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FSGS lesion in a Kidney Allograft

Muhammed Mubarak

JIK Department of Histopathology,
Sindh Institute of Urology and Transplantation,
Karachi, Pakistan
Email: drmubaraksiut@yahoo.com
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Case scenario

These are representative images of a kidney allograft biopsy from a 35-year-old male with a recurrence of proteinuria two years after transplantation for end-stage kidney disease secondary to a rapidly progressive course of membranous nephropathy in the native kidney.

The biopsy was adequate with both cortex and medulla. Upto 46 glomeruli were included. All glomeruli were abnormal. Some of the representative glomeruli with pathologic lesions are shown in the following images.

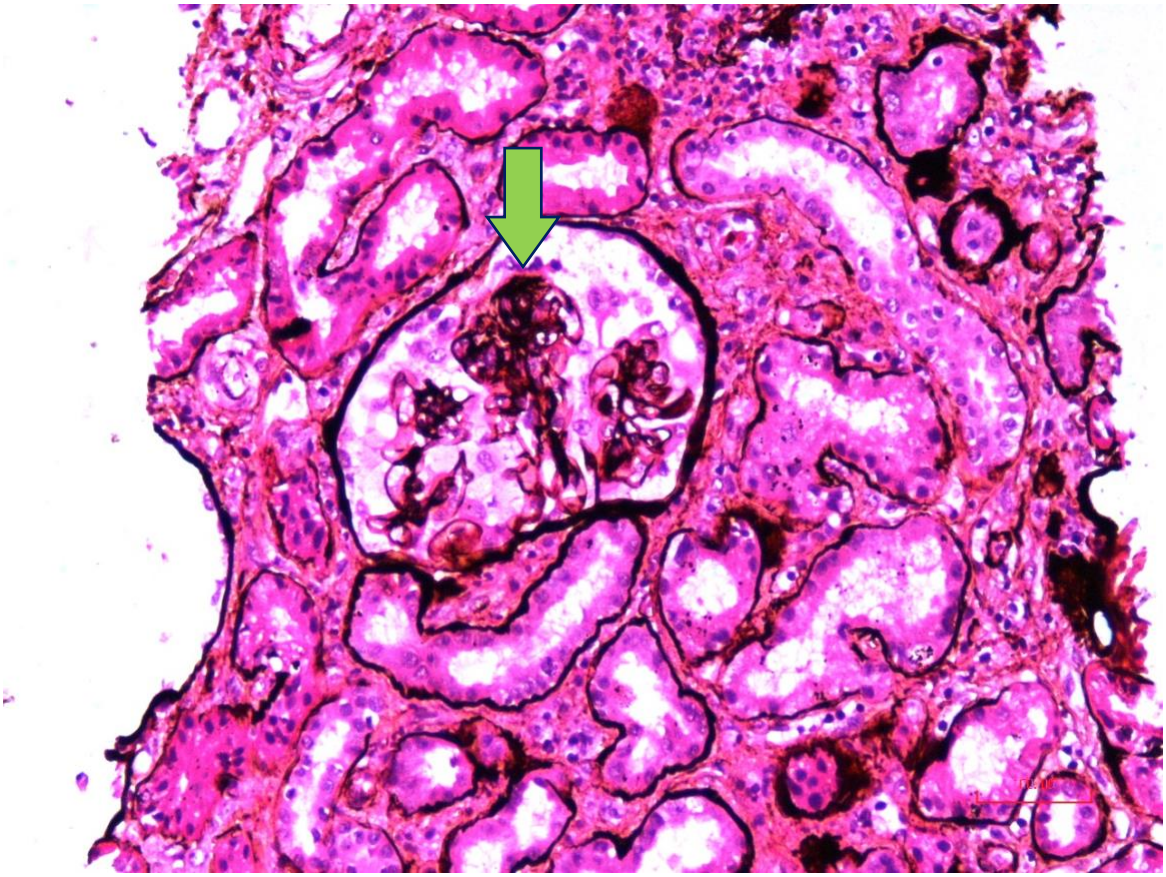

Figure 1. Medium-power view showing renal cortex with one glomerulus. It is showing segmental collapse of one of the tufts with overlying prominence of podocytes (green arrow). There is mild patchy tubular atrophy and interstitial inflammation in the background. (Jones Methenamine Silver stain, ×200).

