

# IMMUNOLOGY

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Nasal polyp  
Bronchial asthma  
Acute rejection (kidney)  
Lupus nephritis  
Scleroderma



## Nasal polyp



mainly middle aged pts

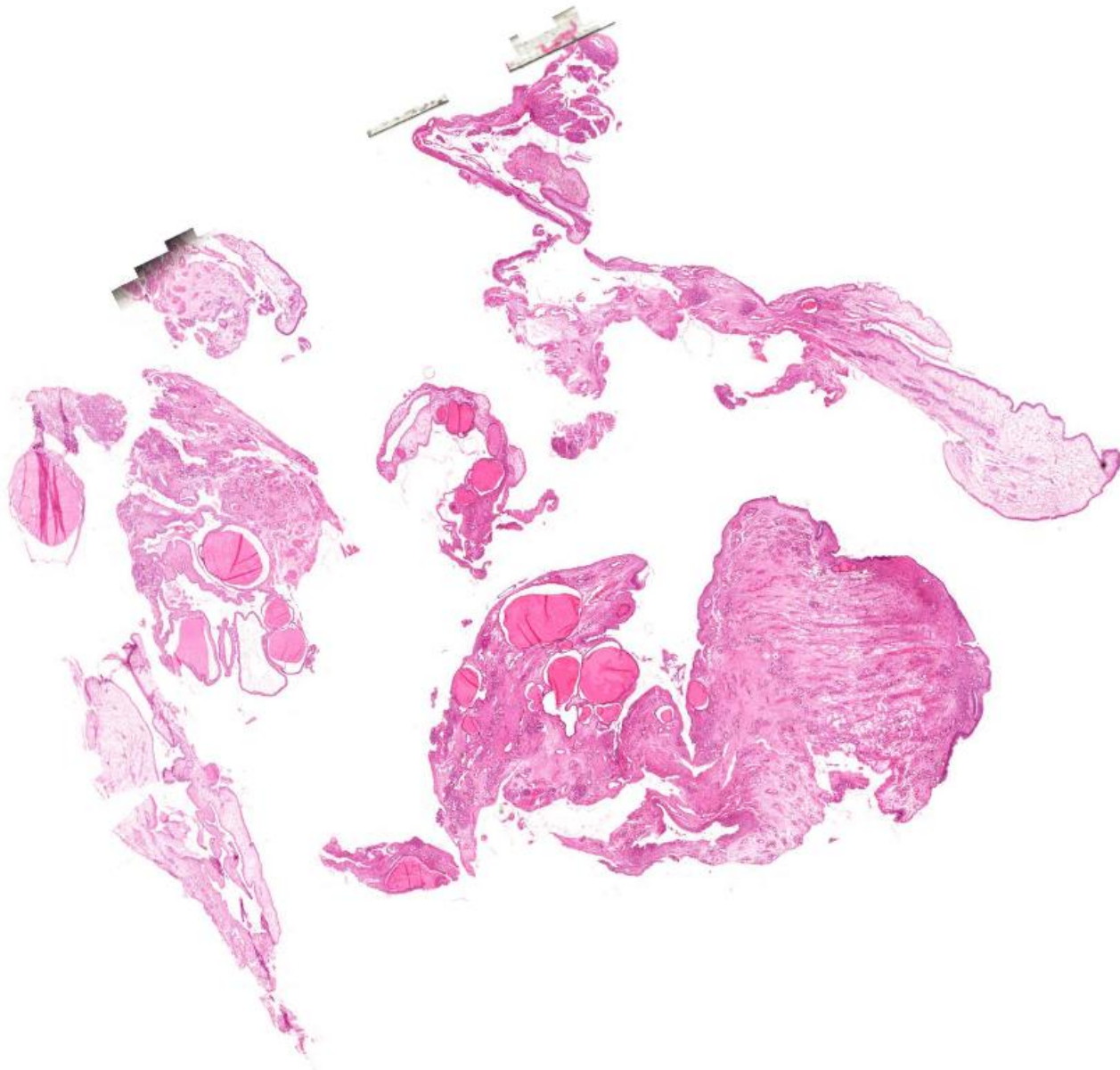
### Etiology:

Chr. sinusitis, aspirin-intolerancy

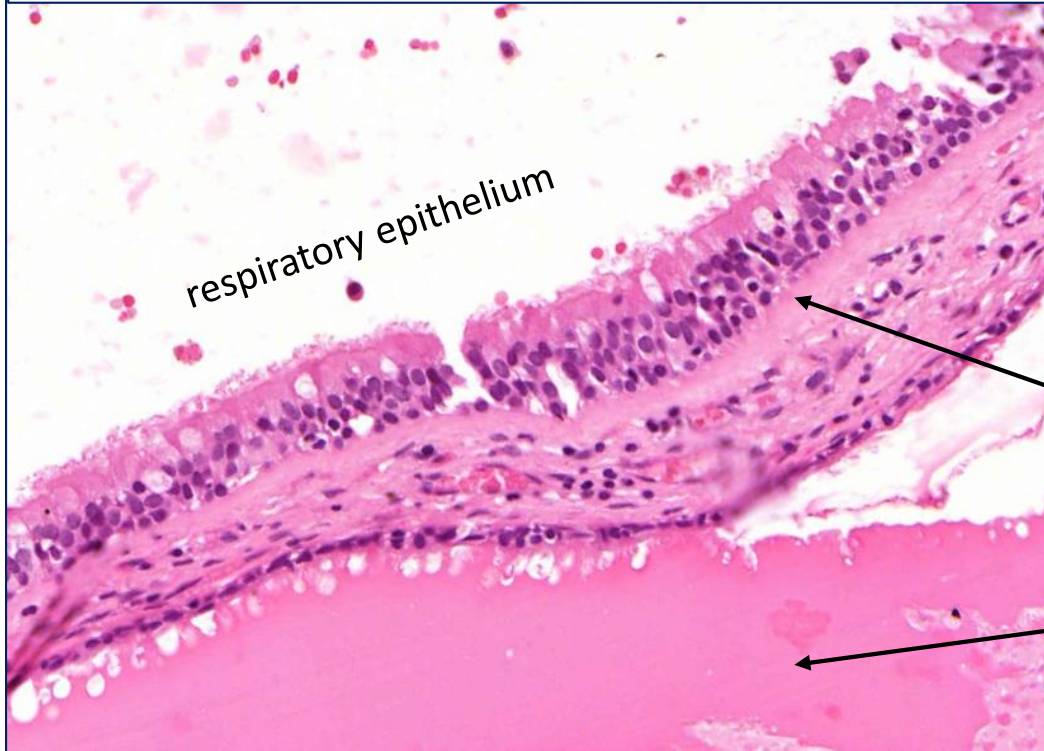
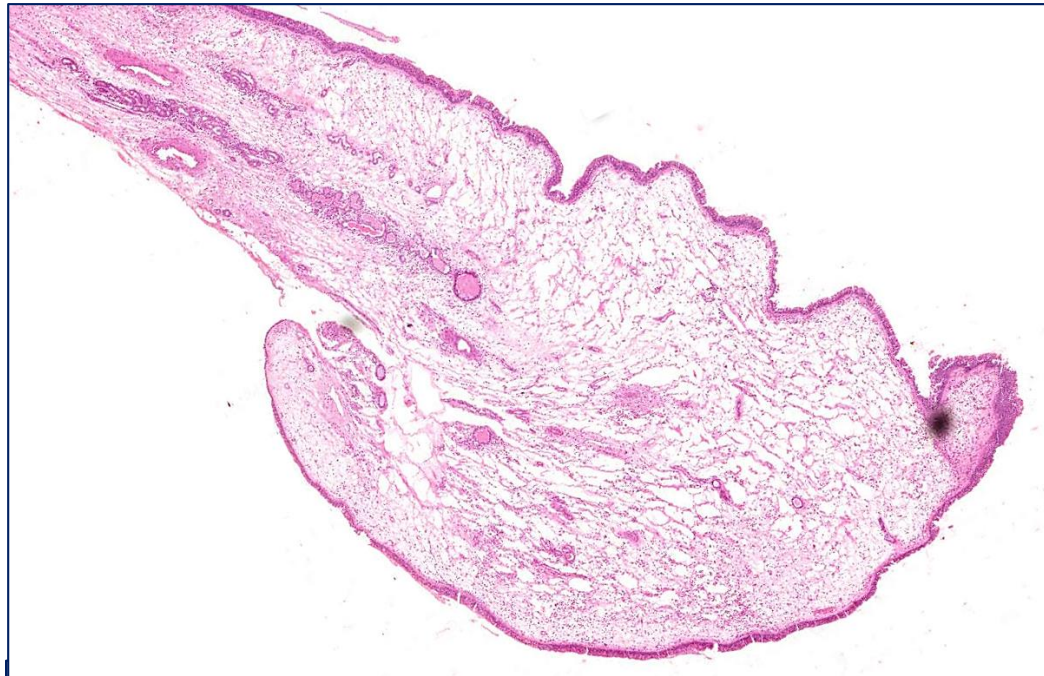
(allergic background is rare)

Up to 16 years: cystic fibrosis!

