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Unusual Tubular Necrosis in a patient with Renal Eosinophilic Granulomatosis with Polyangiitis (EGPA): A Case Report

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Case Study : Introduction Eosinophilic granulomatosis with polyangiitis (EGPA) is histologically defined by eosinophil-rich, necrotizing granulomatous inflammation and necrotizing vasculitis of small to medium-sized arteries. The most commonly renal histology in EGPA is necrotizing glomerulonephritis. We report a case of EGPA with renal and peripheral nerve involvement, and unusual renal pathology. Case Description A 68-year-old man presented with pain in his lower limbs for two months and anuria over a few days. Urinalysis showed proteinuria (2+) and hematuria (118,000 RBC/ml). Serum creatinine increased from 222 to 621 mmol/L in 7 days. The anti-myeloperoxidase antibody was 54.7 IU/ml (ELISA), eosinophil count was 2.18×10^9/L. Electromyography and nerve conduction studies indicated an axonal-demyelinating sensory-motor multineuropathy. Kidney biopsy revealed fibrinoid necrosis in 5 out of 12 glomeruli. In addition, there was extensive tubular coagulative necrosis affecting over 40% of the tubules with eosinophilic infiltrate (Figure 1). Transmural fibrinoid necrosis was observed in one of the arteries (Figure 2). No immune complexes were detectable. According to the 2022 ACR/EULAR Classification Criteria, the diagnosis was EGPA. After treatment with hemodialysis, methylprednisolone, and intravenous cyclophosphamide, both the pain in his lower limbs and urine output improved. Discussion Only 40% of EGPA patients are ANCA-positive, specifically for myeloperoxidase. These ANCA-positive patients often display symptoms related to vasculitis, including renal disease and peripheral nerve involvement. Necrotizing pauci-immune glomerulonephritis is the most common renal pathology in ANCA-positive EGPA. In this case, the rapid decline in renal function and the development of anuria could be explained by the extensive tubular necrosis. Severe tubular necrosis is rarely reported in cases of ANCA associated vasculitis. The extents of glomerular and tubular necrosis were similar, at 40%. Thus, we speculated that the tubular necrosis might have resulted from glomerular vasculitis or underlying thrombosis of the principal arteries that led to significant ischemic injury of the tubules.

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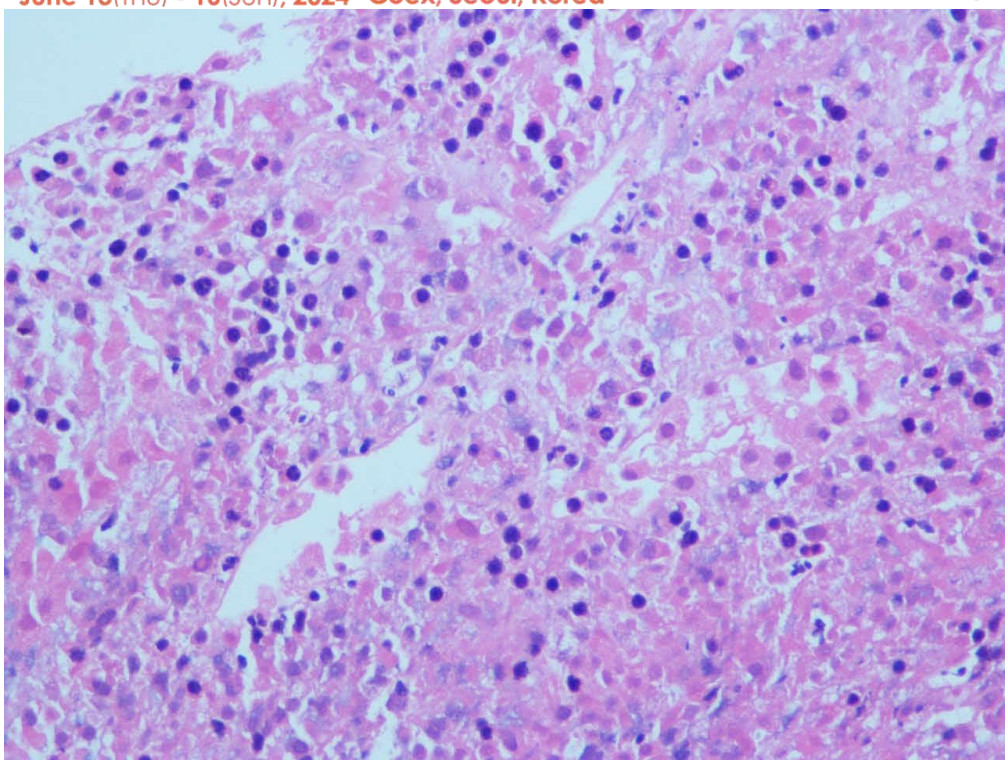

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