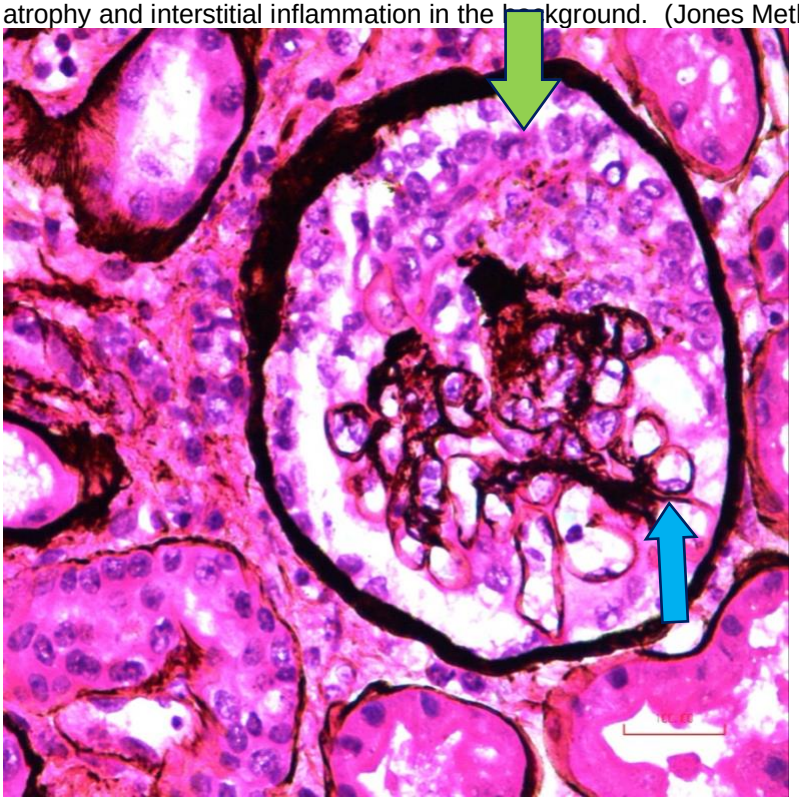

Figure 2. Medium-power view of another glomerulus from the same biopsy showing segmental collapse of capillary tufts associated with marked podocyte hyperplasia and hypertrophy involving the upper half of the glomerulus (green arrow). Intact glomerular capillaries demonstrate taut and rounded contours (blue arrow). (Jones Methenamine Silver stain, ×200).

