

Fidelity of the Columbia classification of FSGS

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Case scenario

These are representative images of a renal biopsy from a biopsy of a 33-year-old male with no known co-morbidities. He presented with generalized body swelling and frothy urine for 1.5 months. The biopsy was adequate with both cortex and medulla. Upto 17 glomeruli were included. The majority of glomeruli were unremarkable. Some of the representative glomeruli with pathologic lesions are shown in the following images.

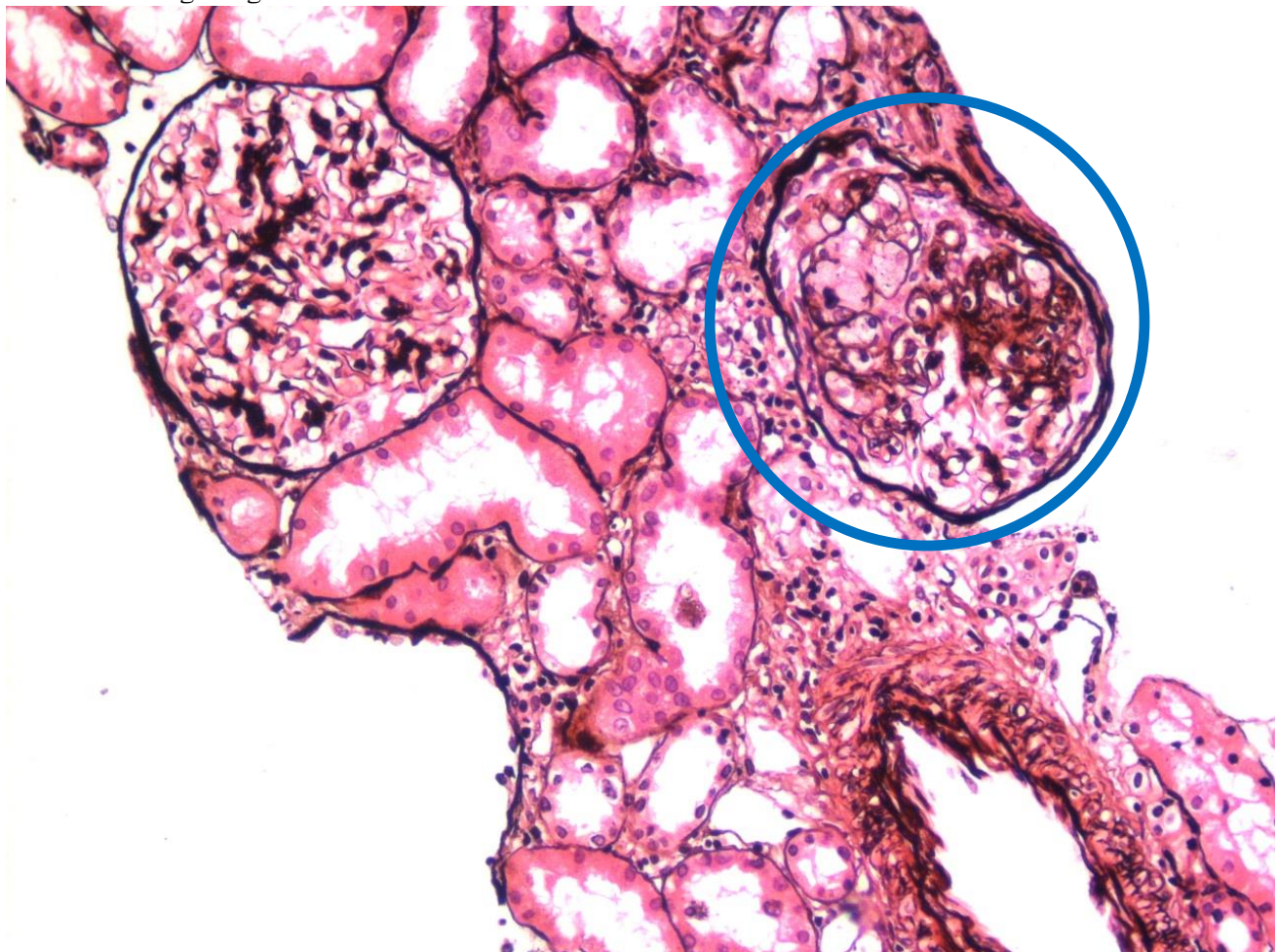


