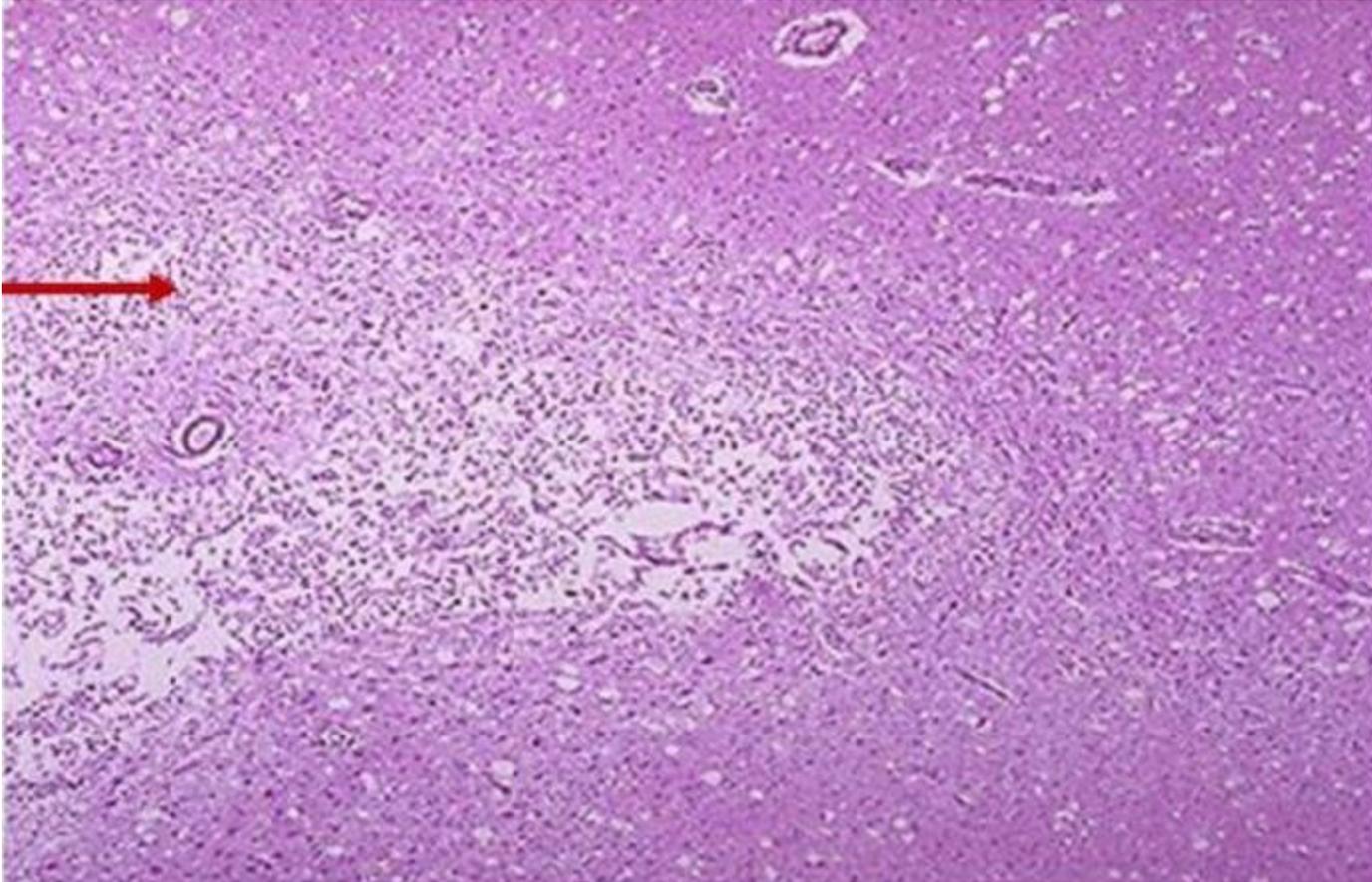
**Kidney focal necrotic tissue**





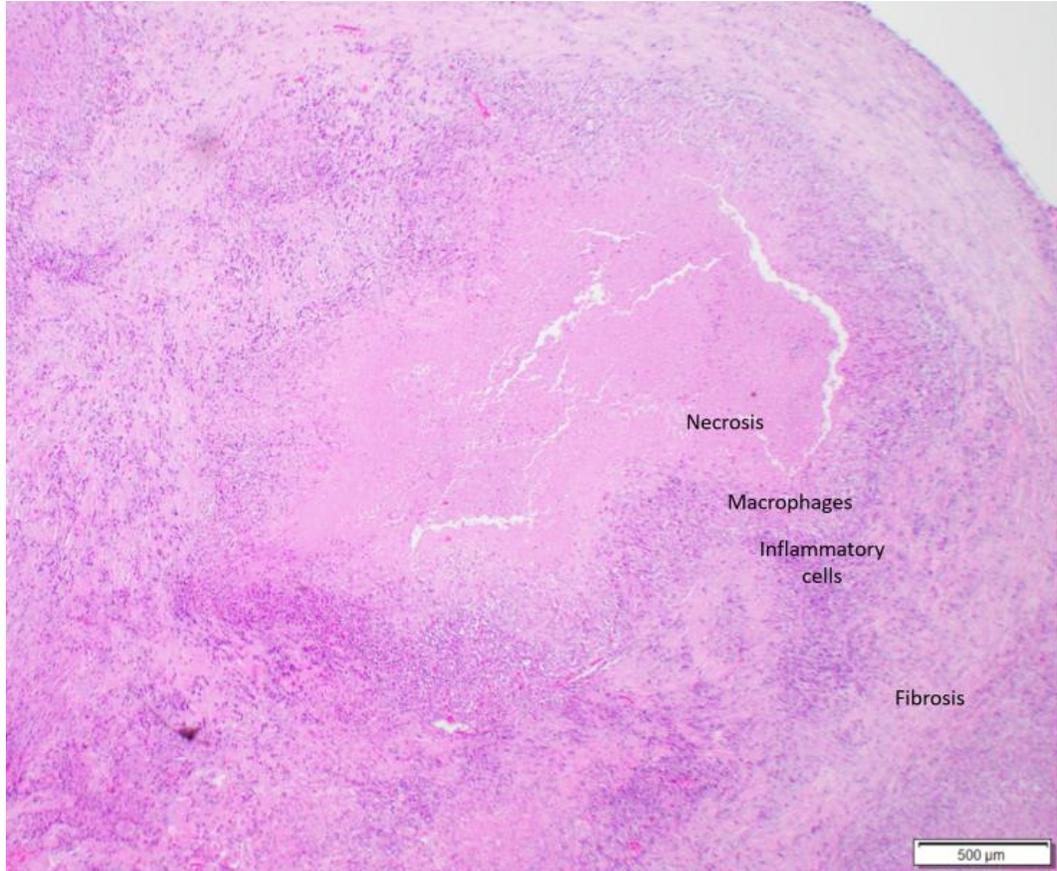
**Cardiac necrosis**

## B. Liquefactive necrosis