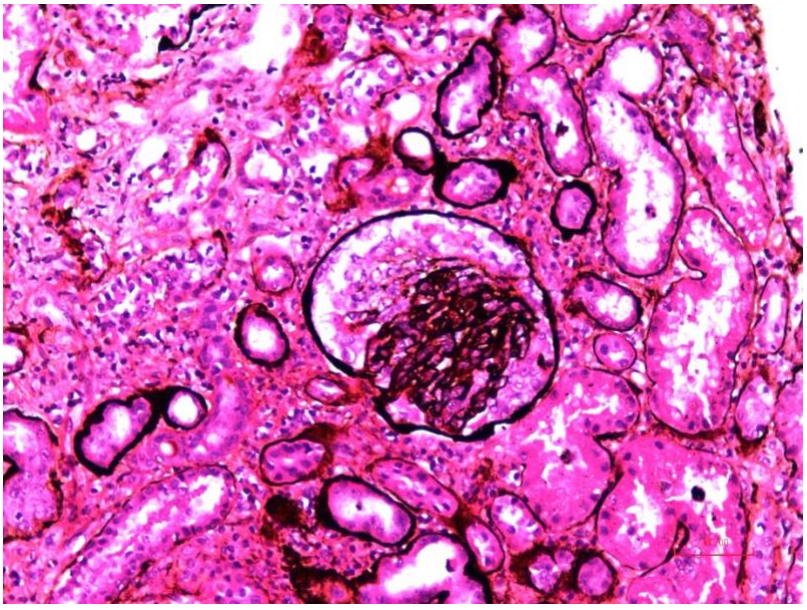

Figure 3. Low-power view of one another glomerulus from the same biopsy showing global collapse of capillary tufts associated with marked podocyte hyperplasia forming pseudocrescent. There is mild tubular atrophy and interstitial inflammation in the background. (Jones Methenamine Silver stain, ×100).

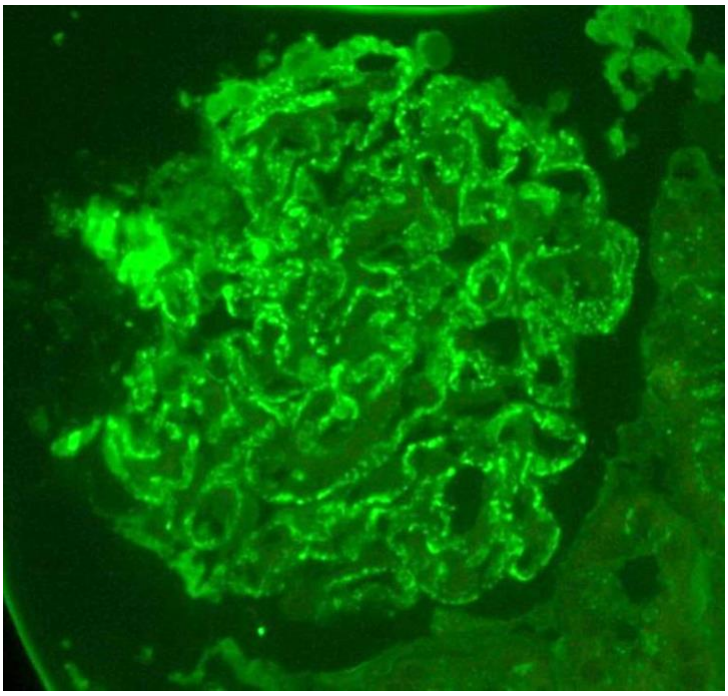

Figure 4. Immunofluorescence (IF) staining of the above case showed granular membranous positivity of IgG along capillary walls, as shown here. C3 also showed similar positivity. (IF stain for IgG, ×400).

Questions

Q1. What is the main morphological finding in this biopsy?

Q2. What is the underlying disease in this case?

Q3. What is the significance of finding FSGS lesions in other forms of glomerulonephritis (GN)?

Answers on next page.

Answers

Answer 1. The main morphological lesion in this biopsy consists of collapsing FSGS. Both segmental and global forms of the lesion are seen. However, on close inspection, it is also appreciated that non-collapsed capillary walls are taut and rounded in contour, raising a suspicion of underlying membranous nephropathy. The history was also suggestive of recurrence of the primary kidney disease. PLA2R was also markedly raised. Hence, IF was performed on paraffin-embedded tissue, which showed the above pattern for IgG (Figure 4) and C3 (not shown).

Answer 2. The underlying disease is recurrent idiopathic membranous nephropathy. FSGS lesions, although, very prominent and prevalent, are secondary in nature and represent progressive, aggressive form of membranous nephropathy.

Answer 3. The presence of FSGS lesions in other forms of GN such as membranous nephropathy and IgA nephropathy indicates progressive nature of the underlying disease. It is always necessary to exclude secondary causes of FSGS before labeling it as primary or idiopathic FSGS, a distinct disease entity.