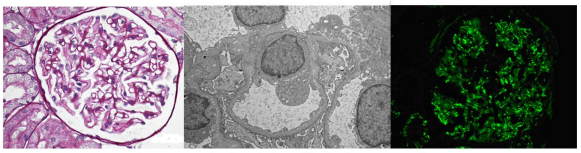
International Veterinary Renal Pathology Service



Tissue Analysis with a Clinical Perspective

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Renal Biopsy Report

Preliminary ◉ **Final** ○

17-Jan-2017

Case Identification

'Pumpkin' Orges
11 yrs,0 mths, neutered male Golden Retriever dog
VCA AREC-AZ Case No.: 55954 IVRPS Accesssion No: B170101

Clinical Synopsis (Dr. Jessica Markovich; 28-Dec-2016):

Pumpkin is being evaluated for proteinuric nephropathy (UPC, 7.9) that is accompanied by azotemia (SCr, 2.0) and borderline hypoalbuminemia (SAlb, 2.4) but not hypertension (SysBP, 126). About 10 months ago, he had tricavitary effusions due to an Achromobacter bloodstream infection. He also has a past history of hypothyroidism and obesity.
Ultrasound-guided needle biopsies of kidney were obtained on December 28, 2016.

Specimens (received on 04-Jan-2017):

Tissue cores appropriately processed for light microscopy, transmission electron microscopy, and immunostaining were received in good condition.

Morphologic diagnosis (Rachel Cianciolo; 07-Jan-2017 10:15 MST)

Focal segmental glomerulosclerosis with marked podocyte injury and multifocal interstitial fibrosis with tubular atrophy

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Pathologic findings:

Light Microscopy (Rachel Cianciolo; 07-Jan-2017 10:41 MST):

Three excellent cylindrical biopsy cores of renal cortex are examined. There are more than 60 glomeruli available for evaluation, and approximately 1/5 of them are globally sclerotic. Half of the remaining glomeruli are characterized by varying degrees of similar lesions. They have segmental effacement of peripheral capillary loops by extracellular matrix (segmental sclerosis) (Figures 1-4). Many glomeruli have evidence of marked podocyte injury characterized by cytoplasmic reabsorption droplets. There are frequent adhesions between glomerular tufts and Bowman's capsules (synechiae), some of which are quite broad. Additionally, some glomeruli have hyalinosis which is due to plasma insudation into capillary walls and mesangial zones (Figures 5-8). There is mild segmental mesangial hypercellularity and occasional mesangial cell interpositioning. Endocapillary hypercellularity is not a feature. The peripheral capillary loops have a smooth contour. The interstitium is multifocally expanded by mature fibrosis and minimal to mild scattered inflammation. Tubules in these regions are atrophic (Figures 9-12).

Electron Microscopy (Rachel Cianciolo; 07-Jan-2017 10:46 MST):

Pending.

Immunostaining (Rachel Cianciolo; 17-Jan-2017 18:40 MST):

One long core of renal cortex and smaller fragments of tissue, containing 14 glomeruli, is available for immunofluorescence evaluation.
IgG: Negative (14 glomeruli).
IgM: Diffuse segmental weak (1+) granular to moderate (2+) splotchy non-specific labeling of mesangial zones (14 glomeruli).
IgA: Focal segmental trace (+/-) granular staining in mesangial zones (14 glomeruli).
C3: Negative (14 glomeruli).
C1q: Negative (14 glomeruli).
KLC: Negative (14 glomeruli).
LLC: Focal segmental trace (+/-) granular staining in mesangial zones (14 glomeruli).

Interpretation/Comment:

Rachel Cianciolo: 07-Jan-2017 10:50 MST

The segmental sclerosis and podocyte injury are likely the cause of the proteinuria. There is no histologic evidence of underlying immune complexes that are driving the podocyte injury and sclerosis, but EM and IF are required to definitively rule out these types of processes. Notably, the degree of sclerosis and number of glomeruli affected as well as the degree of tubulointerstitial injury indicate that this is a chronic process. Sclerosis and tubulointerstitial scarring are irreversible lesions and often lead to chronic progressive renal insufficiency.

Rachel Cianciolo: 17-Jan-2017 18:43 MST

The immunofluorescence evaluation does not reveal evidence of underlying immune complex deposition. There is splotchy labeling with IgM. However, IgM is a large sticky molecule which often binds non-specifically with sclerotic segments or regions of hyalinosis, both of which were lesions identified in the light microscopy sample.

