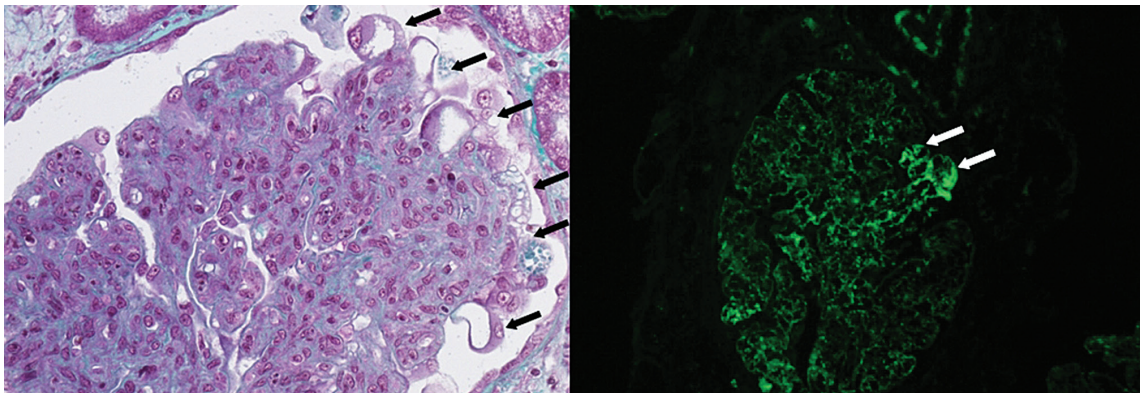
Podocyte Injury in Segmental Garland-pattern Poststreptococcal Glomerulonephritis

IJKD 2013;7:356
www.ijkd.org



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 proliferation[1]. 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 Edienny V Lobato.

Rafael SA Lima,[1] Marcio Dantas,[1] Gyl EB Silva[2]*

[1]Division of Nephrology, Faculty of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil
[2]Department of Pathology, Faculty of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil
*E-mail: gyleanes@ig.com.br

REFERENCES

1. Meyer-Schwesinger C, Dehde S, Klug P, et al. Nephrotic syndrome and subepithelial deposits in a mouse model of immune-mediated anti-podocyte glomerulonephritis. J Immunol. 2011;187:3218-29.
2. Sorger K. Postinfectious glomerulonephritis: subtypes, clinicopathological correlations, and follow-up studies. Veroff Pathol. 1986;125:1-105.
3. Sorger K, Gessler M, Hübner FK, et al. Follow-up studies of three subtypes of acute postinfectious glomerulonephritis ascertained by renal biopsy. Clin Nephrol. 1987;27:111.