01. Polypus nasi (HE)





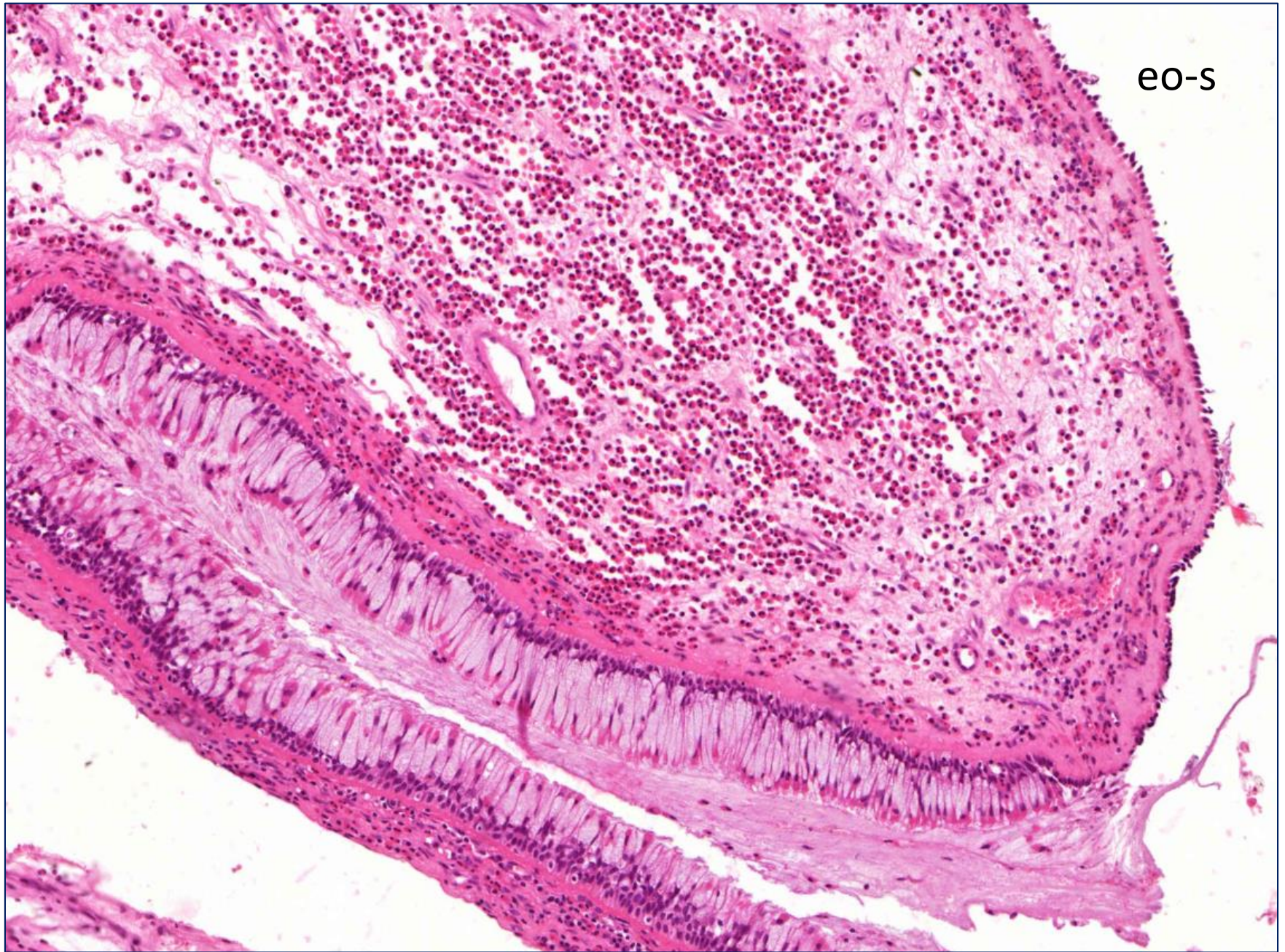


respiratory epithelium

thickened BM

mucus





eo-s

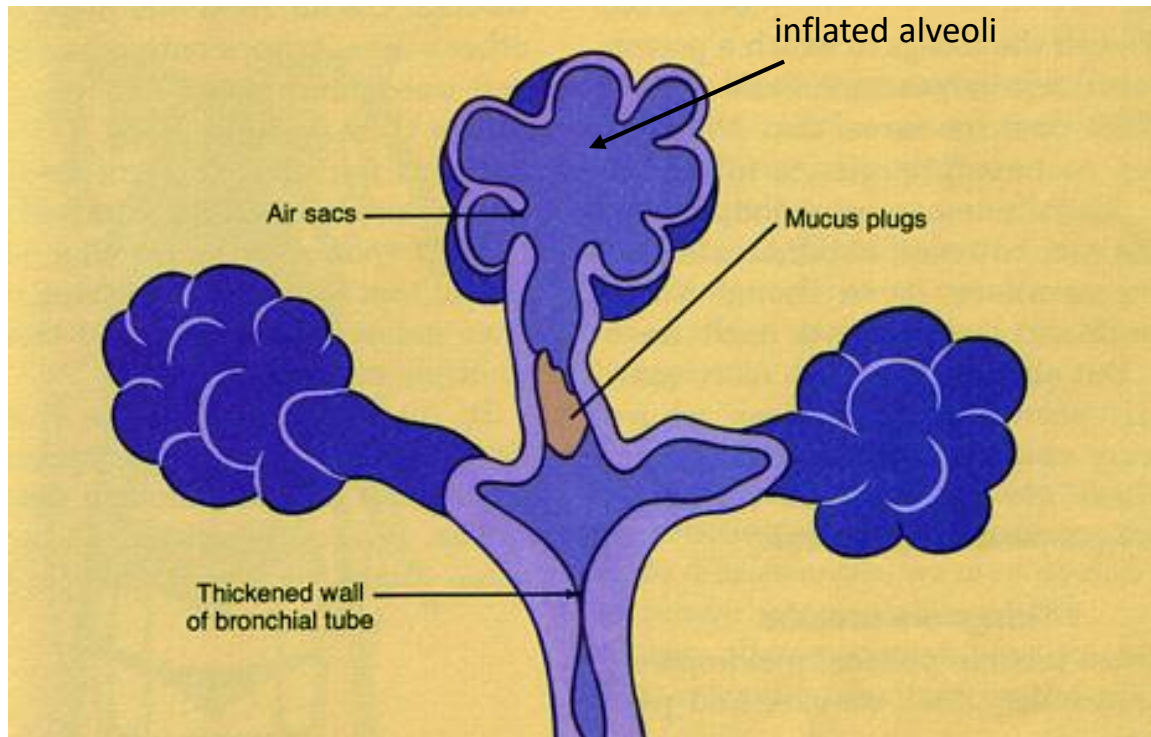


# Bronchial asthma

Type I hypersensitivity - powerful bronchial hyperreactivity

Reversible bronchial obstruction - (long, strained expiration)

- bronchoconstriction
- mucosal edema, eosinophils
- thick, ropy mucus plug

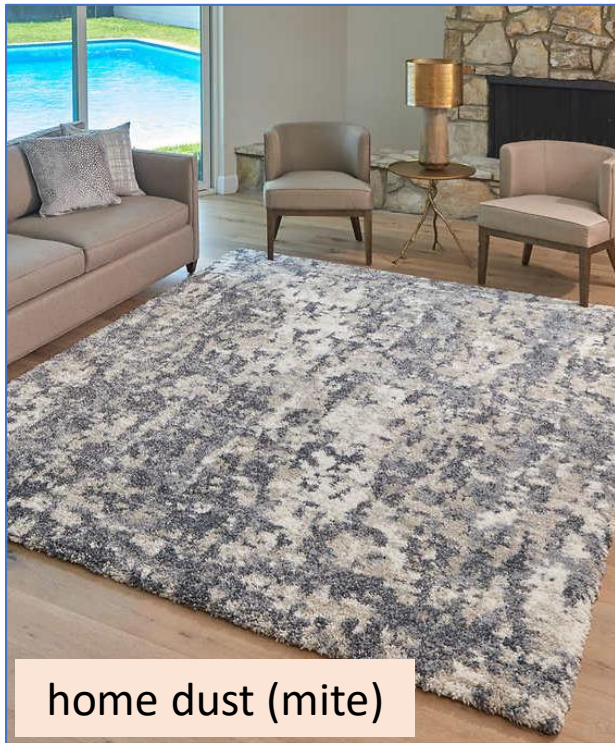




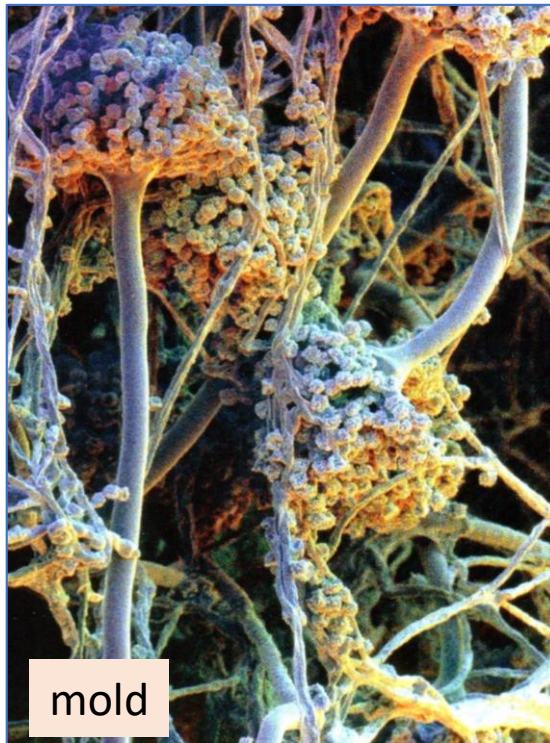
pollen



animal fur



home dust (mite)

