

Renal Amyloidosis With Prominent Giant Cells

Wenyan Zhou, Minfang Zhang, Liyin Zhang, and Shaojun Liu



A 60-year-old man presented to the nephrology clinic with edema of both lower extremities for 3 months. Laboratory findings showed marked proteinuria, hypoalbuminemia, and a serum creatinine level of 92 $\mu\text{mol/L}$. IgG-lambda monoclonal protein was detected in the serum, and multiple myeloma was diagnosed by bone marrow aspiration. The kidney biopsy showed that glomeruli and arterioles were obviously infiltrated by lambda light chain amyloidosis, which resulted in the rupture of capillary loops, small feathery spicules along the peripheral basement membrane, and prominent multinucleated giant cells reaction (Fig 1A). Remarkably, several giant cells occupied the position of the podocytes, appearing to wrap and phagocytize the amyloid spicules. This was confirmed using electron microscope (Fig 1B) and double staining with CD68 immunohistochemistry and Congo red stain (Fig 1C). The patient was treated with bortezomib, but proteinuria was not significantly reduced.

Authors' Affiliations: Department of Nephrology, Molecular Cell Lab for Kidney Disease, Shanghai Peritoneal Dialysis Research Center, Uremia Diagnosis and Treatment Center, Ren Ji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China (WZ, MZ); Department of Nephrology, Huashan Hospital, Fudan University, Shanghai, China (LZ, SL).

Address for Correspondence: Shaojun Liu, MD, PhD, Department of Nephrology, Huashan Hospital, Fudan University, No. 12 Wulumuqi Middle Road, Shanghai, 200040, China. Email: liushaojun@fudan.edu.cn

Author Contributions: WZ and MZ (equal contribution to this work).

Peer Review: Received September 29, 2023. Accepted October 13, 2023 after editorial review by an Associate Editor and the Editor-in-Chief.

Publication Information: © 2023 The Authors. Published by Elsevier Inc. on behalf of the National Kidney Foundation, Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). Published online December 5, 2023 with doi 10.1016/j.xkme.2023.100771

ARTICLE INFORMATION

Authors' Full Names and Academic Degrees: Wenyan Zhou, MD, Minfang Zhang, MD, Liyin Zhang, MD, and Shaojun Liu, MD, PhD.

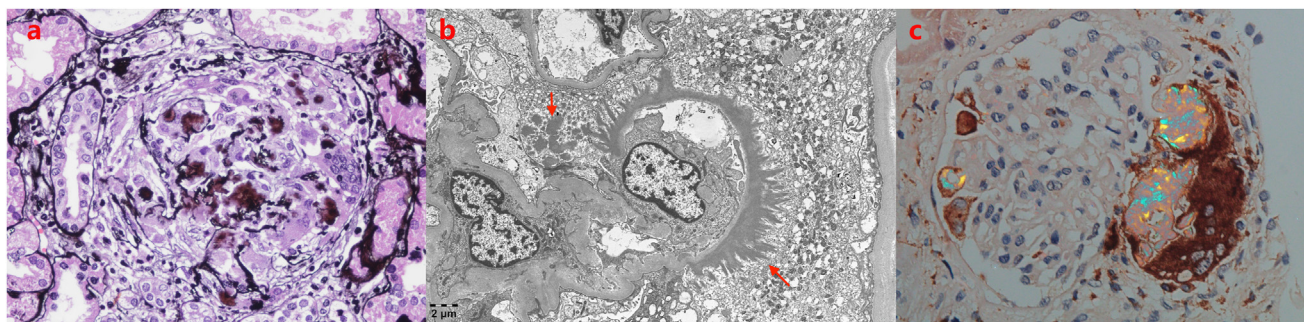


Figure 1. The morphological characteristics of renal biopsy. (A) The mesangial area and capillary loop were obviously infiltrated by amyloidosis, which resulted in the rupture of capillary loops, small feathery spicules along the peripheral basement membrane, and a prominent multinucleated giant cell reaction. Massive amyloid deposits were also noted around the arteriole along with multinucleated giant cells (Jones silver stain; original magnification, $\times 400$). (B) One multinucleated giant cell occupied the position of podocyte, trying to wrap the adjacent amyloid spicules (electron microscope; original magnification, $\times 6,000$). (C) Congo red staining was positive, with birefringence in polarized light in arterioles and several spicules. Several giant cells wrapped and phagocytized the Congo red-positive materials (double staining with CD68 immunohistochemistry and Congo red stain; original magnification, $\times 600$).