**Cerebral infarction**

# C. Caseation necrosis



**T.B LUNG :**

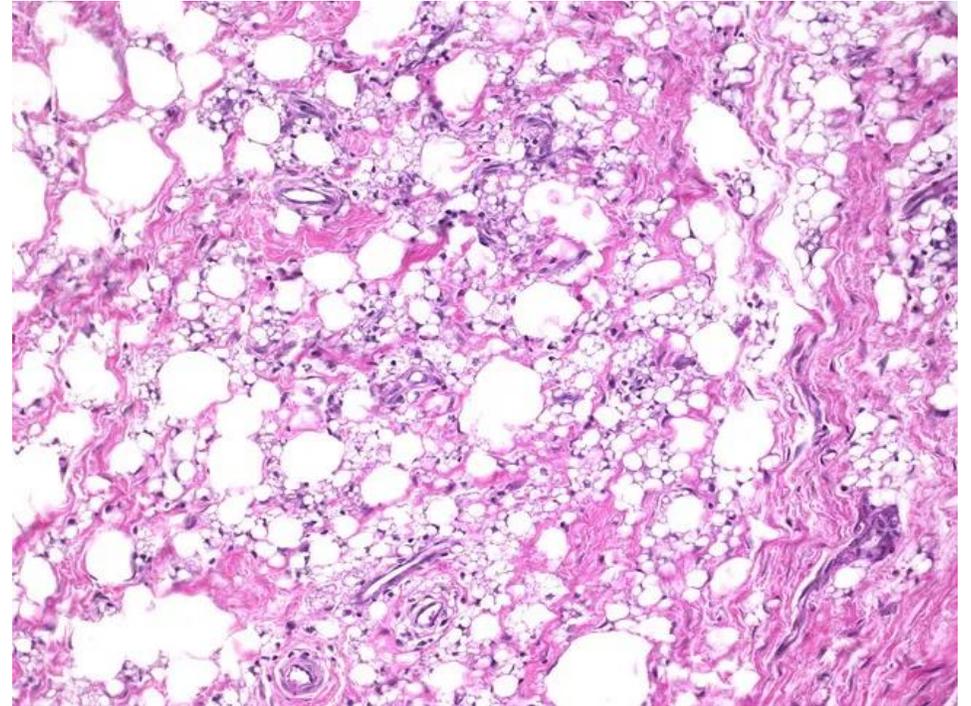
**Large area of caseous necrosis (yellow , white and cheesy)**

