Pathology of Renal Transplantation

Objectives:

- Recognize the concept of renal allograft.
- Describe the pathology of rejection
- Differentiate between acute and chronic rejection.
- Recognize the principal infections inherent to renal transplantation.
- Recognize acute and chronic drug toxicity.

Renal transplantation
Note the two end-stage native kidneys in normal position, the atrophic first donor kidney (lower left), and the larger second donor kidney (lower right).

The Banff classification:diagnostic categories

- Normal
- Hyperacute Rejection
- Borderline changes(“very mild acute rejection”)
- Acute Rejection(Tcell, Antibody-mediated)
- Chronic Rejection
- Others


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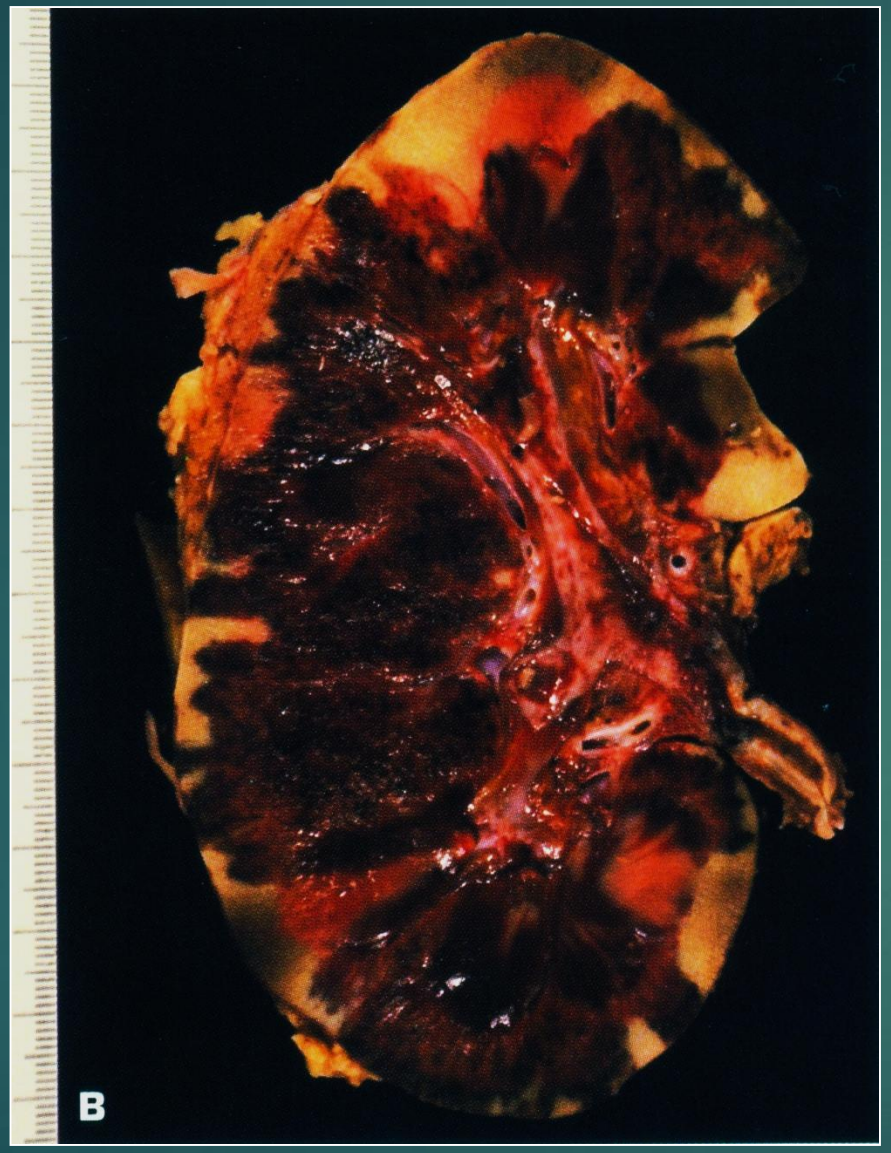
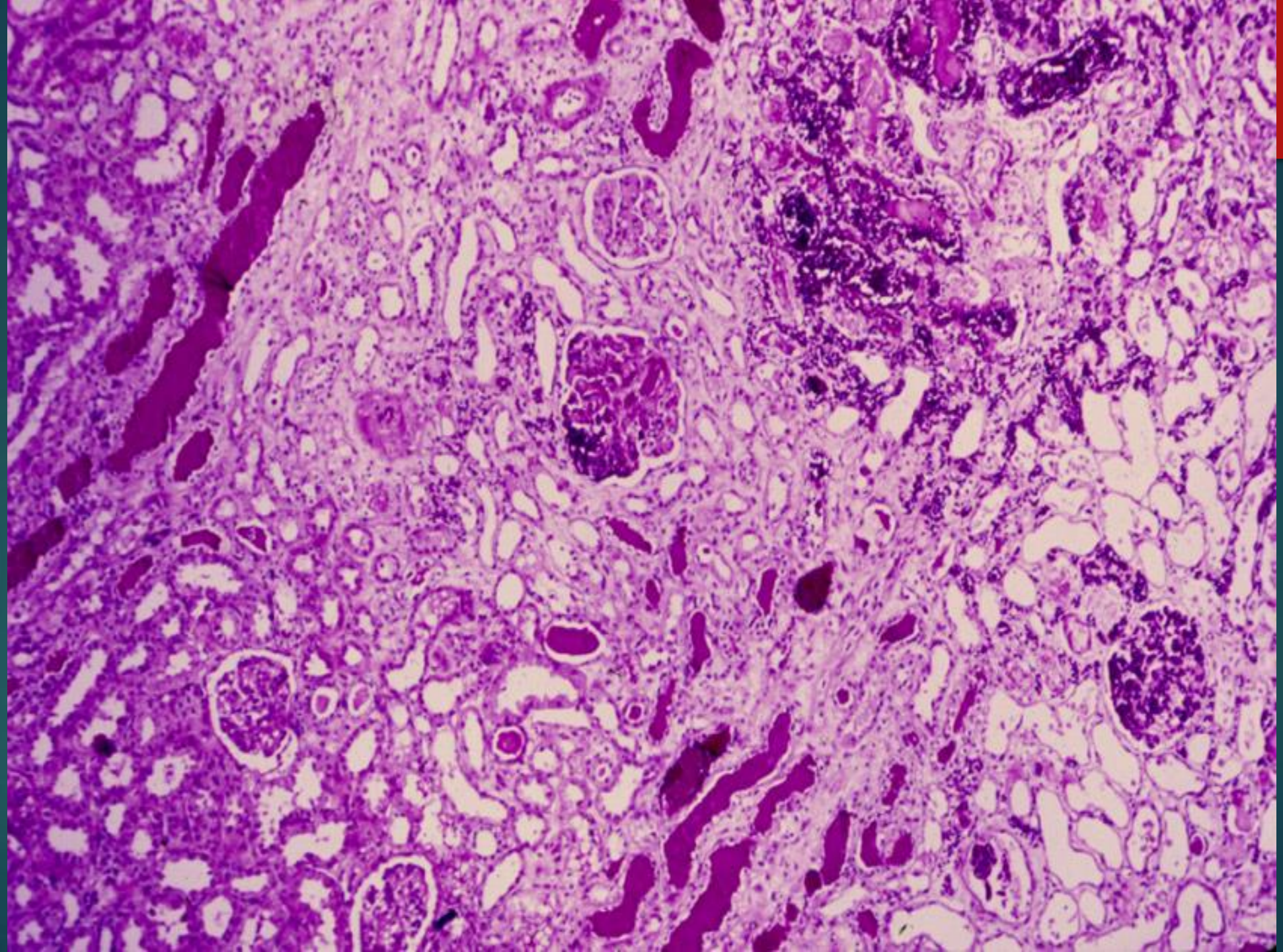