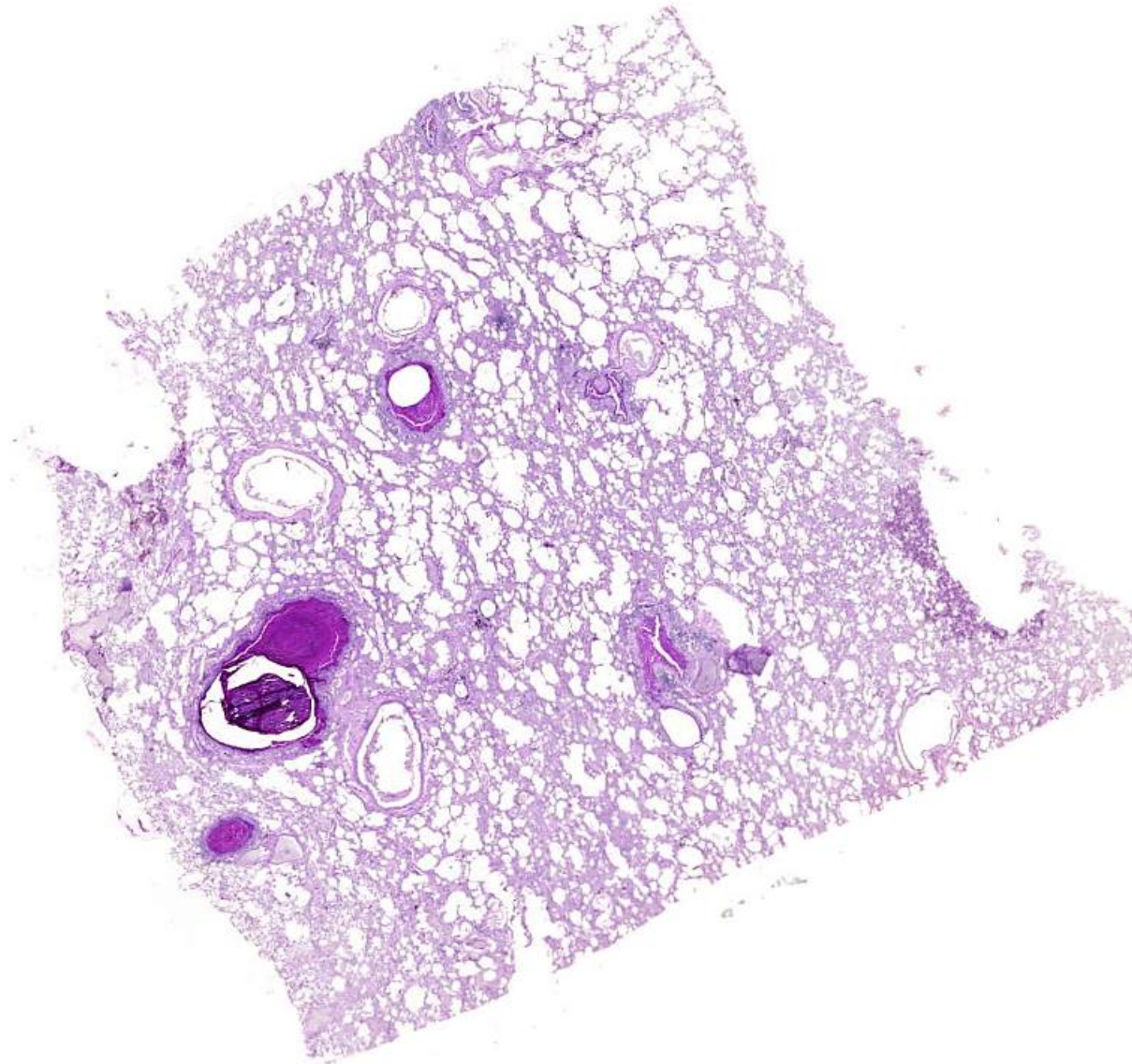


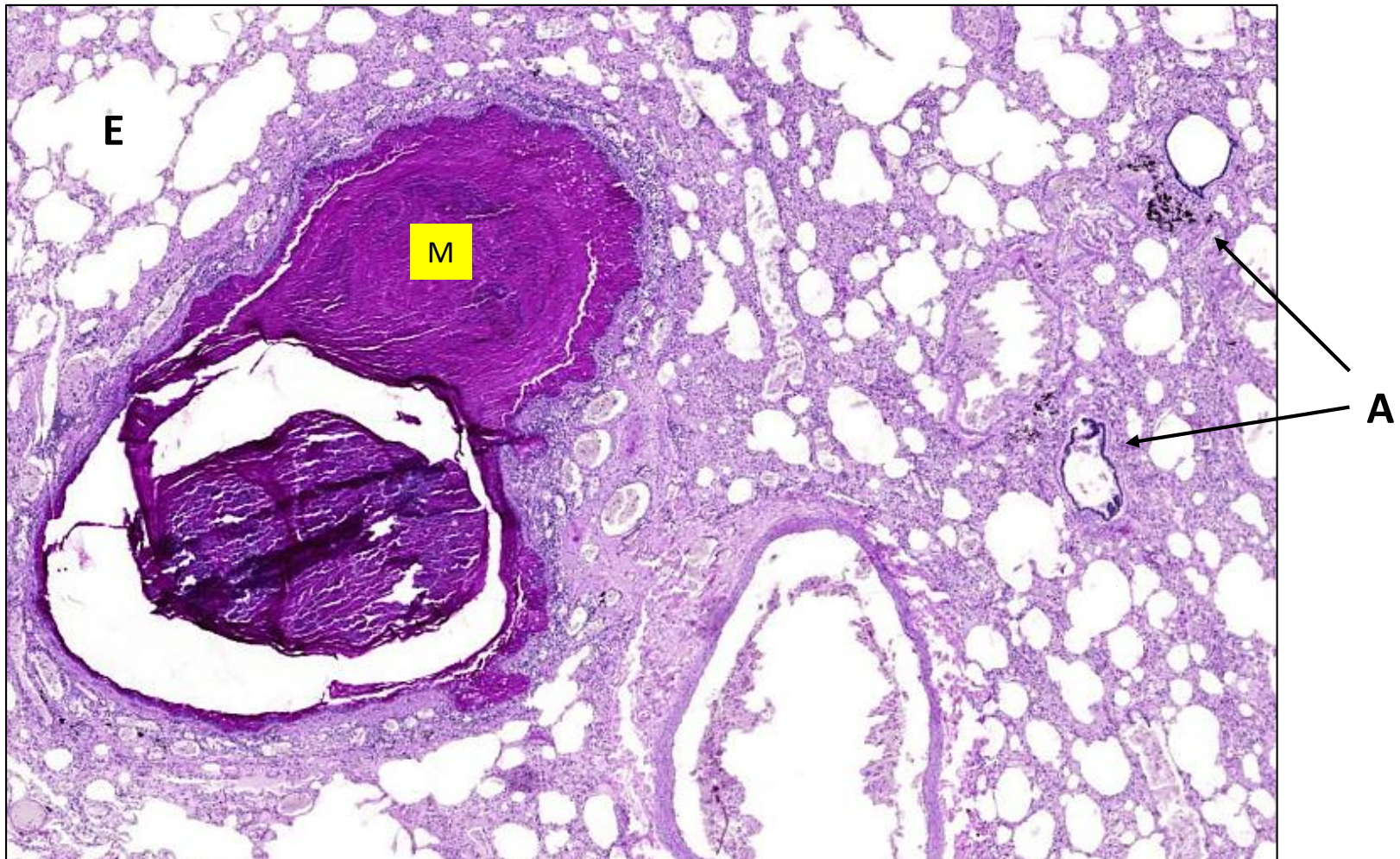
mold





02. Asthma bronchiale (PAS)

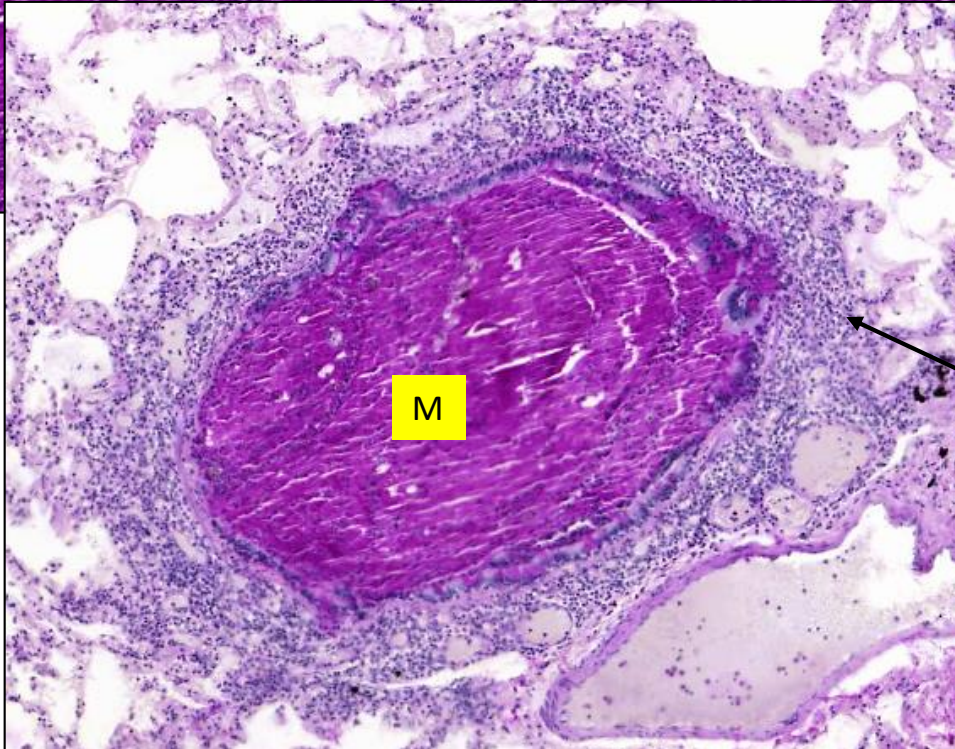
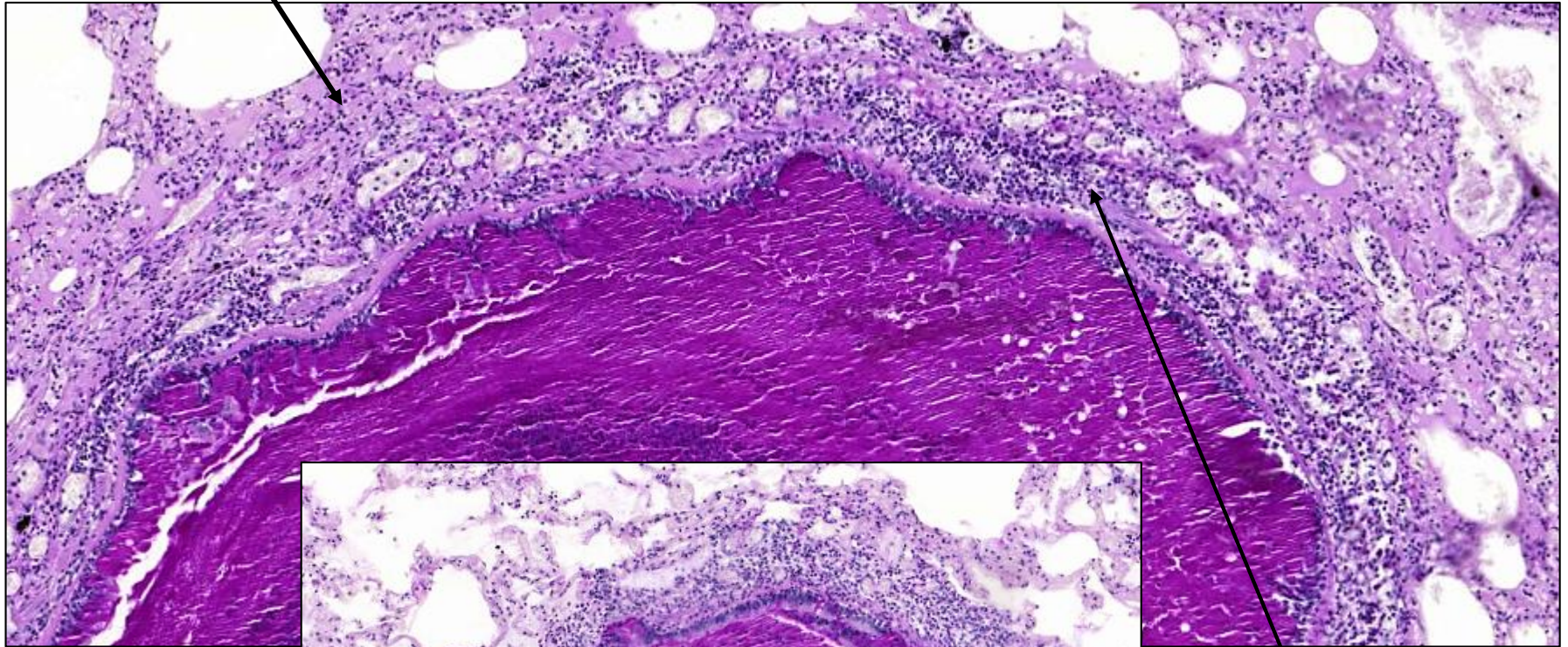




