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Visual Diagnosis Pearl

Acute Interstitial Nephritis After a Single Dose of Brentuximab Vedotin

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An 81 year-old male with Type 2 Diabetes Mellitus, essential hypertension, and mycosis fungoides presented with oliguric renal failure. A few weeks prior he had been treated with one dose of brentuximab vedotin for his mycosis fungoides and had developed a rash that was successfully treated with a tapered course of methylprednisolone. His serum creatinine had gone from baseline of 1 mg/dl to 6.3 mg/dl (Normal Value 0.6-1.3 mg/dL) on admission. A kidney biospy was obtained and showed interstial edema and patchy inflammation including many eosinophils. Final diagnosis was acute intersitial nephritis (AIN) with eosinophils suggestive of medication induced injury. Please see figure 1. He was given IV methyprednisolone for three days and discharged on high dose prednisone which was subsequently tapered as an outpatient. He recovered normal kidney function.

Severe acute kidney injury from AIN due to brentuximab is not common, but there are case reports described.[1-3] Brentuximab is a combination monoclonal antibody to anti-CD30 and not an immune checkpoint inhibitor (ICI). It can cause a hypersensitivity reaction in the renal interstitium, with dense helper T cell activation and resultant tubulitis, without immune complexes or granulomas. This may represent an alteration of immune tolerance, although it is not an ICI medication. It is interesting in this patient that he developed a rash a few days after the brentuximab infusion and it was treated successfully with a Medrol dose pack. The rash was also most likely an immune mediated reaction and can be a part of the AIN classic triad of eosinophilia, a rash and fever. His kidney biopsy shows the typical eosinophil infiltrate seen with drug induced AIN, and not T-cell infiltrate seen with ICI therapy and that was seen in another case report of brentuximab induced AIN.[2] Another interesting point about this case is the severity of the AKI with just one dose of the brentuximab. All previously mentioned case reports of AIN developed after more than one dose administration of brentuximab. This case may be the first described after only one dose.

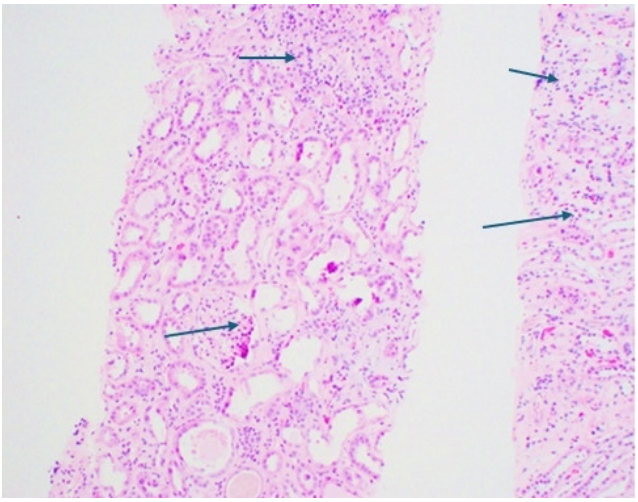

Figure 1. Hemotoxylin and Eosin (H&E) stain of core kidney biopsy of cortex and interstitium showing diffuse interstitial edema and patchy inflammation and eosinophils. Arrows point to areas with eosinophils.

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