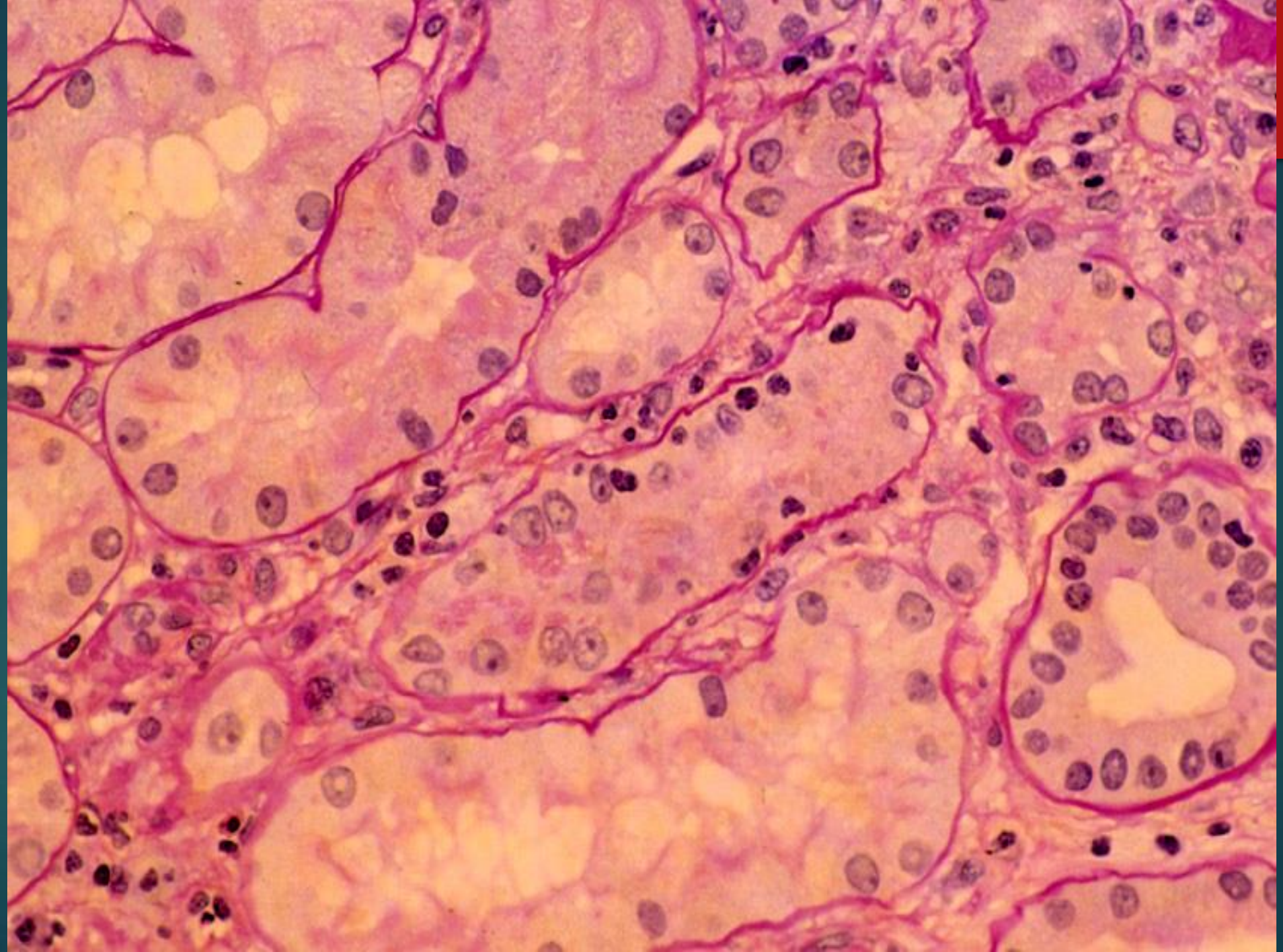
Subtotal renal infarction due to **hyperacute (antibody-mediated) rejection.**



Severe acute rejection of donor kidney. Focal infarcts are present.

The Banff classification

- Borderline changes(Suspicious for Acute Rejection)