# D. Fat necrosis

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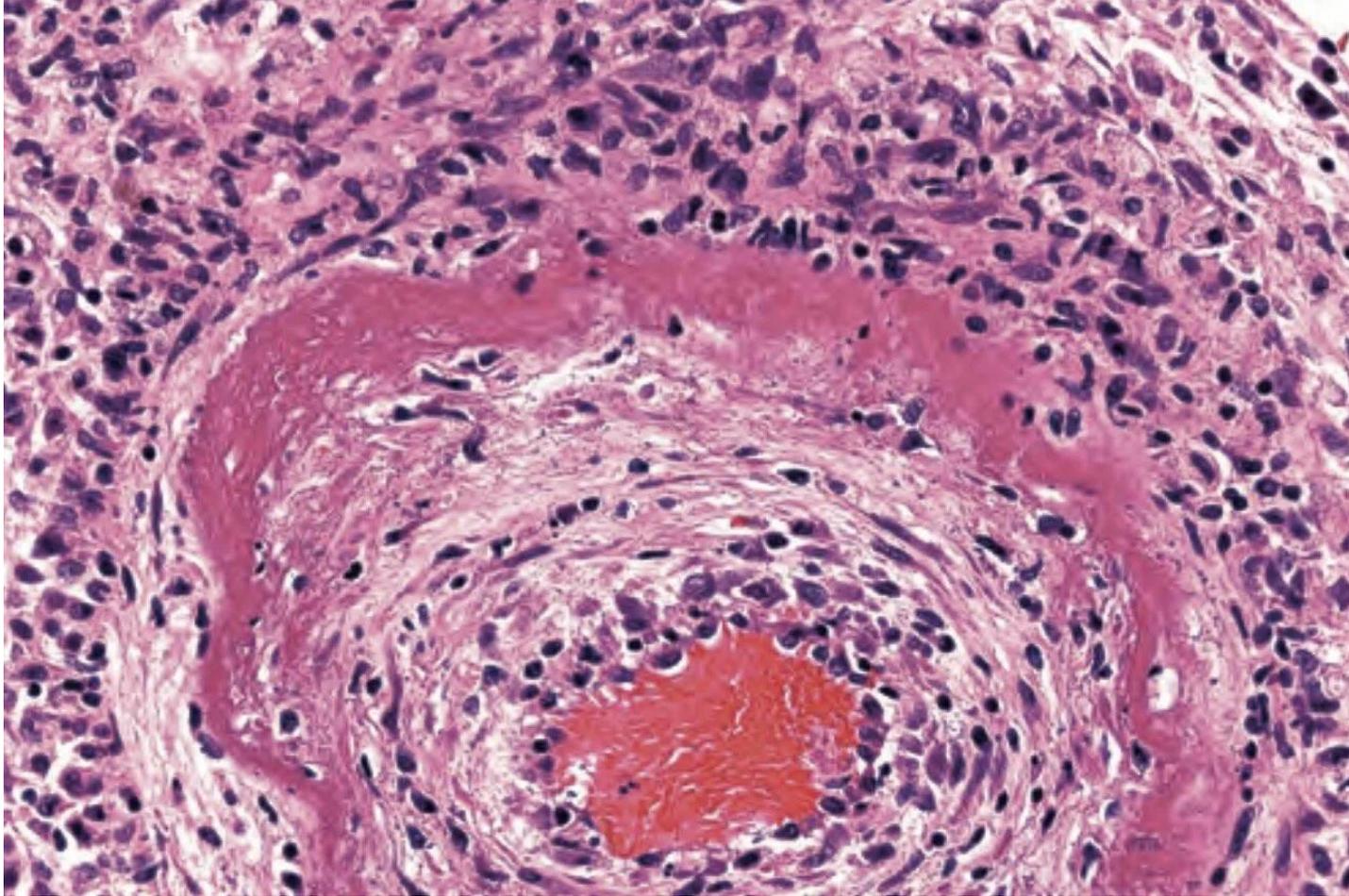
**fat necrosis : pancreas  
(enzymatic)**



**Fat Necrosis : Breast  
(traumatic)**

# E. Fibrinoid necrosis

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- **Affect small arteries and arterioles**
- **Autoimmune disease**

# F. Gangrenous necrosis (Gangrene)

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**Dry gangrene of the lower limb**  
← **Line of demarcation-**



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# Dry gangrene of the lower limb

Line of demarcation



**wet gangrene of the lower  
limb  
No line of demarcation**