E - emphysema  
A - anthracosis  
M - mucus plug



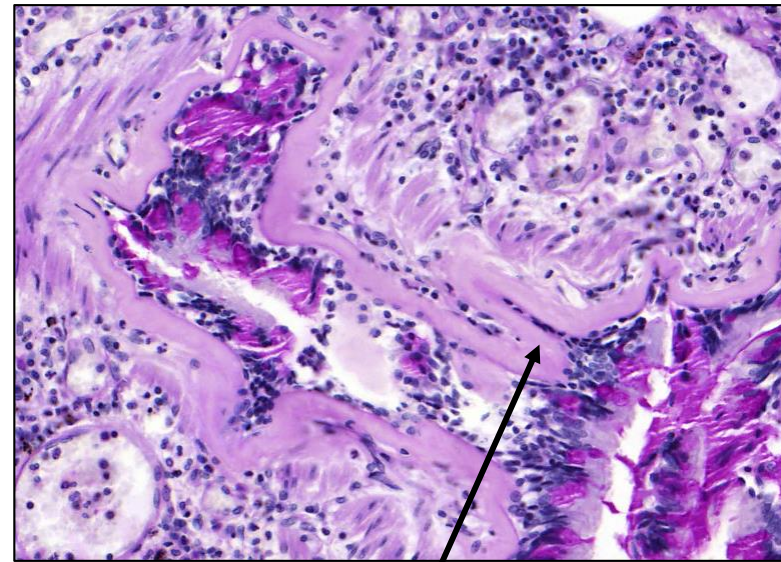
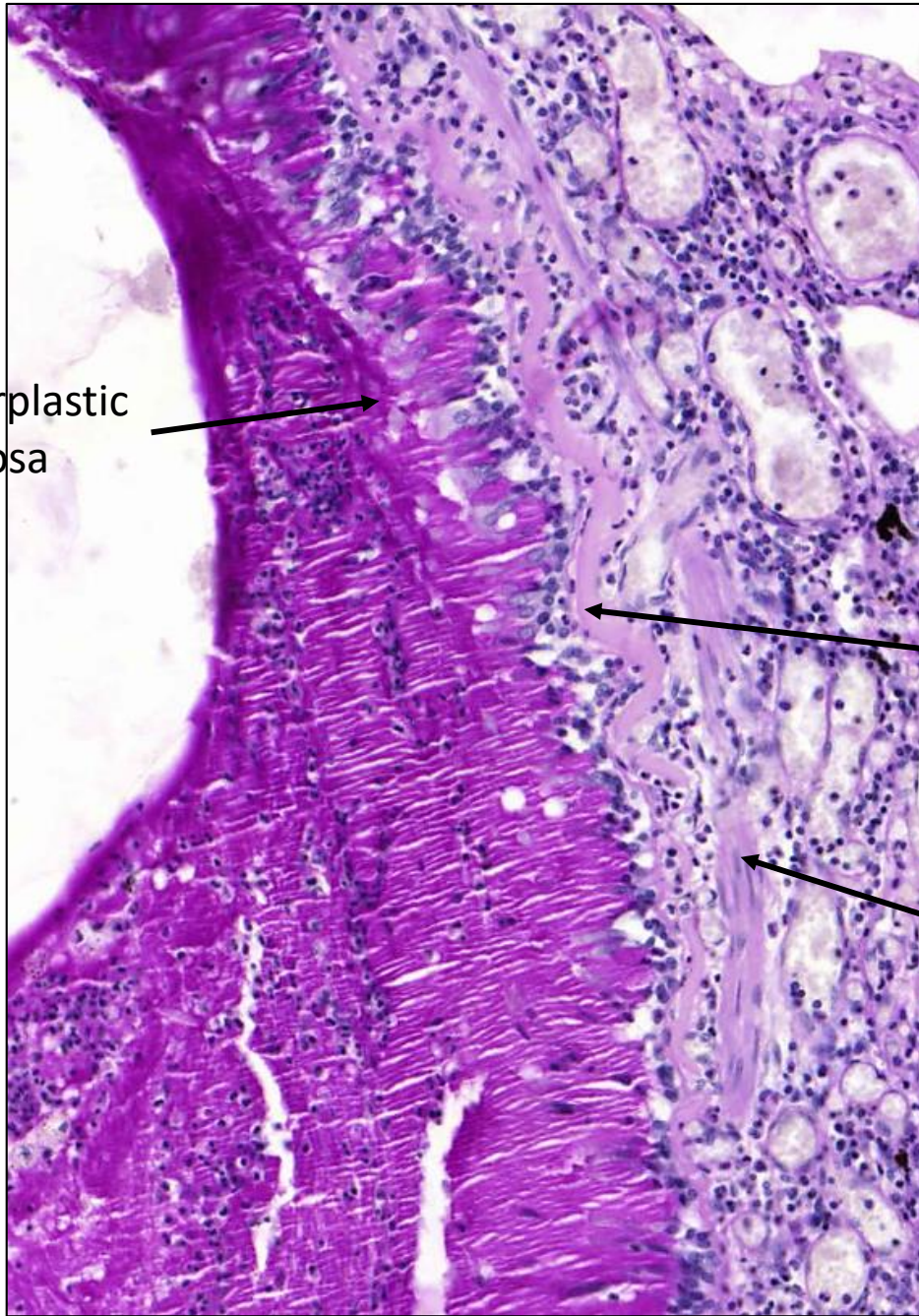
Hypervascularized submucosa