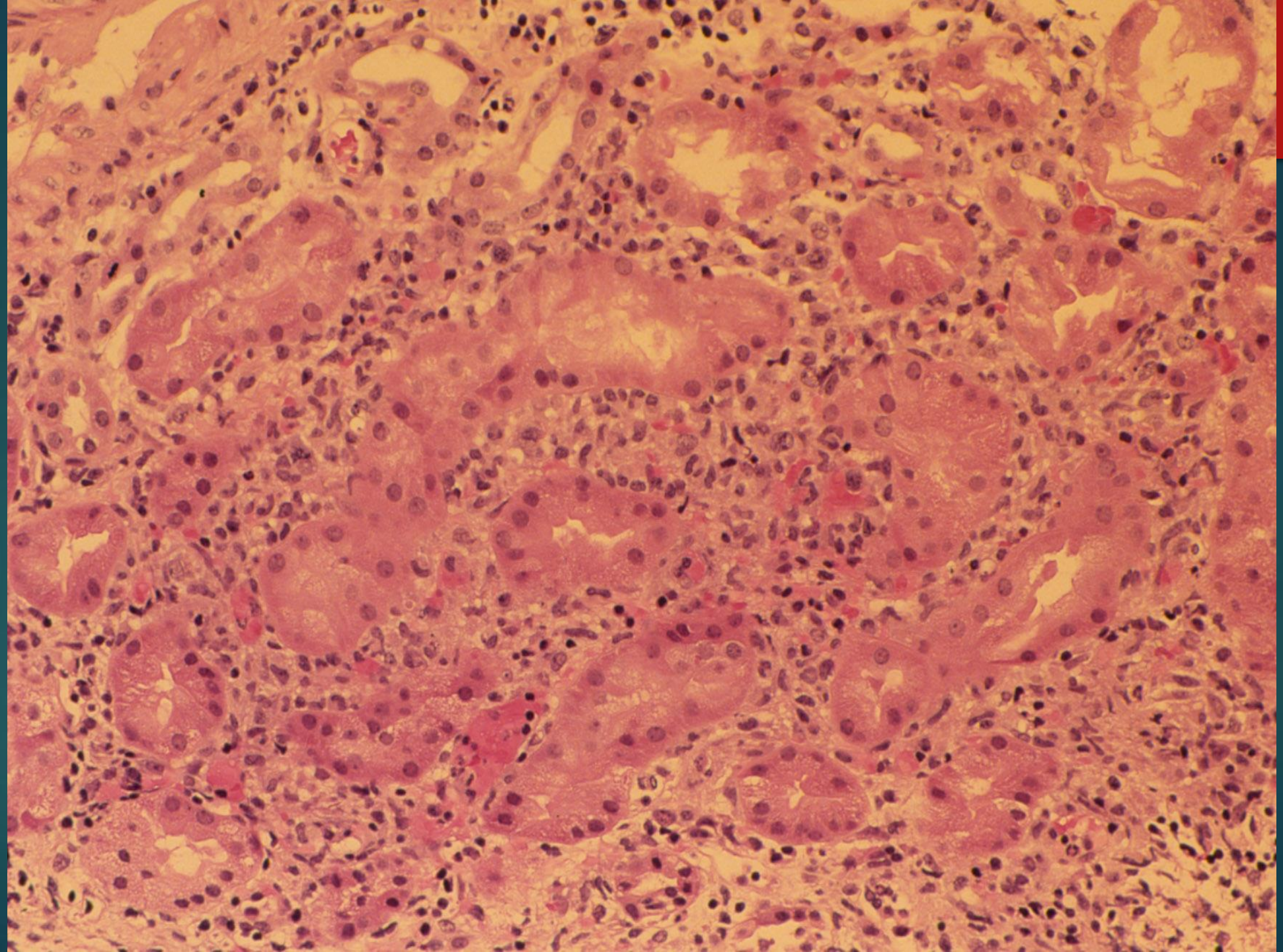
The Banff classification

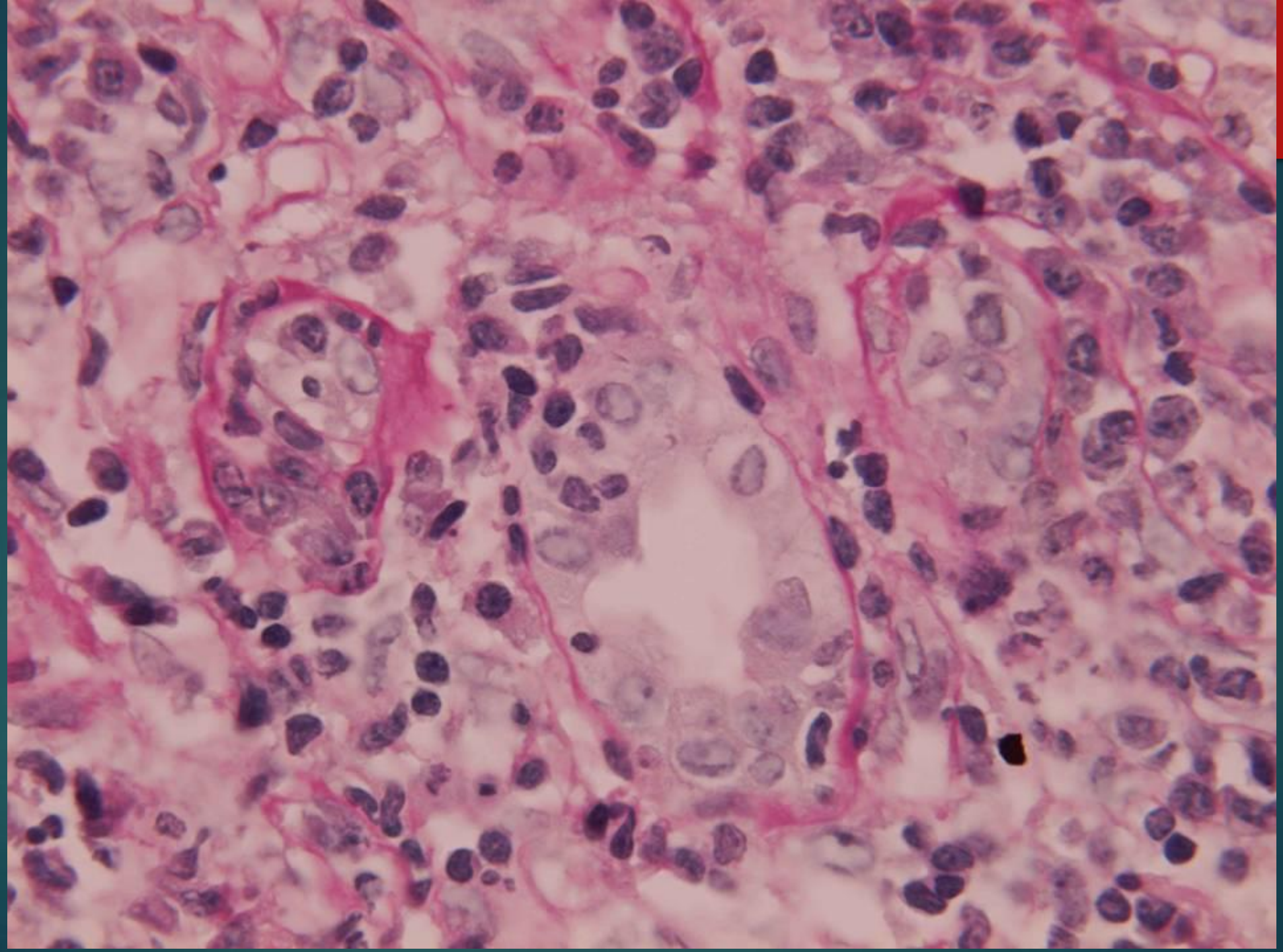
- Grade I A :→Mononuclear interstitial inflammation(>25%).

  →+ Moderate tubulitis.(5 to 10)

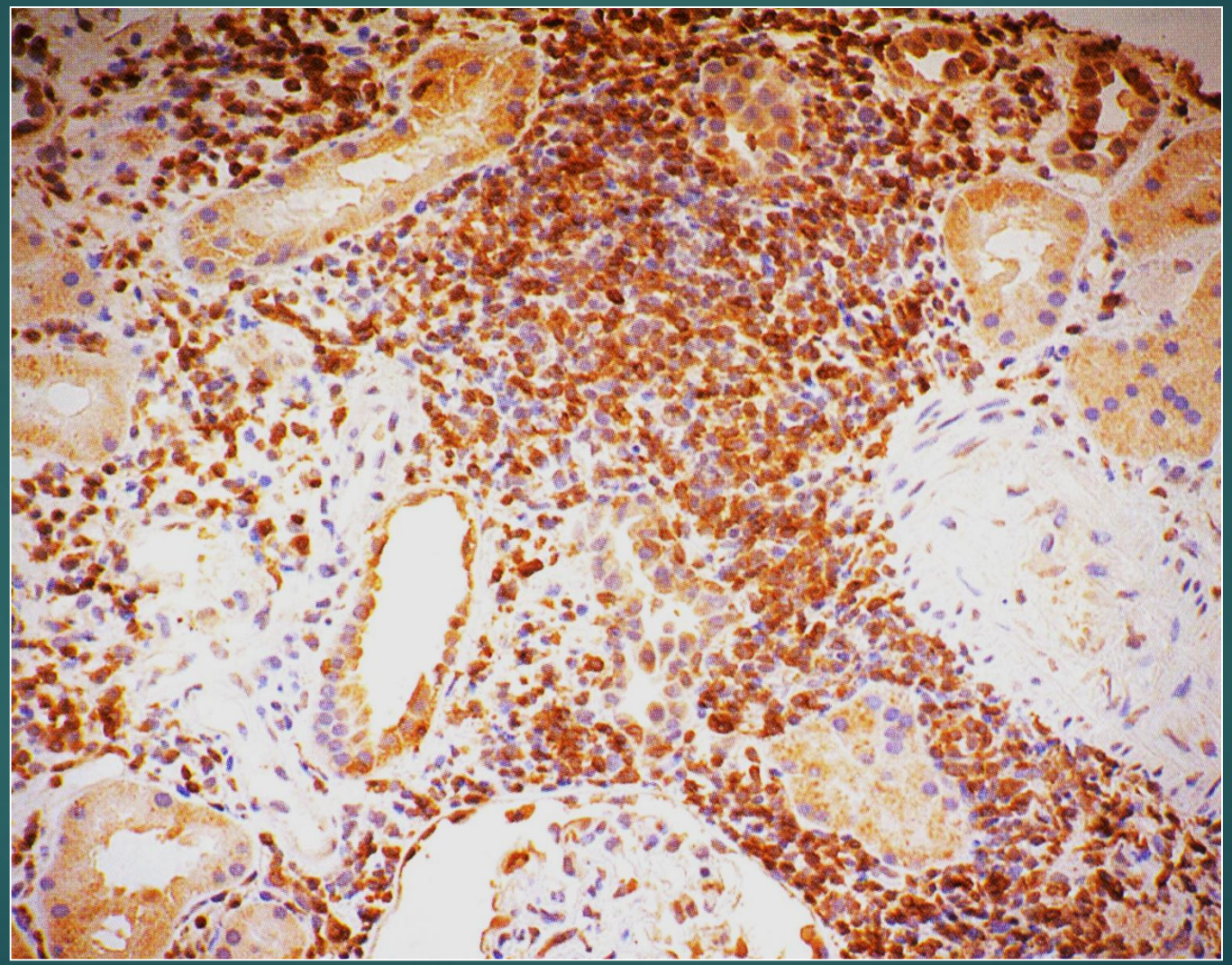
- Grade I B :→Mononuclear interstitial inflammation(>25%)

  →+Severe tubulitis(>10)





Acute rejection.
The interstitial infiltrate consists of T cells mainly.