Figure 1. Medium-power view showing renal cortex with two glomeruli and one interlobular size artery. One glomerulus is unremarkable, whereas the other one is abnormal. The artery is also unremarkable. There is mild interstitial inflammation. Let us see the abnormal glomerulus at high magnification in Figure 2. (Jones Methanamine Silver, x200).

Nephro Pathology Quiz

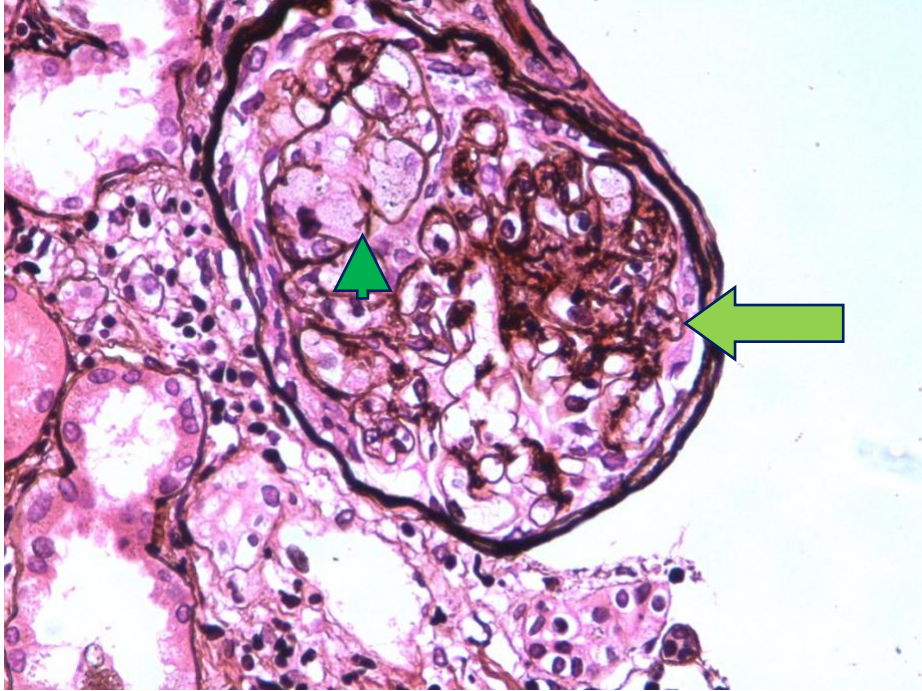


Figure 2. High-power view showing the detailed structure of the abnormal glomerulus encircled in Figure 1 above. The lesions are marked by arrow and arrowhead. Only a small portion of the glomerulus at 6 o clock position appears normal in architecture. There is mild interstitial inflammation. (Jones Methanamine Silver, $\times 400$).

