



Rad-Path Presentation

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Case

- ▶ 69 yo F PMHx of ESRD, DM, HTN, and a renal transplant in 2010
- ▶ Presented with an AKI, Cr 5 from a baseline of 2.5
- ▶ Tacro level sub therapeutic
- ▶ Unresolving after a few days, decision to pursue biopsy to assess for rejection

Technique

- ▶ US guided non focal biopsy of transplanted kidney
- ▶ Conscious sedation with fentanyl, midazolam, local lidocaine
- ▶ Technically successful study, 3 core biopsies taken

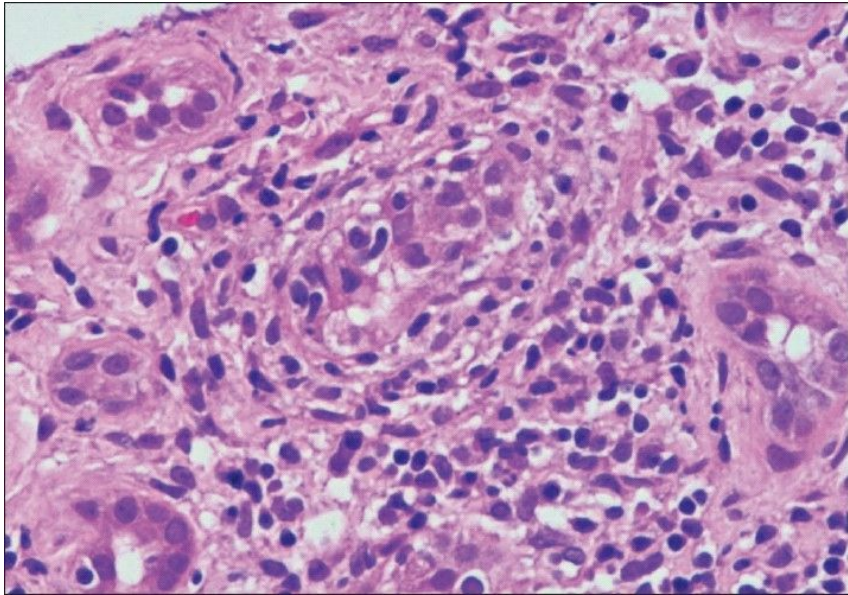
Types of Rejection

- ▶ Hyperacute
 - ▶ Tissue rejected within minutes to hours due to rapid vascular destruction
 - ▶ Humorally mediated, preformed antibodies
- ▶ Acute
 - ▶ Acute Cellular
 - ▶ Mediated by host lymphocytes activated against donor antigens
 - ▶ Acute Humoral
 - ▶ Mediated by antibodies, complement system
- ▶ Chronic
 - ▶ Develops months-years post transplant
 - ▶ Characterized broadly by fibrosis and scarring