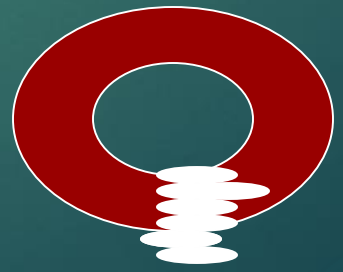
The Banff classification

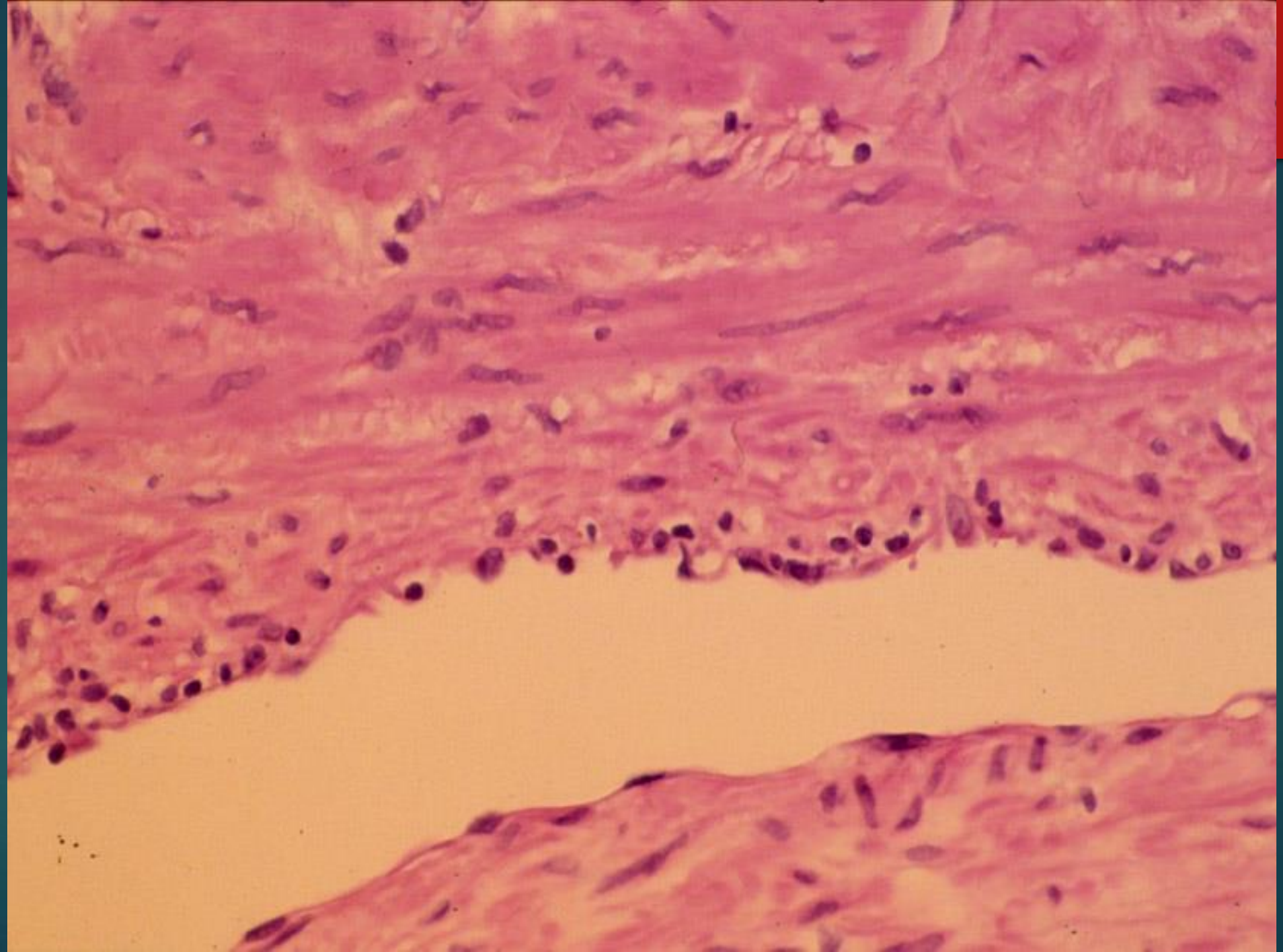
- Grade II A

  Mild to Moderate intimal arteritis :

- Grade II B

  Severe intimal arteritis





The Banff classification

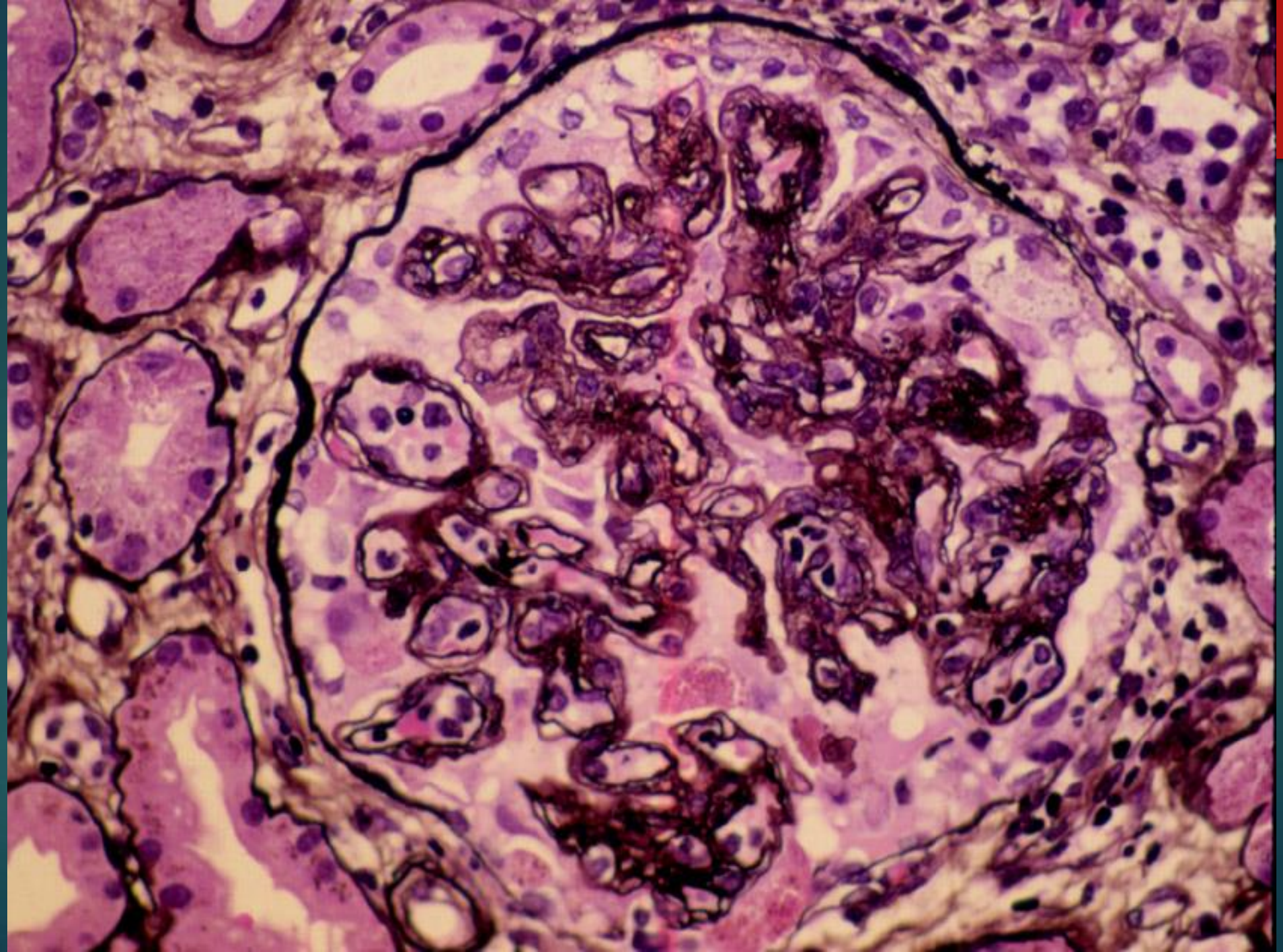
- Grade III →Transmural arteritis and/or fibrinoid necrosis.