lympho-plasmocytic  
infiltration



Hyperplastic  
mucosa

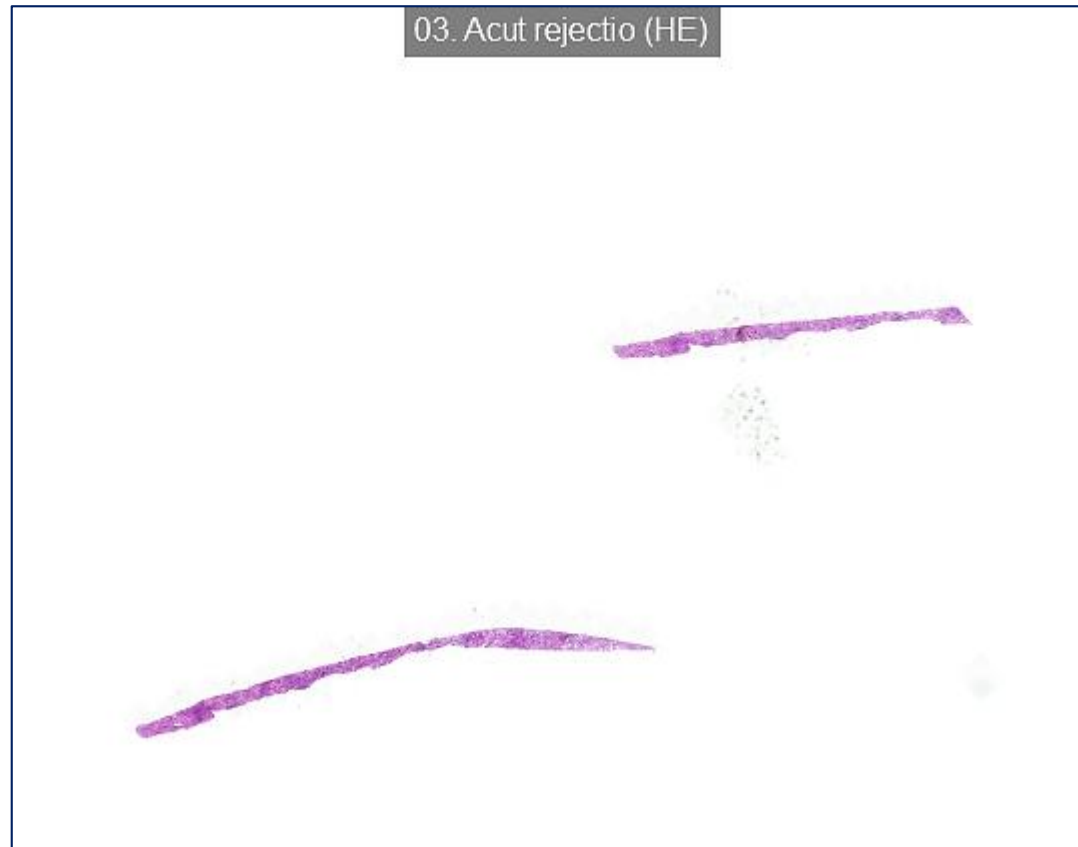


thickened basement  
membrane

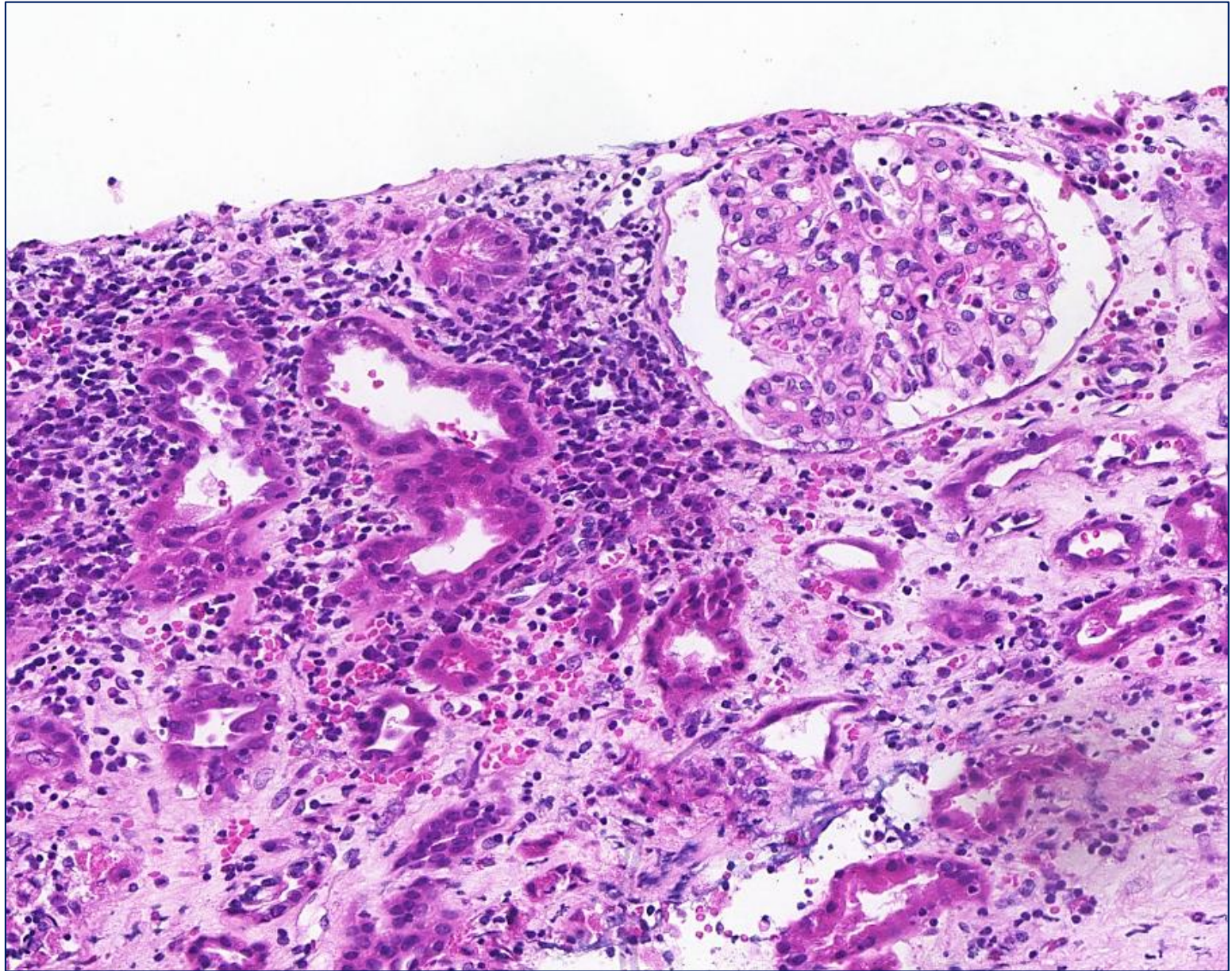
smooth muscle  
hypertrophy



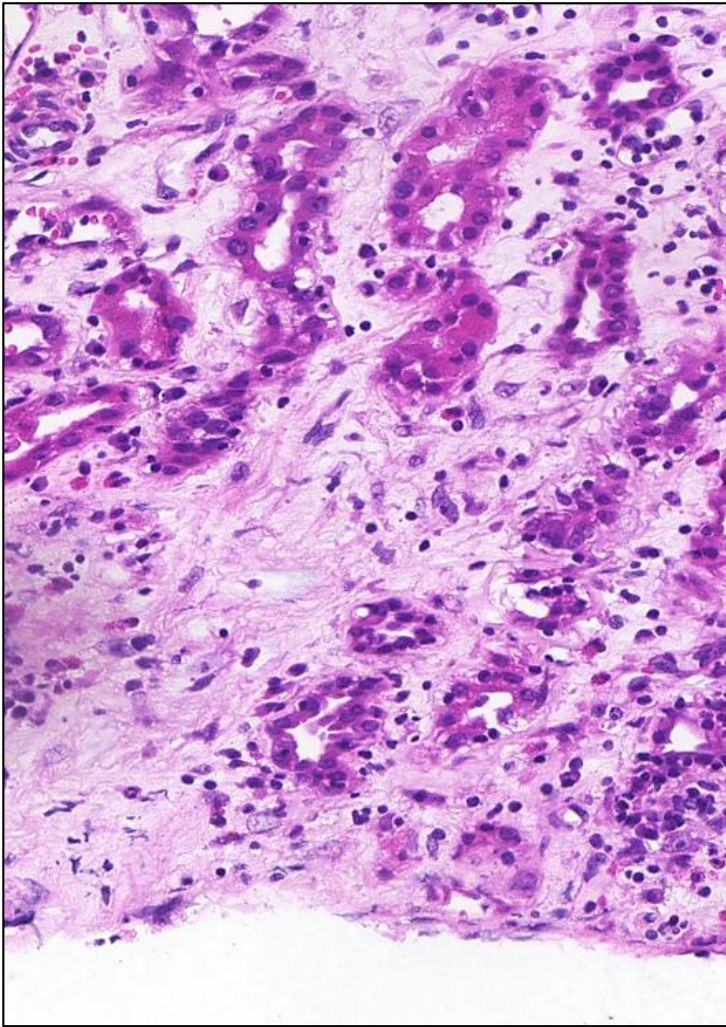
## Acute renal transplant rejection



Mismatch between the donor and the recipient HLA-alleles  
T4 –T8 lymphocytes and antibodies



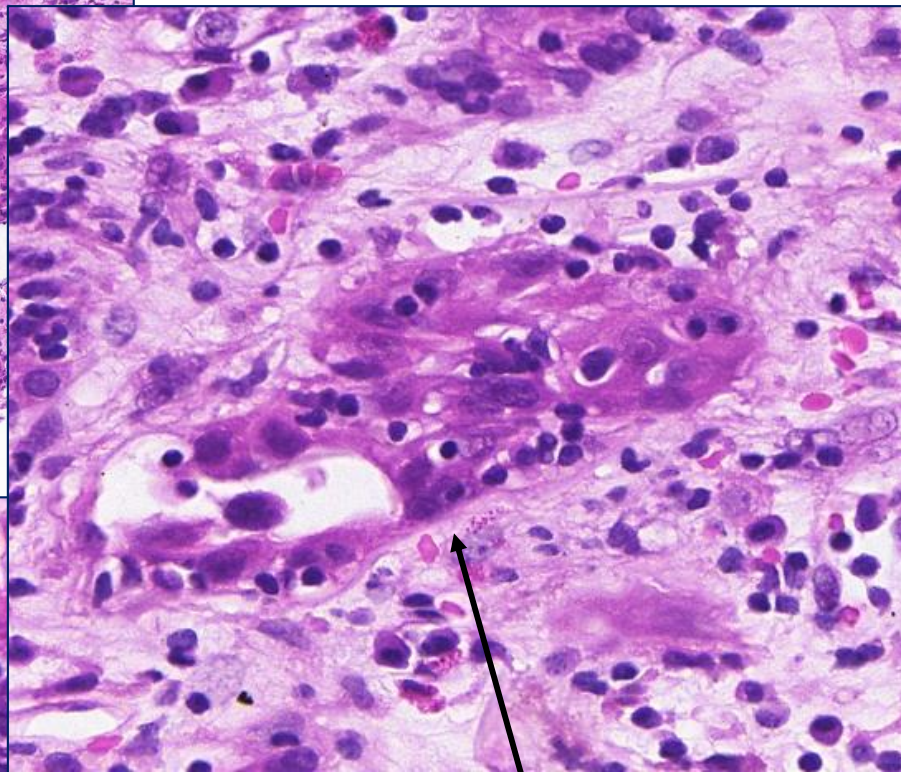
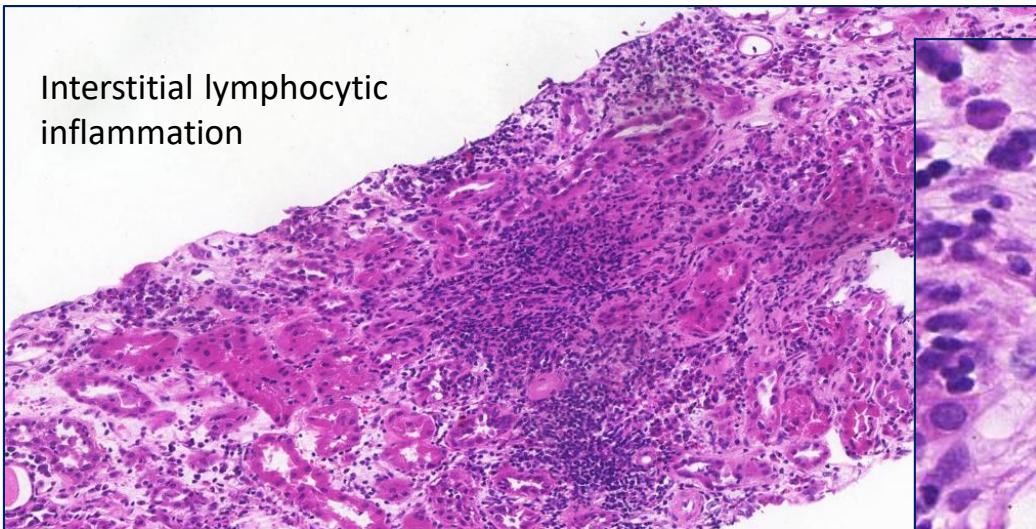