LM Figures

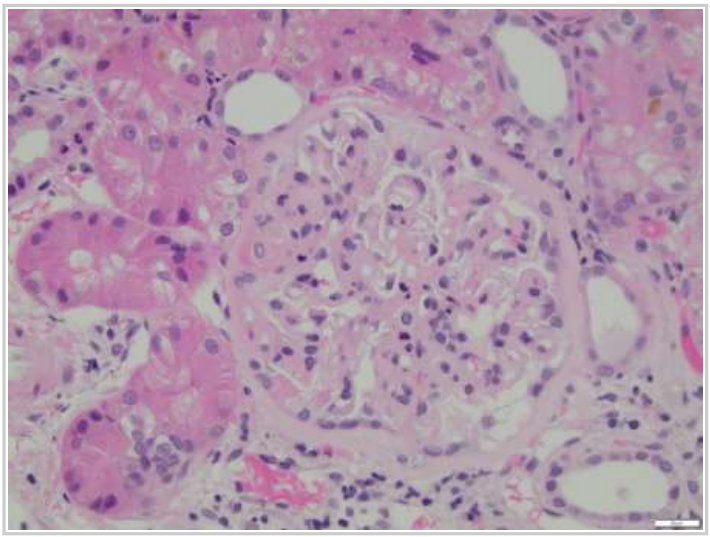

Figure 1

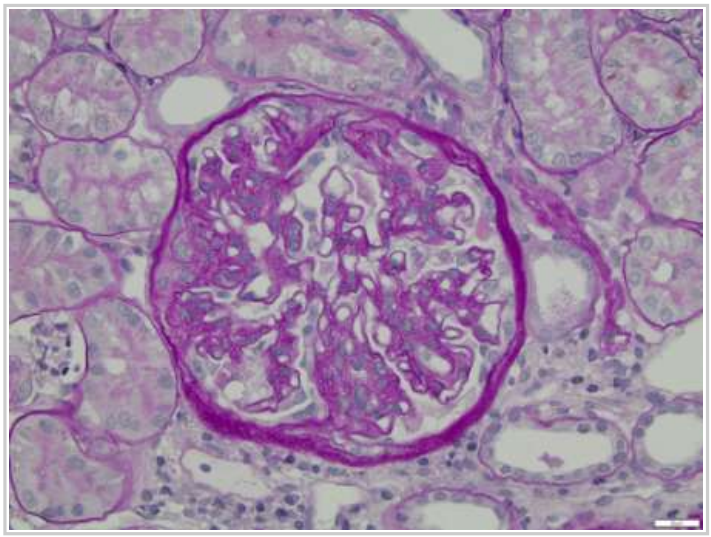

Figure 2

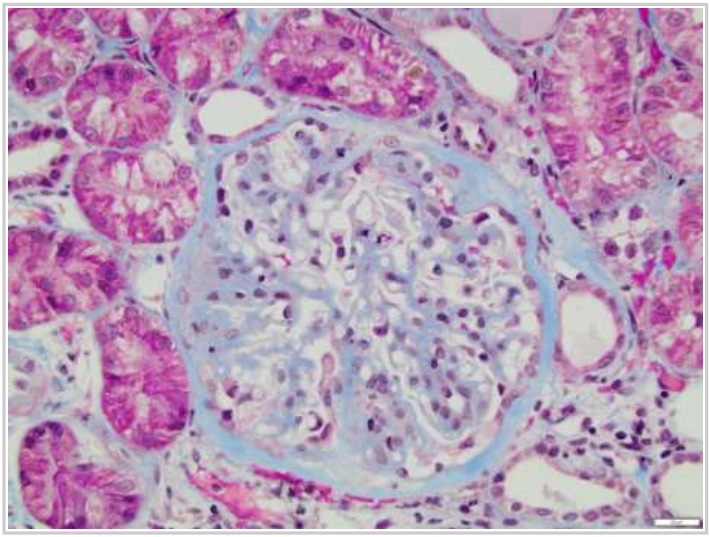

Figure 3