The Banff classification

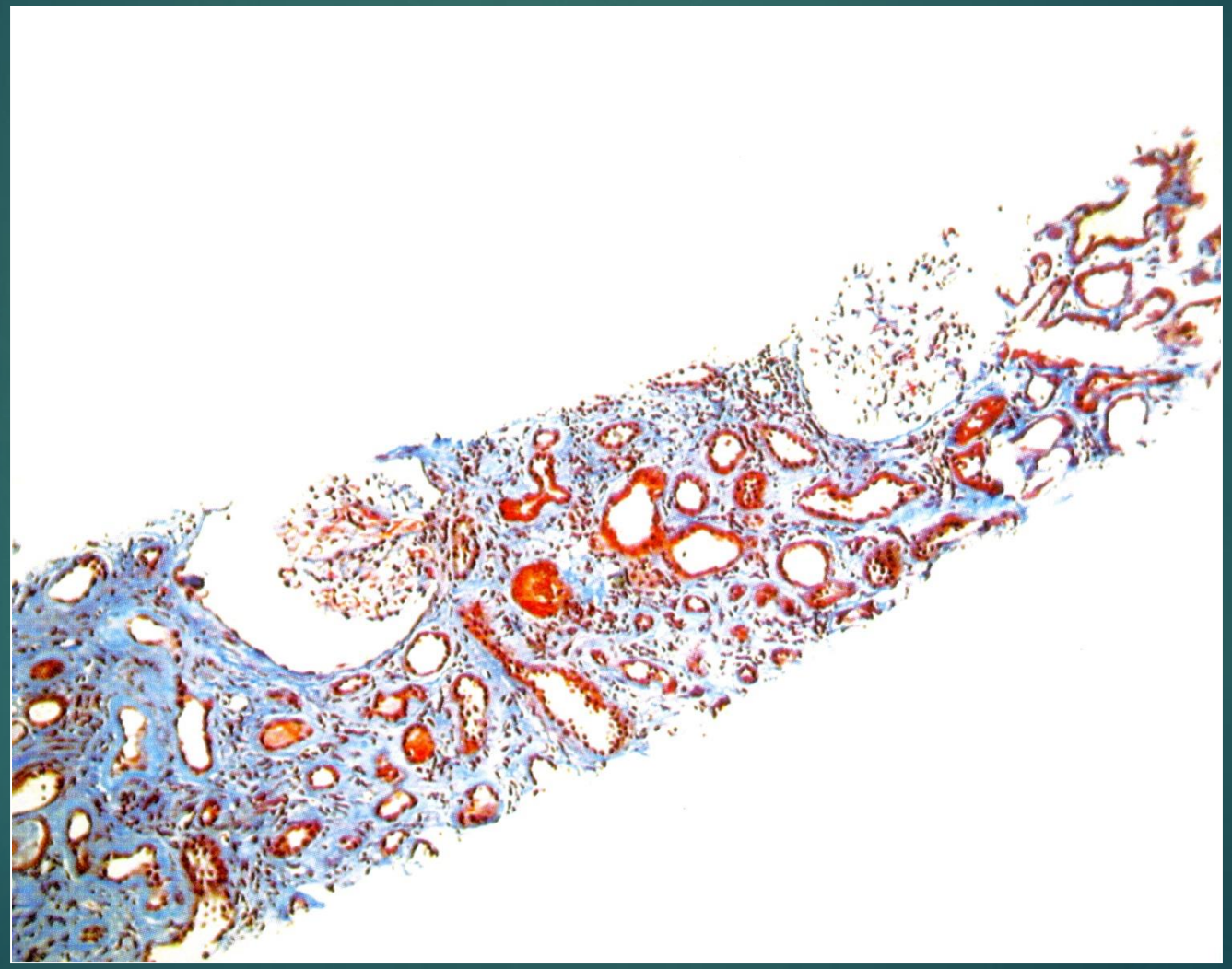
Chronic Allograft Nephropathy:

- Grade I (Mild)
- Grade II (Moderate)
- Grade III (Severe)

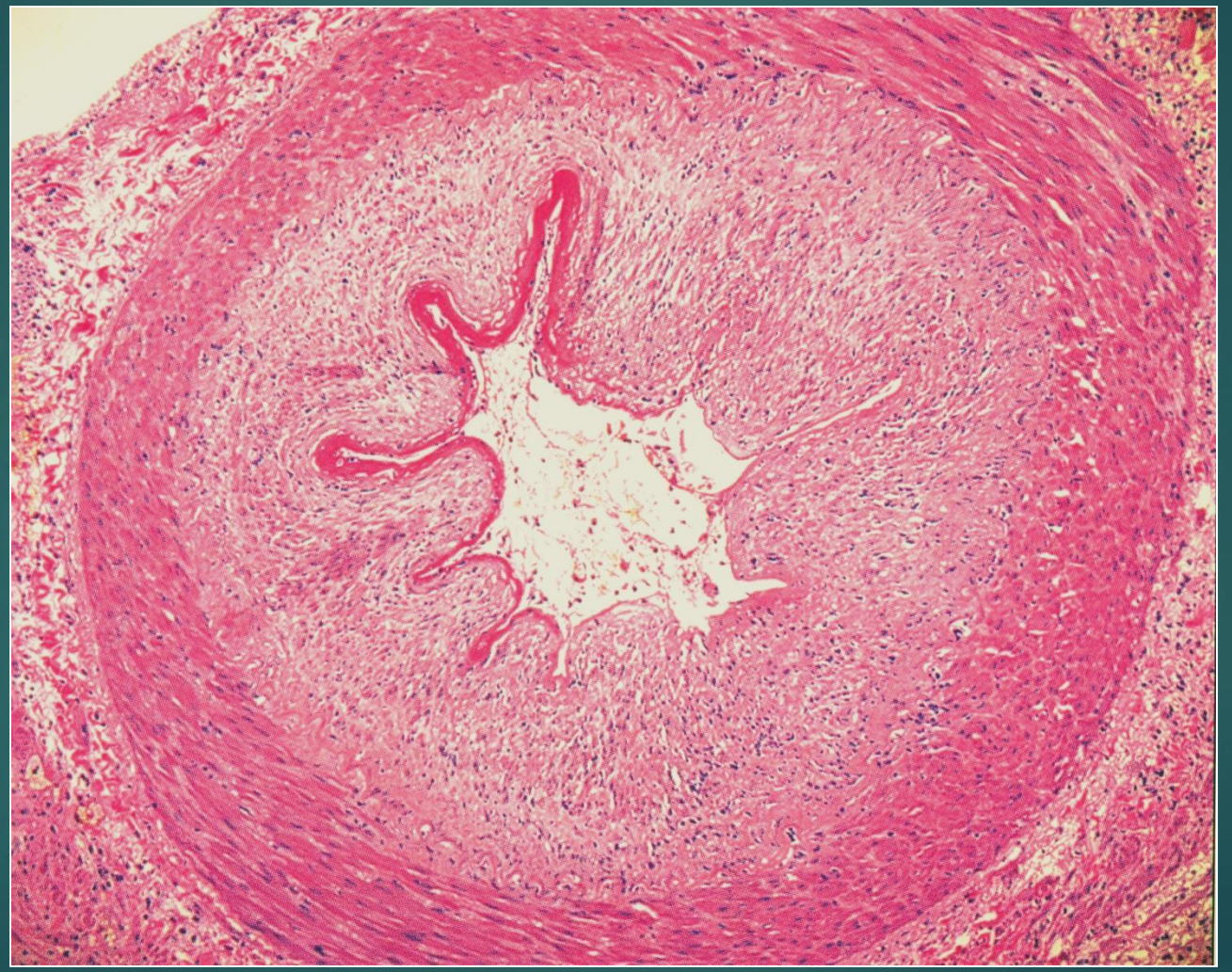
Severe chronic rejection. (graft arteriopathy). Note the severe parenchymal atrophy and the thick-walled arteries.

