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Images in Rheumatology

Zebra Bodies in Kidney Biopsy: Drug-Induced Phospholipidosis in a Patient With Systemic Lupus Erythematosus

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Zebra bodies, or myeloid bodies, are made up of concentric, lamellated lipid-containing deposits within lysosomes. Although these structures are commonly associated with Fabry disease, similar inclusions can also occur with exposure to certain medications, leading to a condition known as drug-induced phospholipidosis (DIP).

A 31-year-old female patient with a history of systemic lupus erythematosus (SLE), lupus nephritis, and a kidney transplant was admitted for treatment of endocarditis. During her hospitalization, she developed a significant rise in serum creatinine over the course of 1 week, from 1.20 mg/dL to 3.68 mg/dL. Urinalysis revealed hematuria and proteinuria (100 mg/dL, with a urine protein-creatinine ratio [UPCR] of 1.53 mg/mg), but SLE activity markers remained within normal limits. Kidney ultrasound showed normal renal size and echogenicity, and a kidney biopsy revealed vacuolar-type acute tubular injury and glomeruli with swollen, foamy podocytes (Figure 1). Electron microscopy showed frequent myeloid bodies in podocytes (Figure 2) and less commonly in the glomerular endothelium.

The presence of abundant myeloid bodies initially raised suspicion for Fabry disease; however, the time course suggested DIP. Possible culprits included chronic use of hydroxychloroquine and azithromycin in this patient.[1-3] Certain drugs accumulate in lysosomes, causing lysosomal dysfunction and, in turn, phospholipid accumulation.[4] Following the discontinuation of these medications, the patient experienced clinical improvement in UPCR, which returned to baseline within 3 weeks. This highlights the importance of considering DIP in the differential, and resolution of these structures has been described on repeat biopsy after discontinuing the offending agent.[5]

CONTRIBUTIONS

Conceptualization: TA, RM, CTD; resources: TA, MBP; supervision: CTD; visualization: TA, RM, MBP, CTD; writing - original draft: TA, MBP; writing - review and editing: CTD, RM, TA, MBP.

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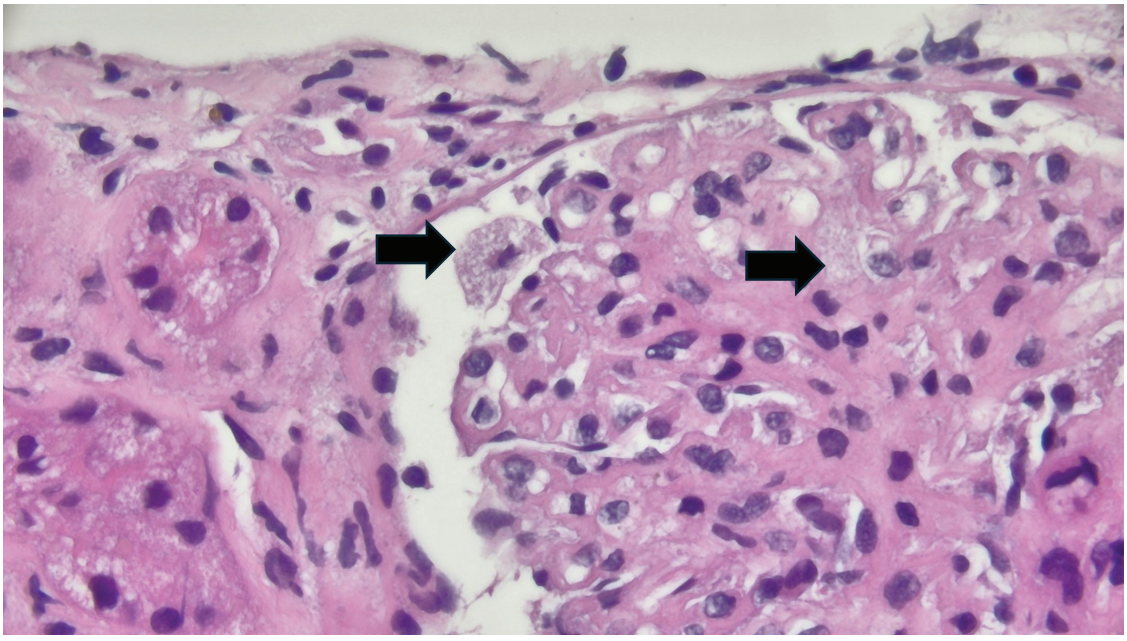

Figure 1. Glomerulus showing segmental podocytes with foamy, swollen cytoplasm (arrows; H&E, 630×).

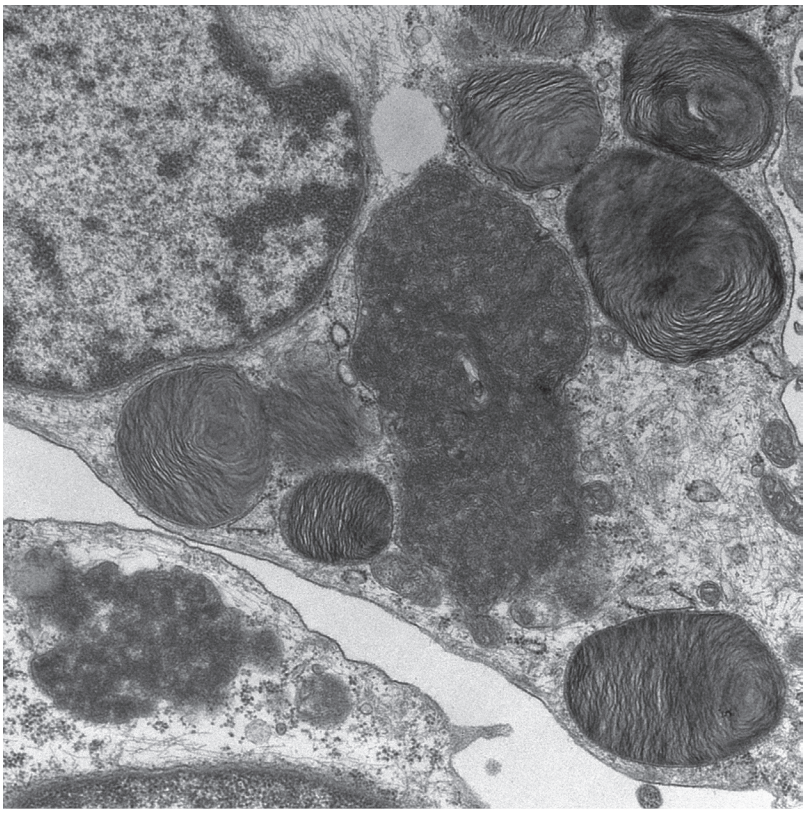

Figure 2. Abundant myeloid inclusions within podocyte cytoplasm with lamellar, striped appearance (electron microscopy, 30,000×).

COMPETING INTERESTS

The authors declare no conflicts of interest relevant to this article.

ETHICS AND PATIENT CONSENT

No consent was required from the patient as there was no identifiable information used for this report. Ethics approval is not required for case reports at the authors' institution.

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