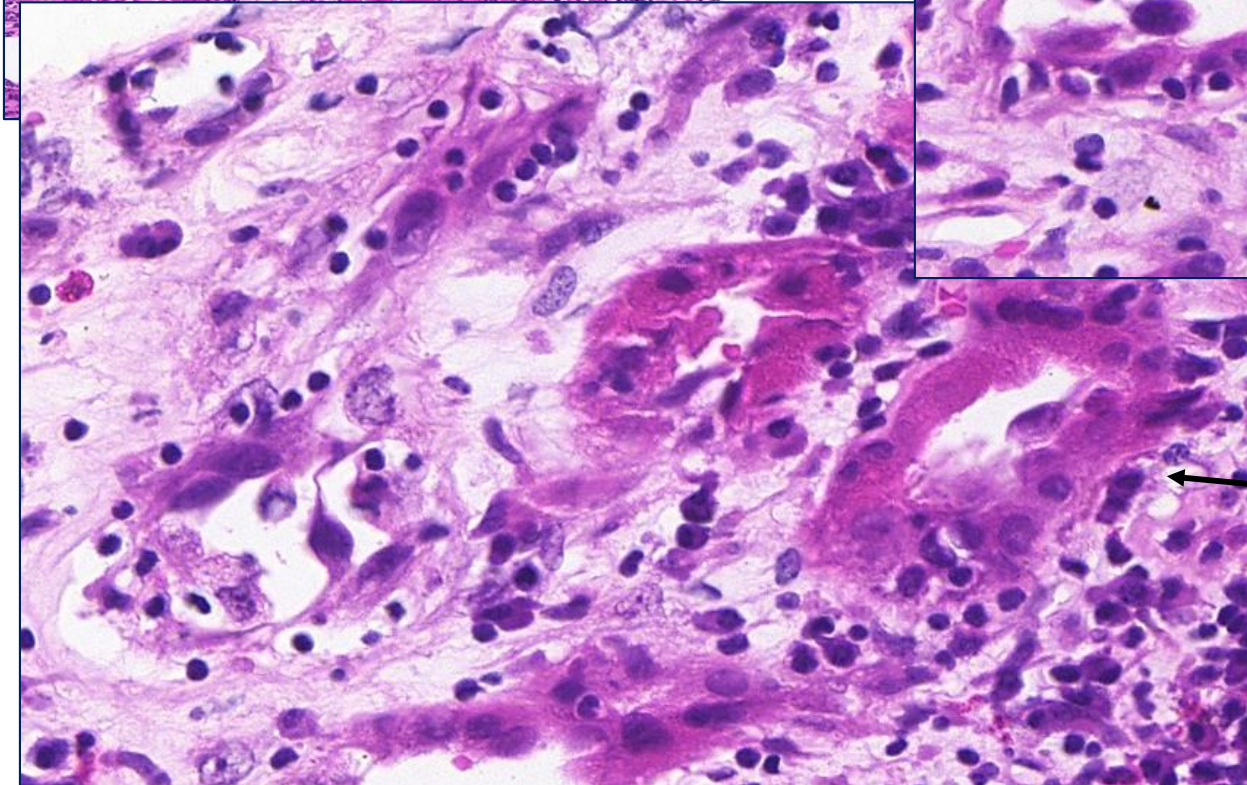
intersitital edema



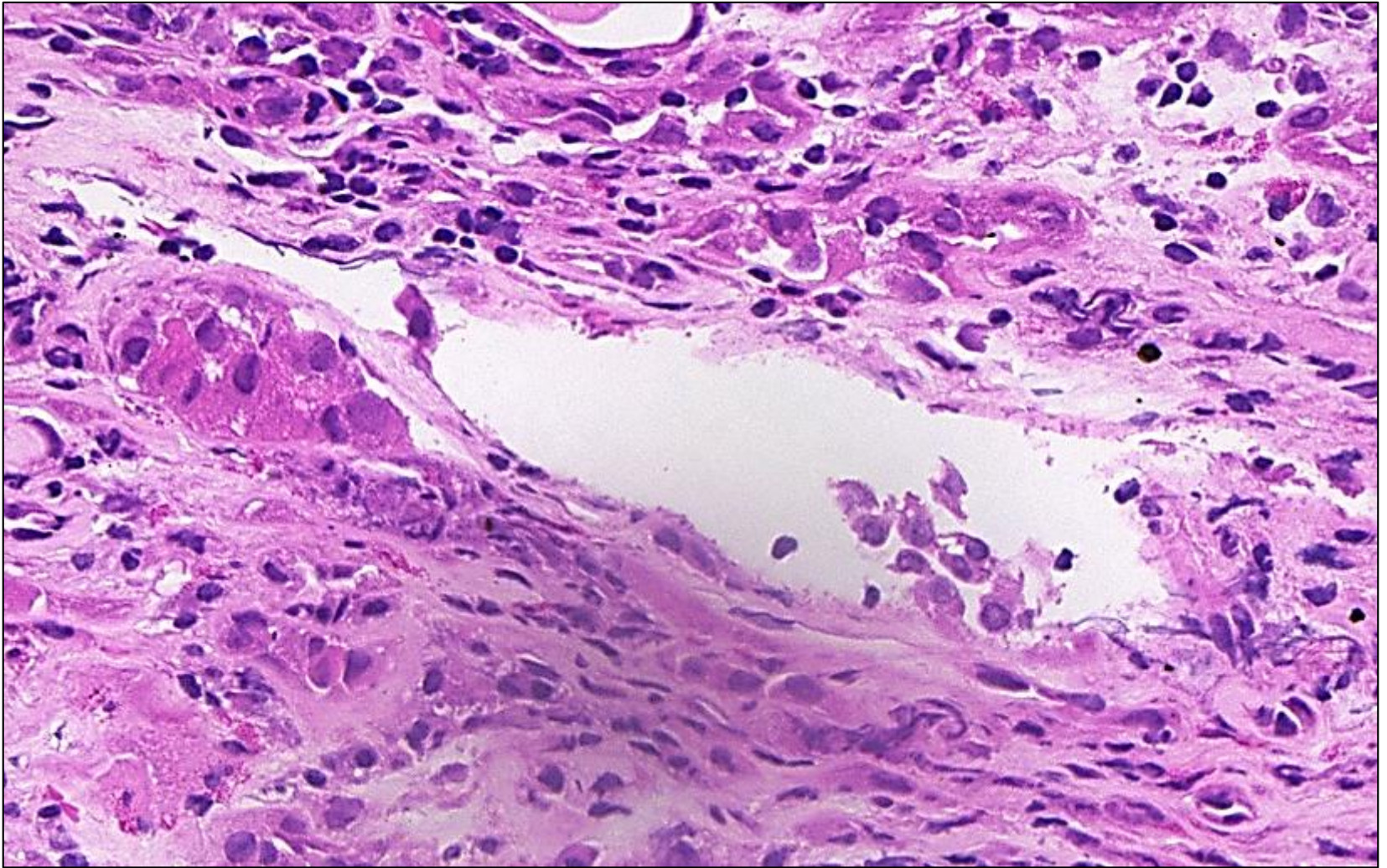
Interstitial lymphocytic  
inflammation



tubulitis,  
tubular destruction



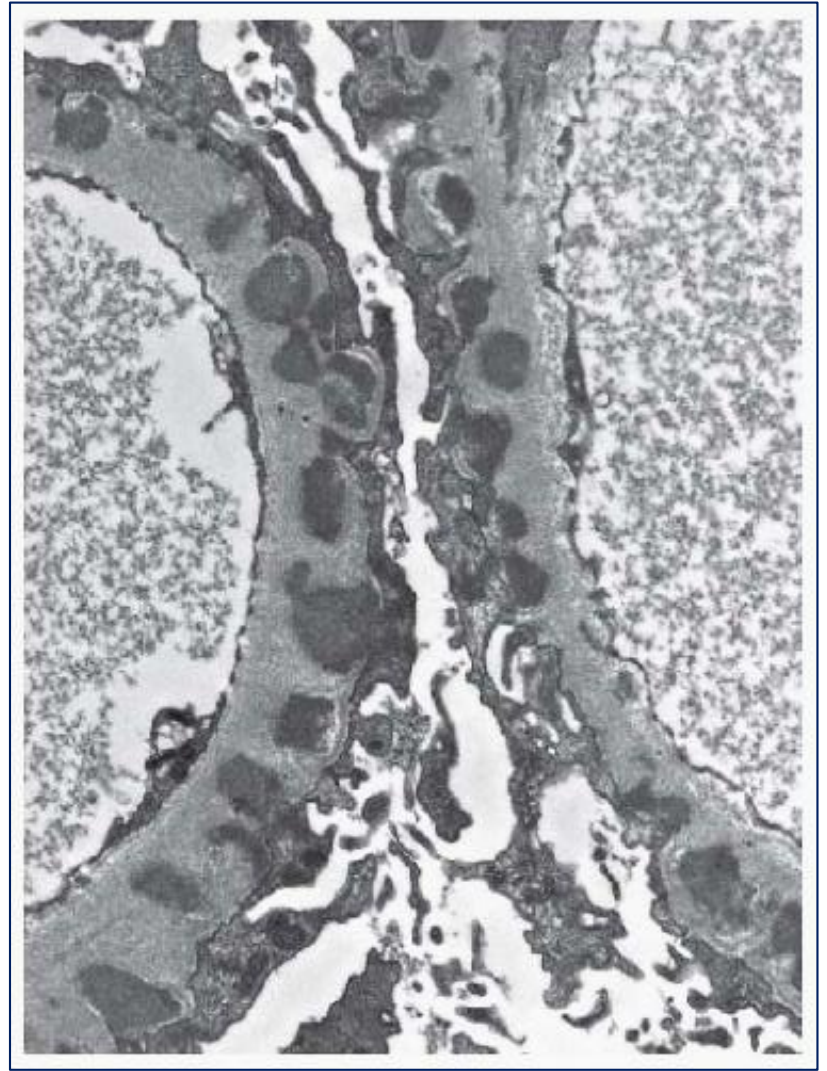
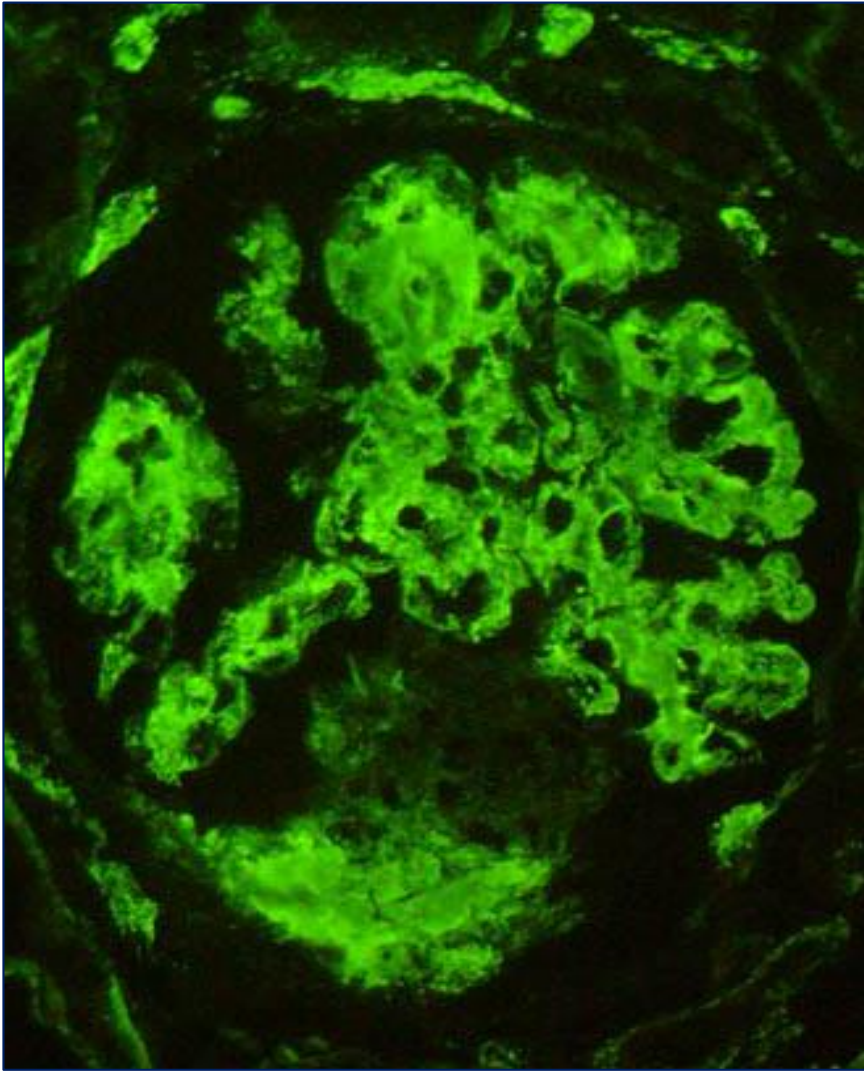




venulitis



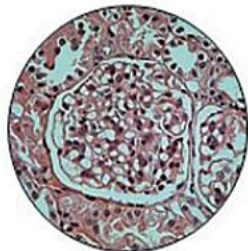
## Lupus nephritis



Immunocomplex-deposition (IF: granular - TEM: BM)



# HISTOPATHOLOGICAL CLASSIFICATION OF LUPUS NEPHRITIS



## ***Class I***

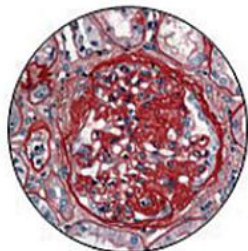
### **Minimal Mesangial Lupus Nephritis**

- Deposition of immune complexes detectable by immunofluorescence techniques.

## ***Class III***

### **Focal Lupus Nephritis**

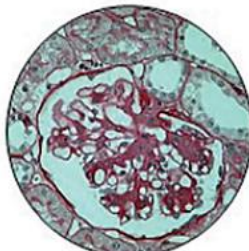
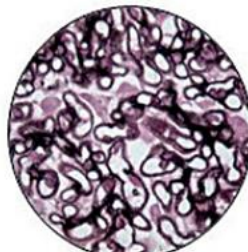
- Active or inactive focal, segmental or global endo/extracapillary glomerulonephritis involving <50% of all glomeruli.
- Manifestations include active lesions (A), chronic inactive lesions (C) or active and chronic lesions (A/C)



## ***Class V***

### **Membranous Lupus Nephritis**

- Global or segmental subepithelial immune deposition or their morphologic sequelae detectable by light, immunofluorescence or electron microscopy, with or without mesangial alterations.
- It can occur in combination with class III or IV and it can manifest advanced sclerosis.



## ***Class II***

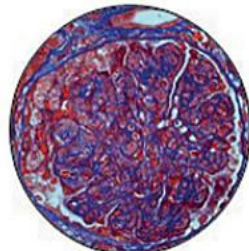
### **Mesangial Proliferative Lupus Nephritis**

- Mesangial hypercellularity of any degree or mesangial matrix expansion with immune deposits detectable by light microscopy.

## ***Class IV***

### **Diffuse Lupus Nephritis**

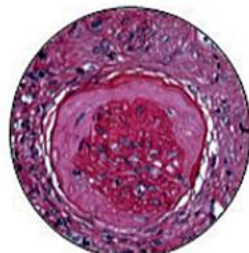
- Active or inactive diffuse, segmental or global endo/extracapillary glomerulonephritis involving ≥50% of all glomeruli. Subendothelial diffuse immune deposits, with or without mesangial alterations, are common.
- This class is also divided in: diffuse segmental (IV-S), when ≥ 50% of the involved glomeruli have segmental lesions, and diffuse global (IV-G), when ≥ 50% of the involved glomeruli have global lesions.
- It can also manifest A, C or A/C lesions.



