Podocyte Injury in Segmental Garland-pattern Poststreptococcal Glomerulonephritis

A 13-year-old boy presented with anasarca and hypertension after pharyngitis. Laboratory tests showed serum creatinine, 1.6 mg/dL; albumin, 2.9 g/dL; low C3; elevated antistreptolysin O; urine protein 7.25 g/24 h. A kidney biopsy revealed proliferative glomerulonephritis with humps. A segmental podocytes cap with marked hypertrophy was also identified in some glomeruli (Left). By immunofluorescence, immunoglobulin G and C3 were diffusely scattered in a granular pattern, predominantly along glomerular basement membrane, but sometimes confluent subepithelial deposits showed intense peripheral staining in glomerular segments that resembles a garland (Right). A diagnosis of garland-pattern acute poststreptococcal glomerulonephritis was made. Six months after treatment, serum creatinine level was 0.8 mg/dL and proteinuria was 2.4 g/24 h.

Acute poststreptococcal glomerulonephritis appears to be induced by specific nephritogenic strains of group A beta-hemolytic streptococcus. Subepithelial immune complex deposition causes local inflammation and proteinuria by podocyte disruption and may induce podocyte proliferation1. Acute poststreptococcal glomerulonephritis is manifested by a discrete, more densely packed and confluent heavy disposition of immunoglobulin G and complement C3, corresponding to numerous humps noted on the subepithelial side of the capillary walls.2 Patients with garland-pattern more frequently develop nephrotic syndrome compared to those with the other types. There were also cases with a complete disappearance of proteinuria, especially in younger patients, but other patients still had a distinct proteinuria after months to years indicating a protracted or chronic course.3

ACKNOWLEDGMENTS
We are very grateful to Osmar M Silva and Etienny V Lobato.

Rafael SA Lima,1 Marcio Dantas,1 Gyl EB Silva2*
1Division of Nephrology, Faculty of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil
2Department of Pathology, Faculty of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil
*E-mail: gyleanes@ig.com.br

REFERENCES