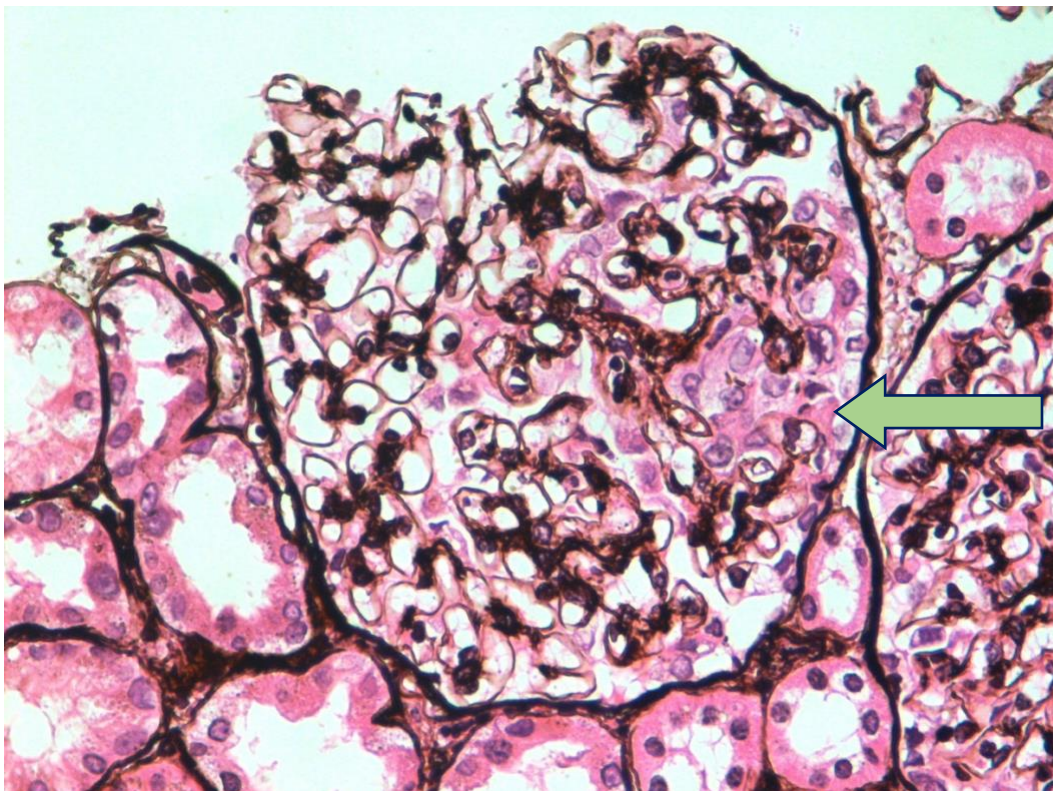


Figure 3. High-power view showing the detailed structure of another glomerulus with a segmental pathological lesion (arrow). (Jones Methanamine Silver, $\times 400$).

Nephro Pathology Quiz

Questions

Q1. What is the distribution and nature of lesions?

Q2. What are other lesions that can be seen in this condition?

Q3. What is the final diagnosis?

Answers continued on the next page

Nephro Pathology Quiz

Answer 1. The lesion is distributed focally (involving <50% of the glomeruli) and segmentally in affected glomeruli (Figures 2 and 3). Regarding the nature of the lesions, they consist of sclerosis (arrow in Figure 2), expansive lesions with endocapillary hypercellularity (arrowhead in Figure 2), and collapsing lesions comprising of collapse of capillary tufts and podocyte hyperplasia and hypertrophy. Collectively, all these lesions constitute hallmarks of focal segmental glomerulosclerosis (FSGS).

Answer 2. Other common lesions seen in FSGS include hyalinosis, adhesion formation with Bowman's capsule, global glomerulosclerosis, vasculopathy, and different degrees of tubular atrophy and interstitial fibrosis. As a matter of fact, FSGS represents a progressive form of renal damage that ultimately ends in end-stage kidney disease (ESKD).

Answer 3. The final diagnosis in this case was rendered as FSGS, collapsing variant. Although the location of the lesions in the affected glomeruli was indeterminate and all three types of pathological lesions were present in this case, because the presence of collapsing lesions preempts all other variants, this lesion was classified as the collapsing variant of FSGS. No additional studies, eg. immunofluorescence are needed for it. The Columbia classification of FSGS is based on morphological features only and can be applied to the images shown here. It is a hierarchical classification requiring both positive and negative criteria. However, many investigators question the very basis of this classification. Often, more than one variant morphology may be observed in an individual case, as in the present case. In such cases, a hierarchical approach helps in classifying the disease.

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