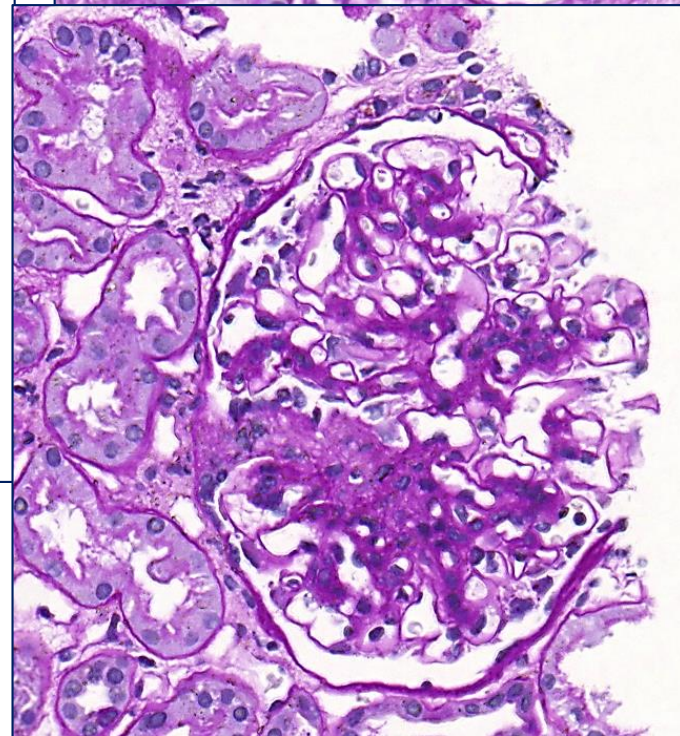
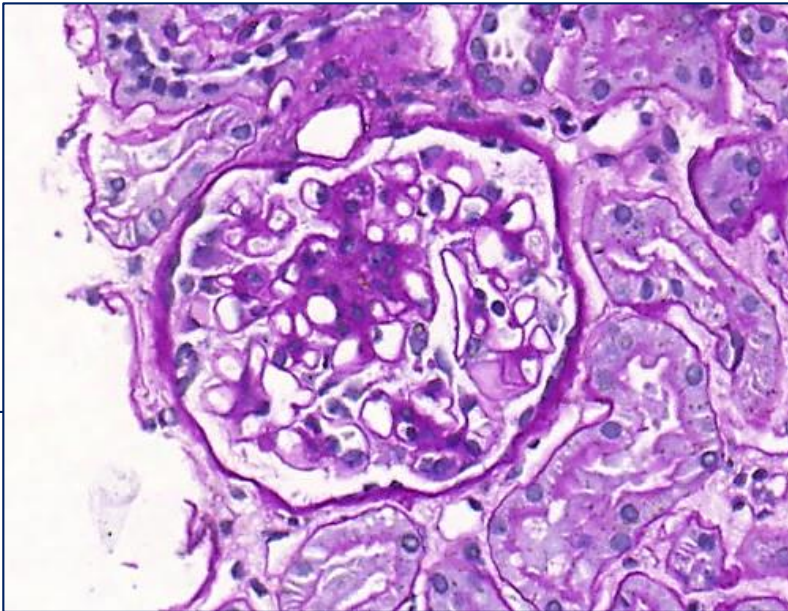
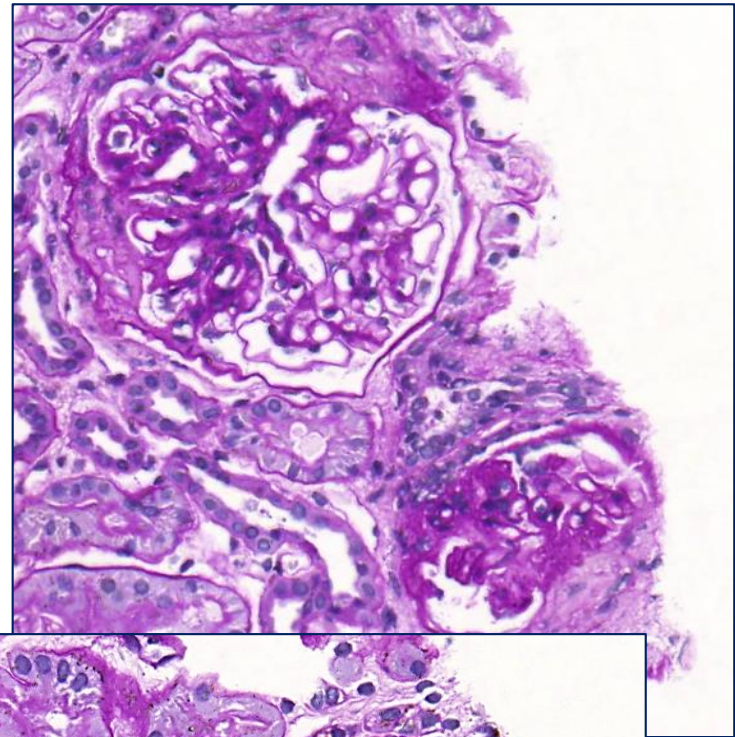
## ***Class VI***

### **Advanced Sclerosis Lupus Nephritis**

- Lupus Nephritis with terminal prognosis.
- 90% of the glomeruli in global sclerosis.

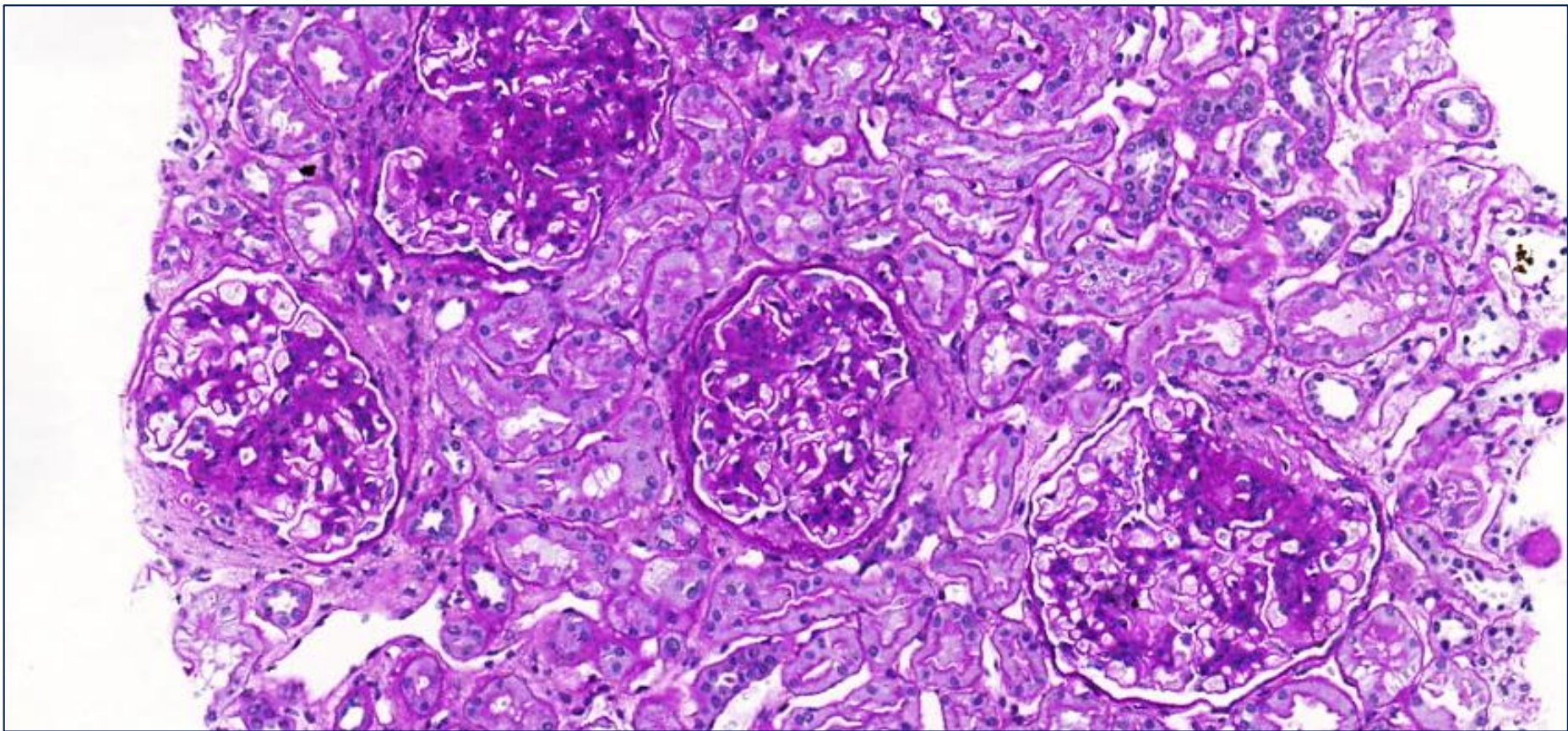


04. Lupus nephritis (PAS)



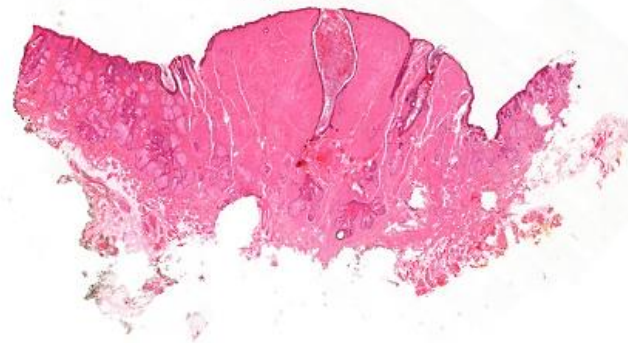
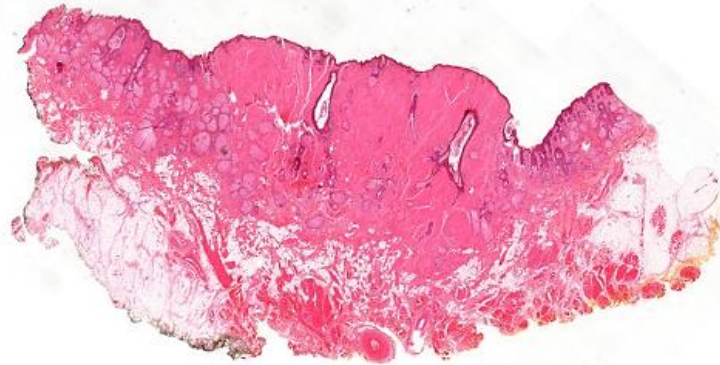
wire-loop lesion