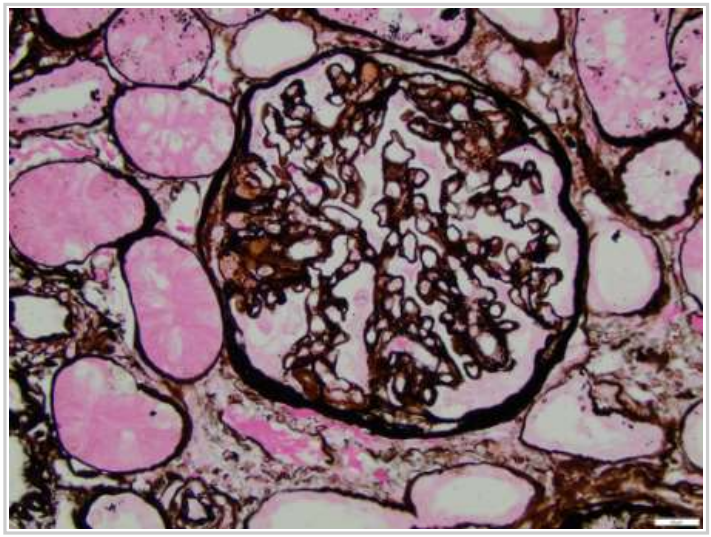

Figure 4

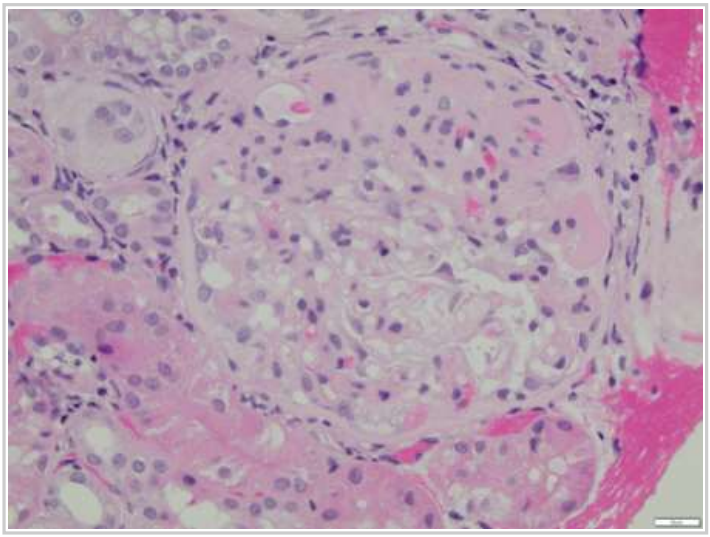

Figure 5

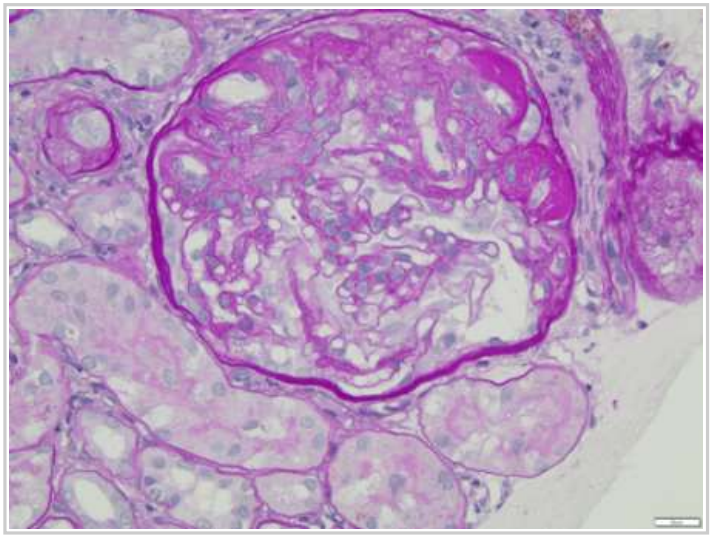

Figure 6

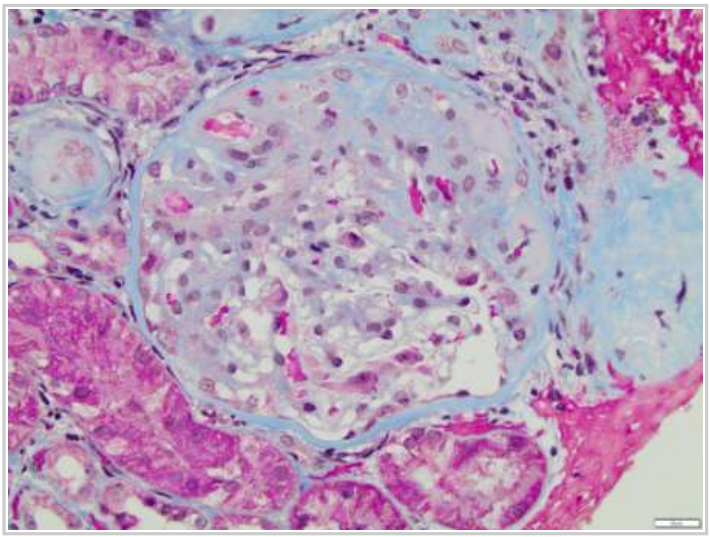