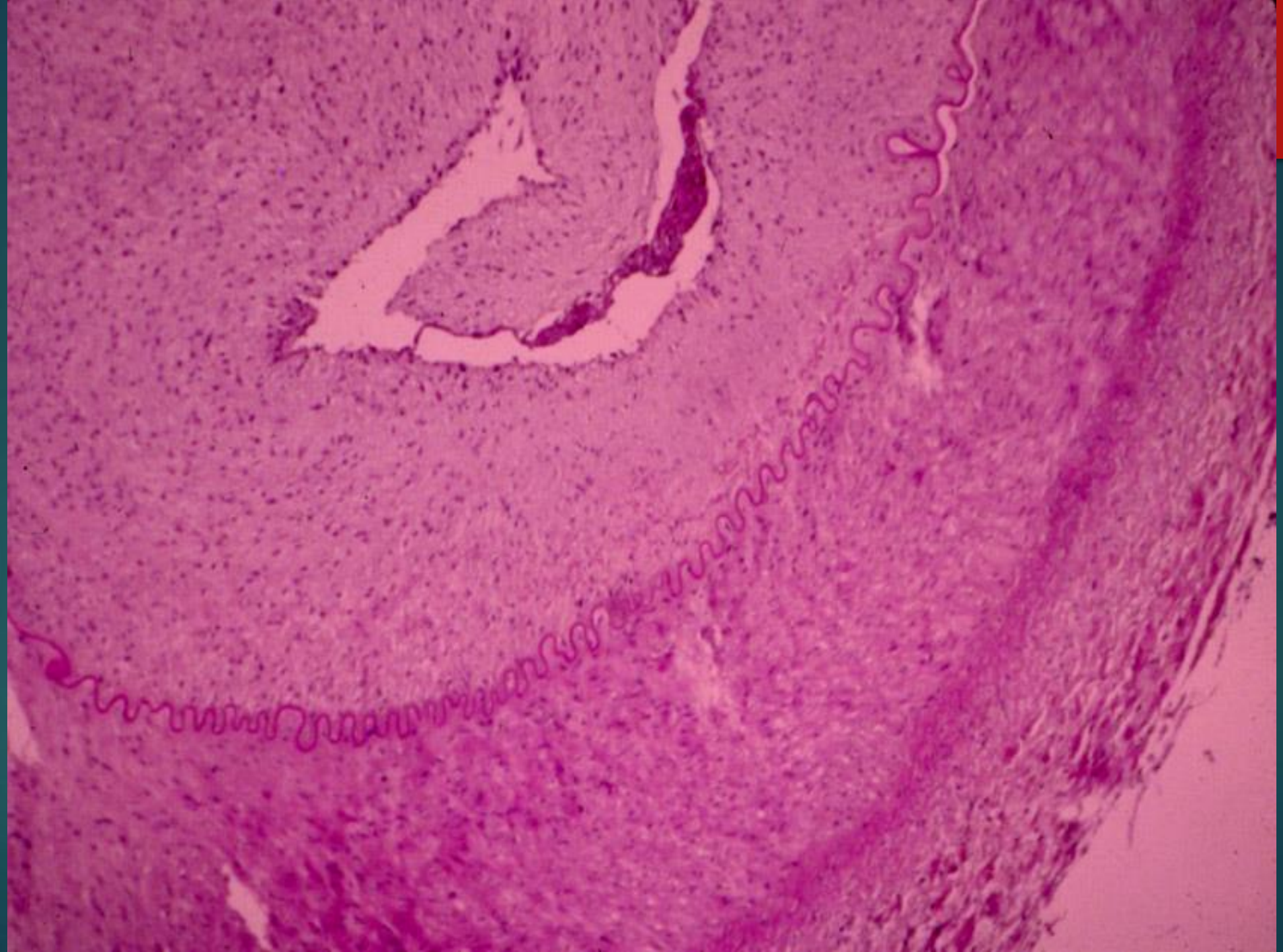


Chronic/ sclerosing allograft nephropathy.
An example of Grade II-III is characterized by a diffuse increase in interstitial tissue and marked tubular atrophy as seen on this trichrome stain.



Chronic/ sclerosing allograft nephropathy.
The classical lesion of chronic transplant vasculopathy is a circumferential proliferation of myointimal cells with an intact internal elastic lamina.