# Scleroderma

05. Scleroderma (HE)

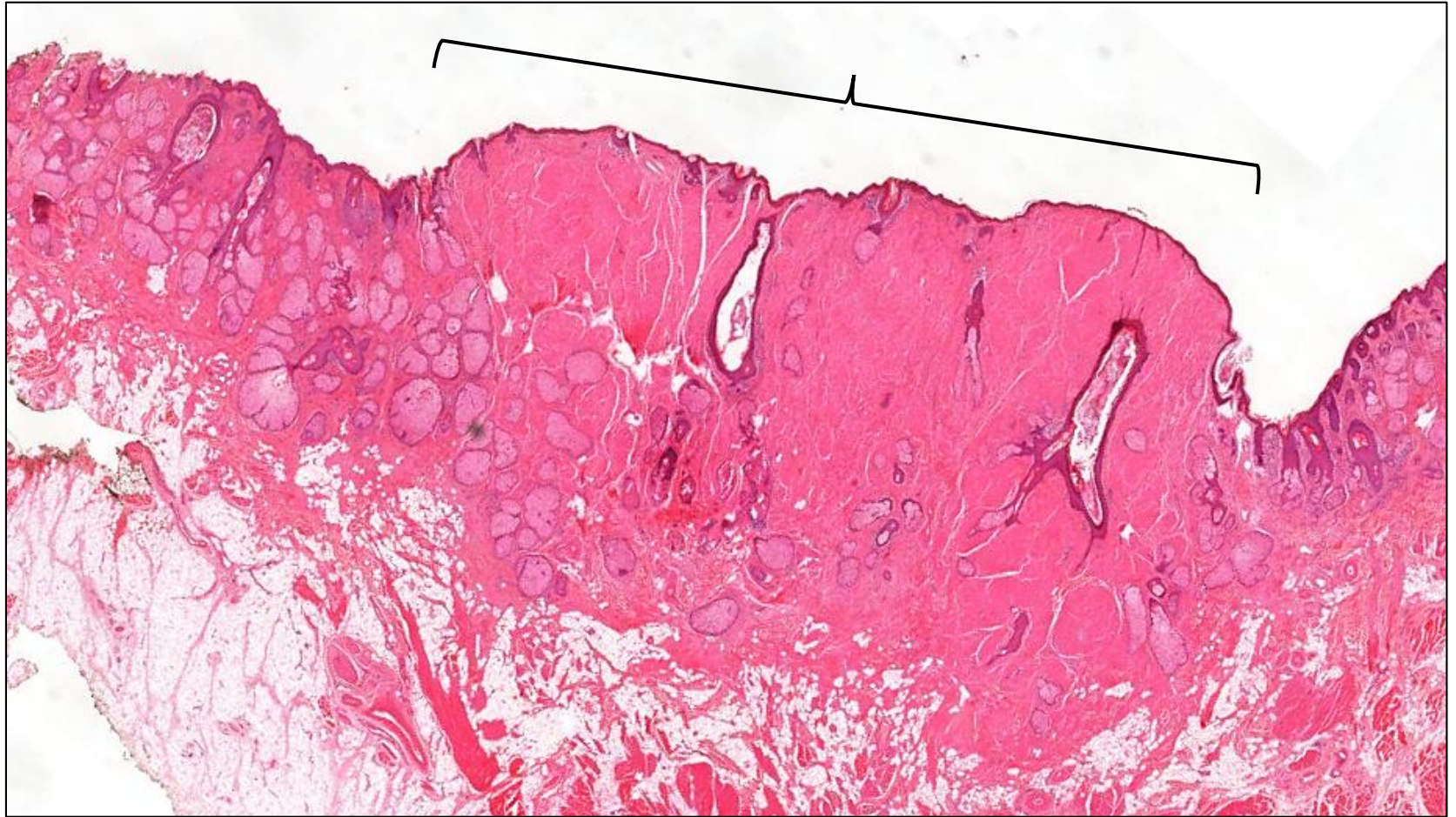


systemic sclerosis vs. scleroderma



# Scleroderma







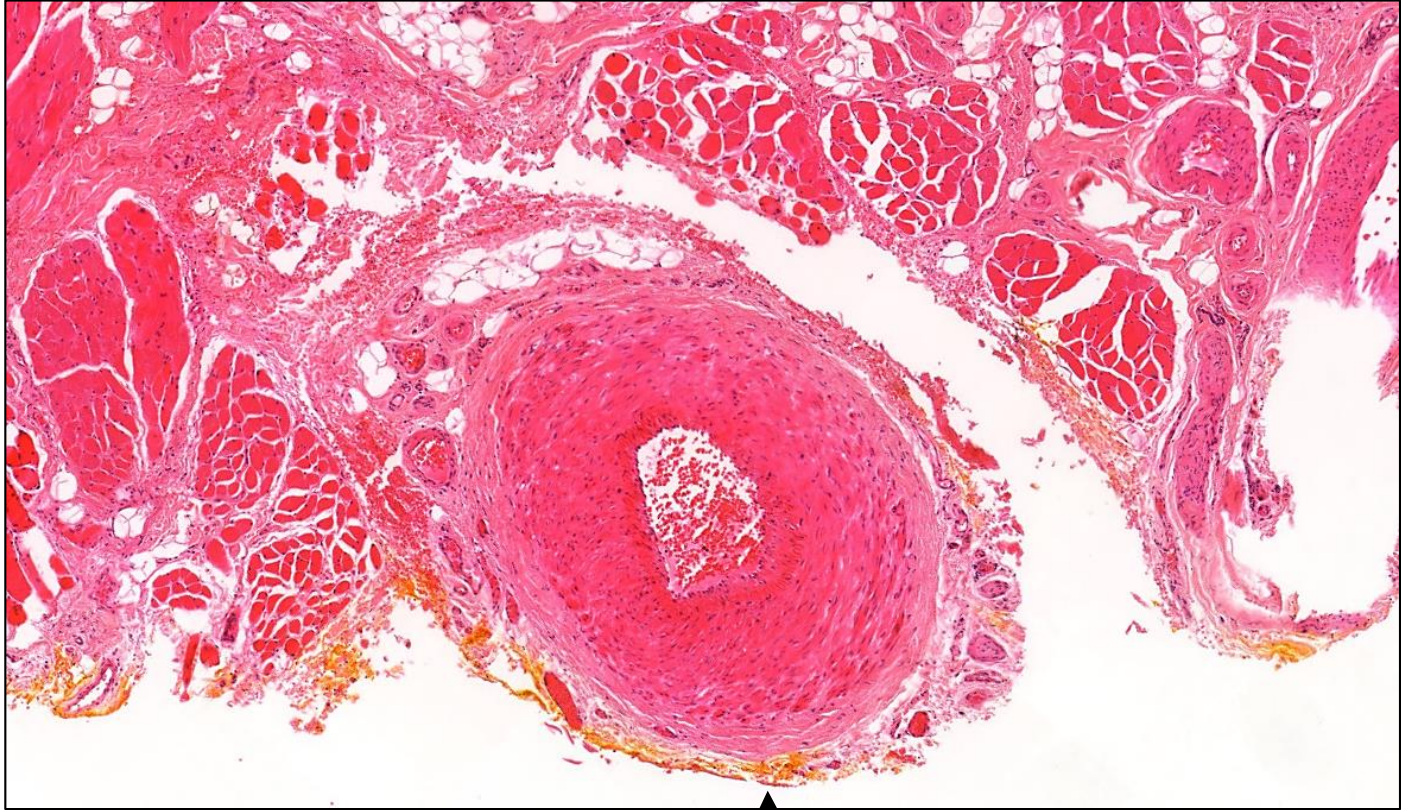
atrophic epidermis

massive  
collagen  
deposition

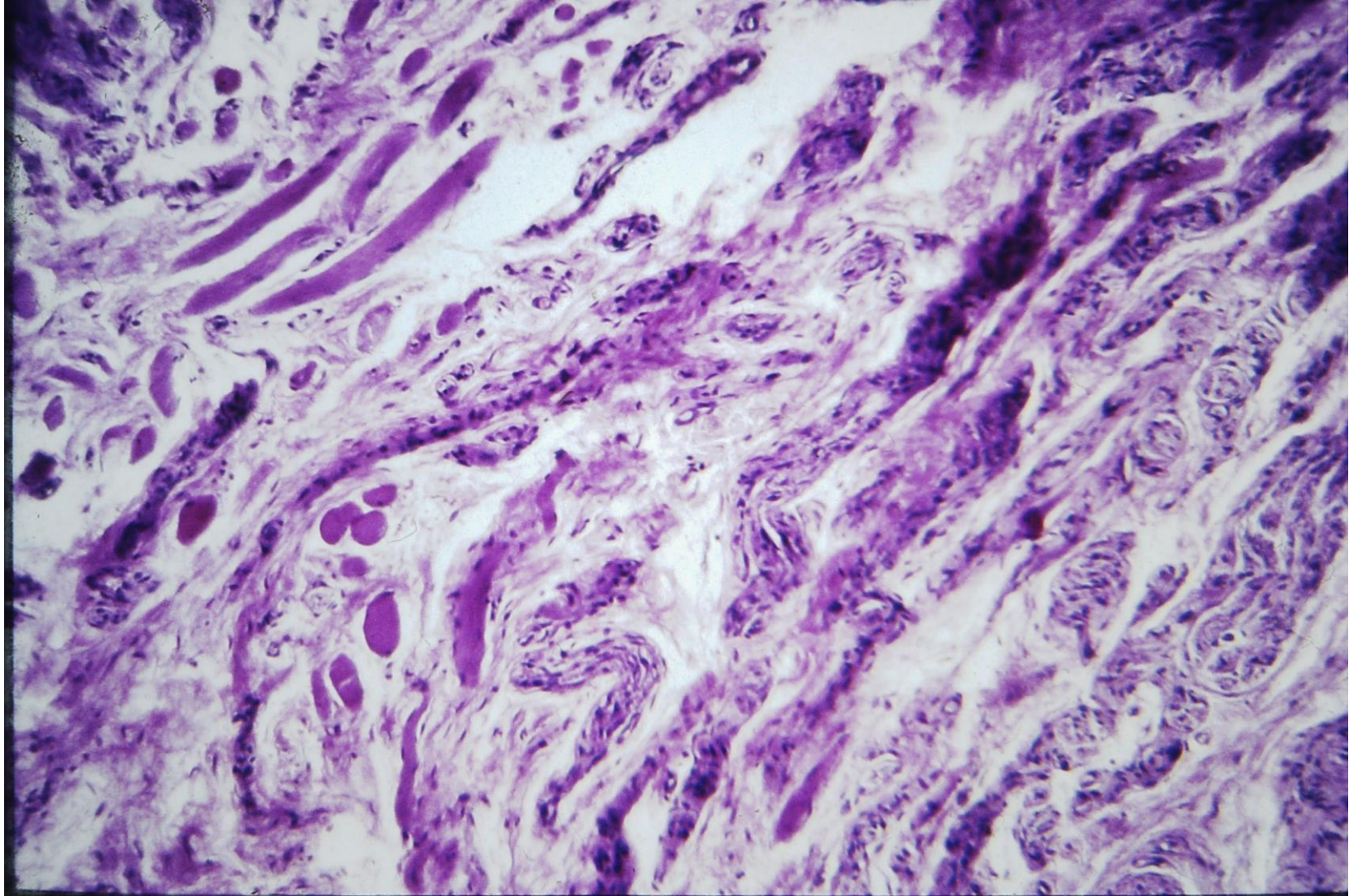
normal  
sebaceous  
glands













## International Society of Nephrology (ISN)/Renal Pathology Society (RPS) classification of lupus nephritis 2004

CLASS	
I	Minimal mesangial lupus nephritis least common
II	Mesangial proliferative lupus nephritis
III	Focal lupus nephritis (<50% of glomeruli)
III (A)	Active lesions
III (A/C)	Active and chronic lesions
III (C)	Chronic lesions
IV	Diffuse lupus nephritis (=50% of glomeruli) most common
IV (A)	Active lesions
IV (A/C)	Active and chronic lesions
IV (C)	Chronic lesions
V	Membranous lupus nephritis
VI	Advanced sclerosing lupus nephritis (=90% globally sclerosed glomeruli without residual activity)

Aktiválja

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