Polyclonal Immunotactoid Glomerulopathy Associated with Rheumatoid Arthritis: An Ultrastructural Diagnosis

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Abstract

Immunotactoid glomerulopathy (ITG) is a rare glomerular disease defined by organized microtubular immune deposits on electron microscopy (EM) and is most commonly associated with lymphoproliferative disorders. We described a case of polyclonal ITG occurring in a patient with longstanding rheumatoid arthritis (RA).

A 50-year-old woman with more than 12 years of untreated RA presented with proteinuria, hematuria, and progressive renal insufficiency, and underwent a kidney biopsy. Light microscopy demonstrated a membranoproliferative pattern of glomerulonephritis. Immunofluorescence showed capillary loop staining for IgG and C3 with equal light chains, with weaker IgM and C1q; Congo red stain was negative. Electron microscopy was decisive, revealing subepithelial and subendothelial deposits composed of hollow microtubules arranged focally in parallel arrays, measuring 34 nm on average, diagnostic of ITG. IgG subclass studies demonstrated IgG2 and IgG3 positivity without IgG1 or IgG4, confirming a polyclonal process.

Extensive clinical and laboratory evaluation showed no evidence of monoclonal gammopathy, lymphoproliferative disorder, infection, cryoglobulinemia, or lupus. Despite immunosuppressive and supportive therapy, the patient progressed to end-stage kidney disease.

This case underscores the extreme rarity of polyclonal ITG, particularly in association with RA, and reinforces EM as essential for accurate diagnosis and subclassification of organized glomerular immune deposits.