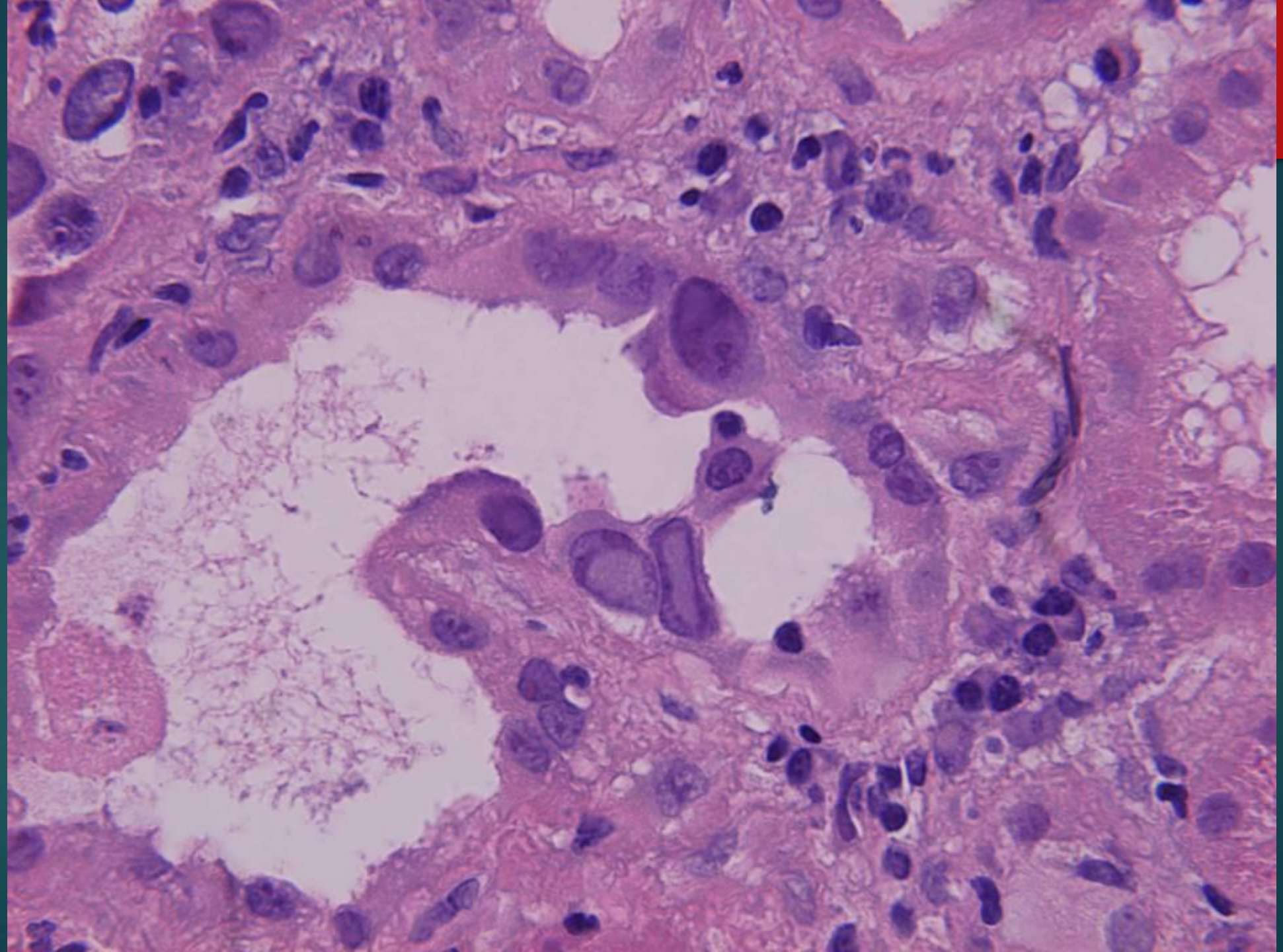
The Banff classification

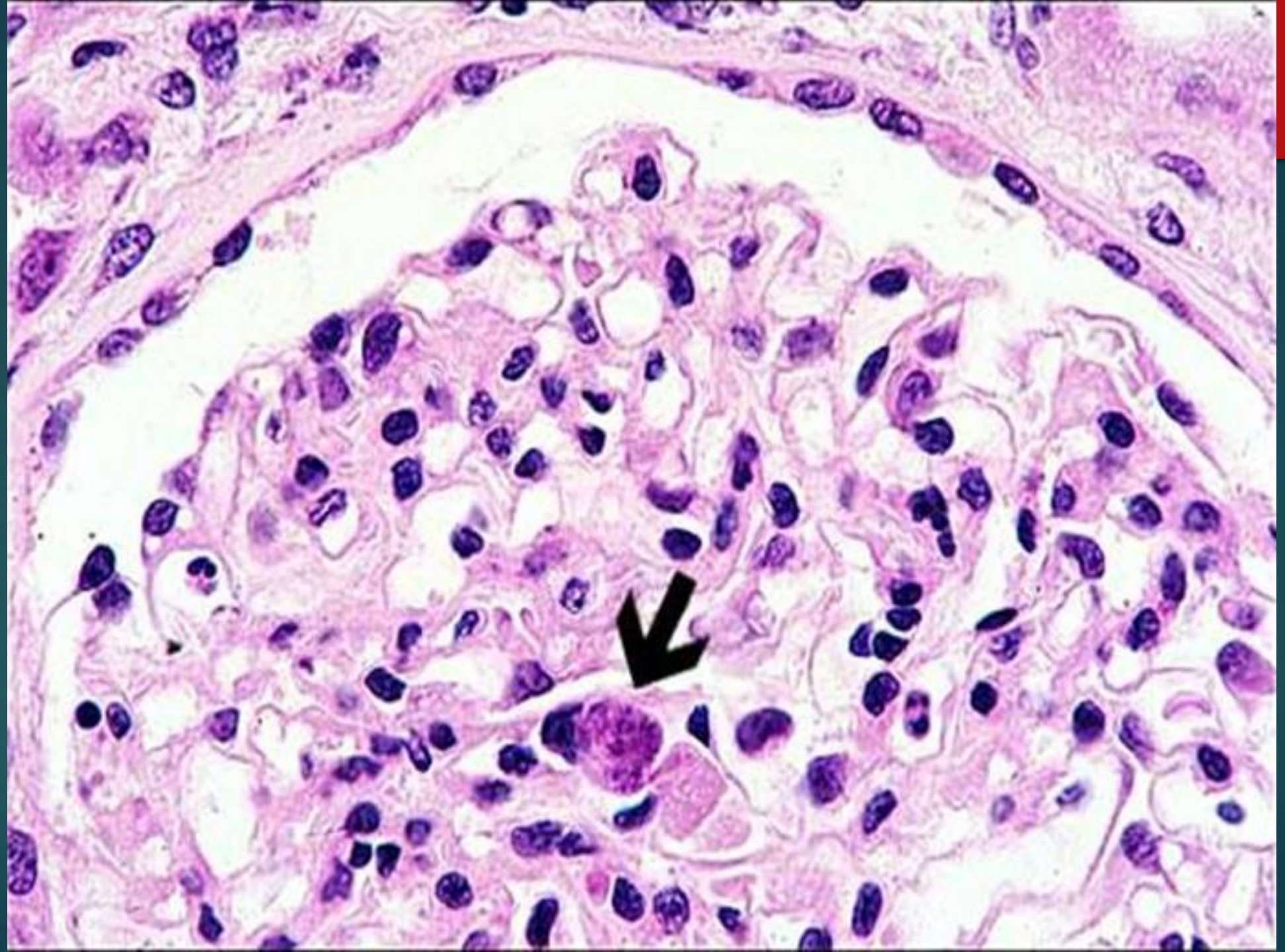
- Normal, Suspicious
- Grade I
- Grade II
- Grade III
- Cyclosporine toxicity
- Acute Tubular Necrosis
- Chronic rejection

- No Treatment
- Treat if clinical signs+
- Treat
- Treat or Abandon
- Reduce Cyclosporine
- Await recovery or treat
- Temporize