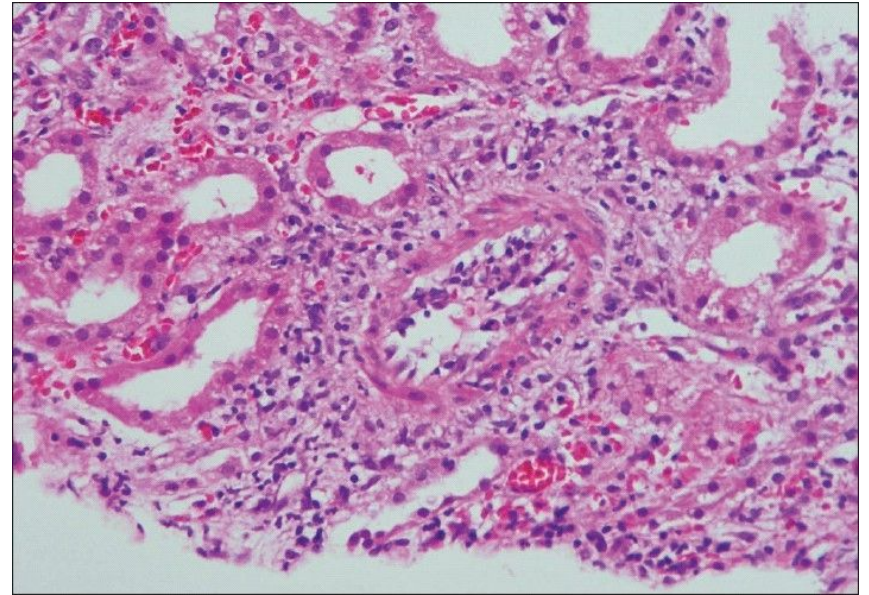
Banff Classification

- ▶ Schema and classification of renal allograft pathology
- ▶ First published in 1993, regularly updated since
- ▶ Assesses different renal compartments (interstitium, tubules, arteries, etc.) and assigns grades based on degree of rejection

Examples



Severe tubulitis (t3)



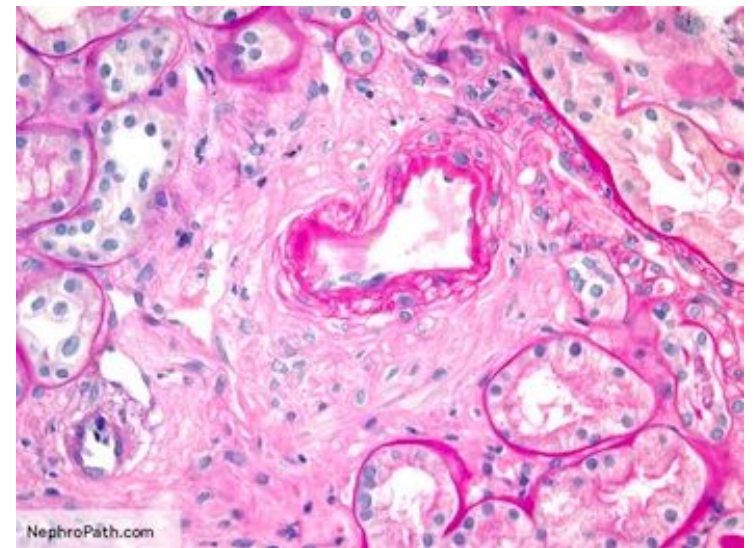
Intimal arteritis (v2)

Findings

- ▶ Glomerulitis: g2 Glomerulitis in 25-75% of glomeruli.
- ▶ Total inflammation including subcapsular zone, fibrotic and perivascular areas: **ti3 >50% of interstitium inflamed.**
- ▶ Tubulitis: t2 Foci of tubulitis with 5 -10 mononuclear cells per tubular cross section.
- ▶ Intimal arteritis with lymphocytes beneath the endothelium: v0 No intimal arteritis.
- ▶ Peritubular capillaritis: **ptc3 More than 10% inflamed peritubular capillaries, with >10 luminal inflammatory cells.**
- ▶ Interstitial fibrosis: **ci3 Severe interstitial fibrosis involving >50% of cortex.**
- ▶ Tubular atrophy: **ct3 Tubular atrophy in >50% of cortical tubules.**
- ▶ Vascular fibrous intimal thickening, including breached internal elastic lamina and foam cells: cv1 Mild vascular intimal sclerosis with narrowing of up to 25% vascular luminal area.

Diagnosis

- ▶ Acute Antibody Mediated rejection, Banff Grade II
- ▶ Acute Cell Mediated Rejection, Banff Grade IA
- ▶ Diabetic Glomerulosclerosis, Moderate



References

- ▶ <http://www.pathologyoutlines.com/topic/kidneydiabetes.html>
- ▶ <http://www.pathologyoutlines.com/topic/kidneybanff.html>
- ▶ <https://emedicine.medscape.com/article/432209-overview#a5>
- ▶ Bhowmik, D. M. et al. "The Evolution of the Banff Classification Schema for Diagnosing Renal Allograft Rejection and Its Implications for Clinicians." *Indian Journal of Nephrology* 20.1 (2010): 2–8. PMC. Web. 4 Oct. 2018.