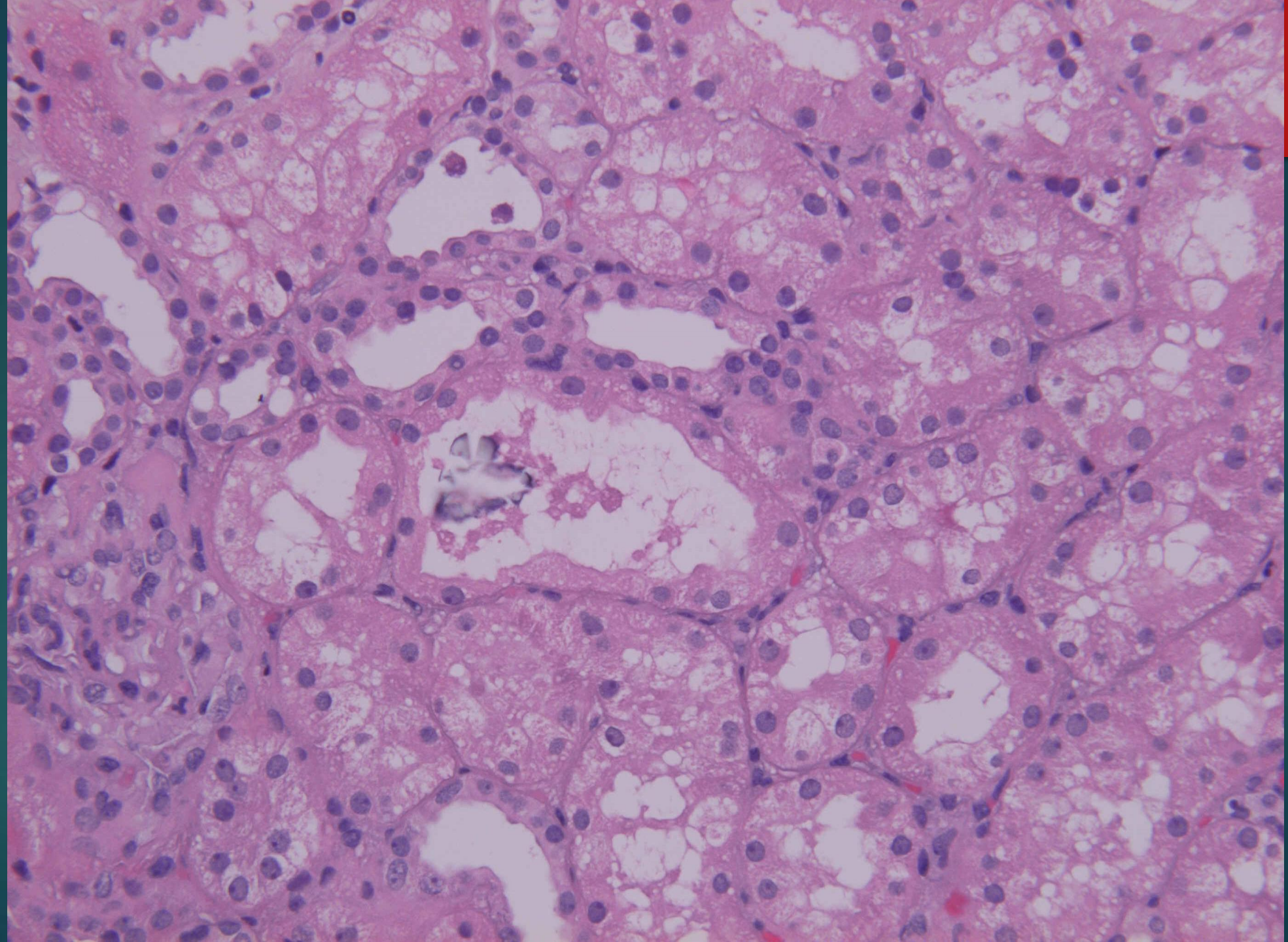
Infections

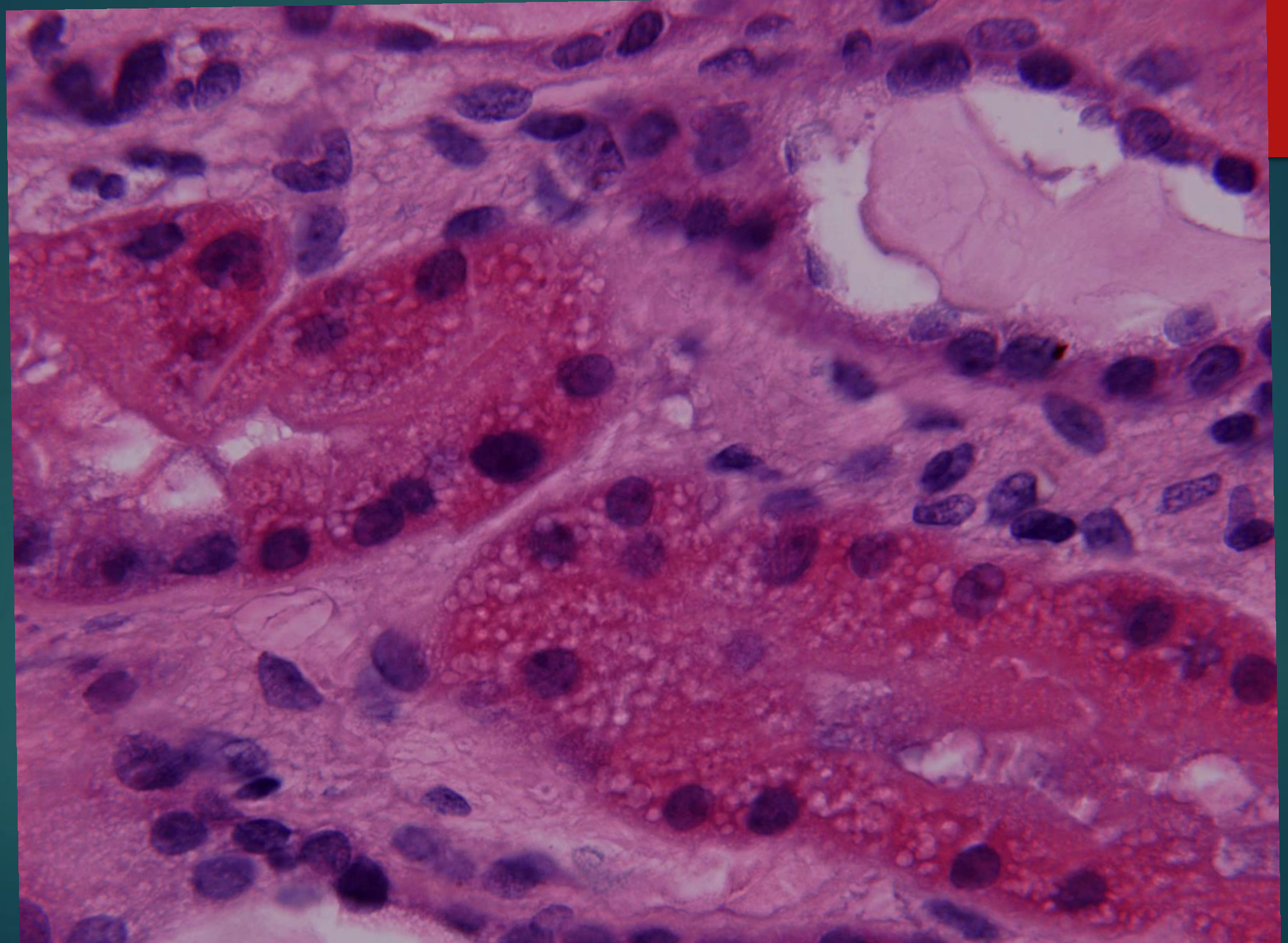
Recurrent or De Novo GN





DRUG TOXICITY

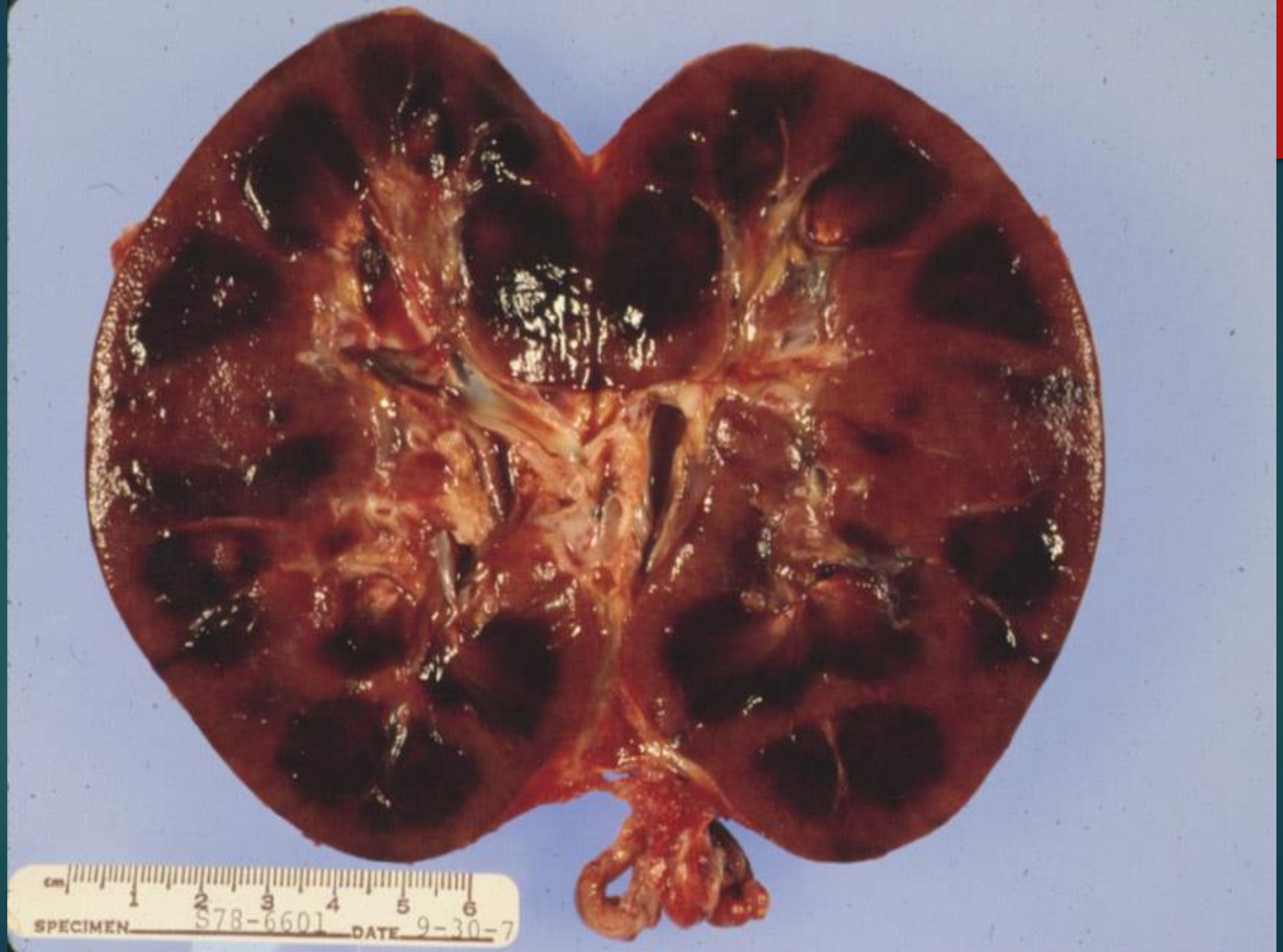




The Banff classification

Conclusion

- The Banff classification has proposed a schema for interpretation and gradation of the histological findings in renal allograft biopsies that can be used as an indication for therapeutic consequences and expected graft survival.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