Figure 7

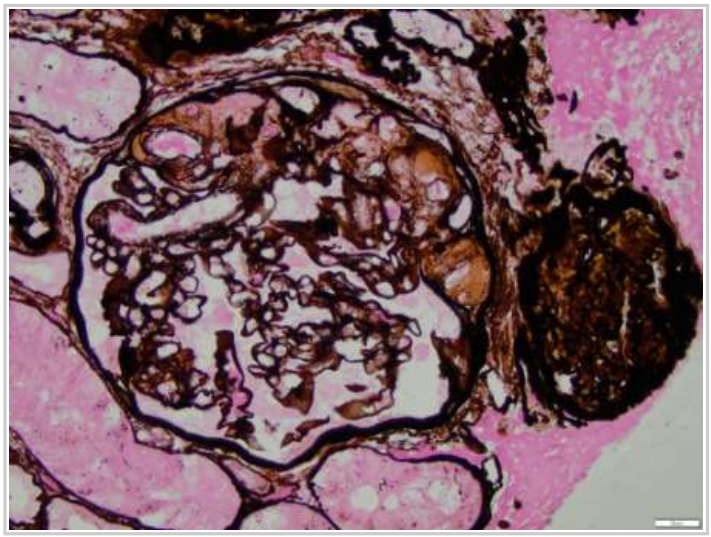

Figure 8

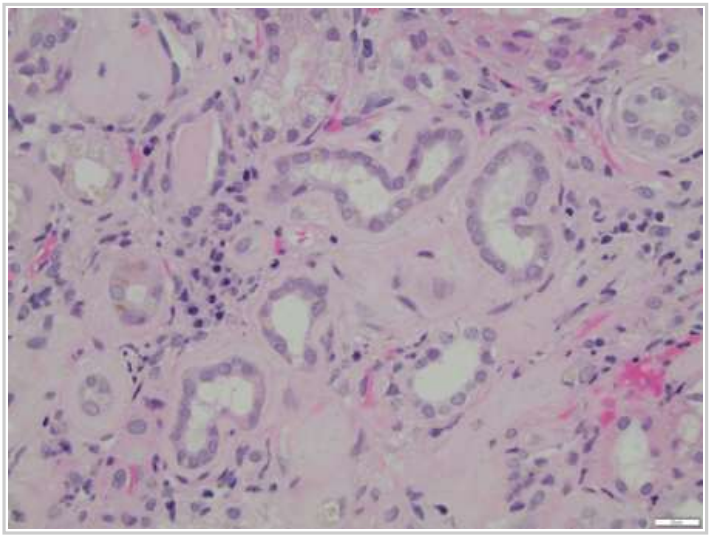

Figure 9

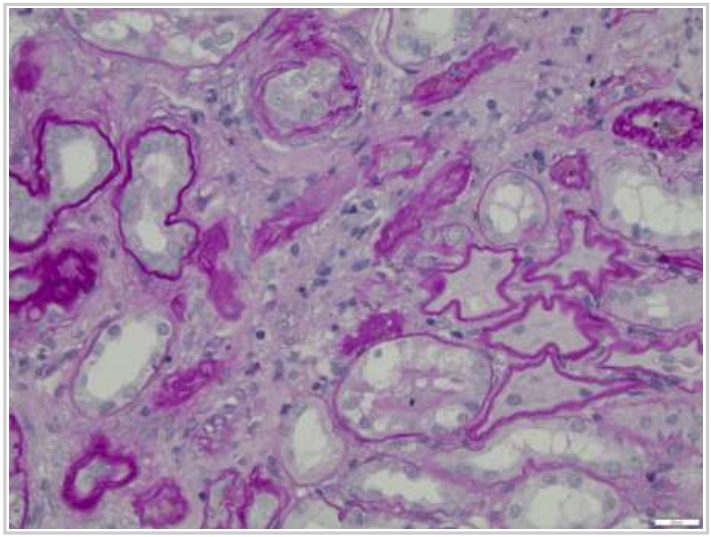

Figure 10

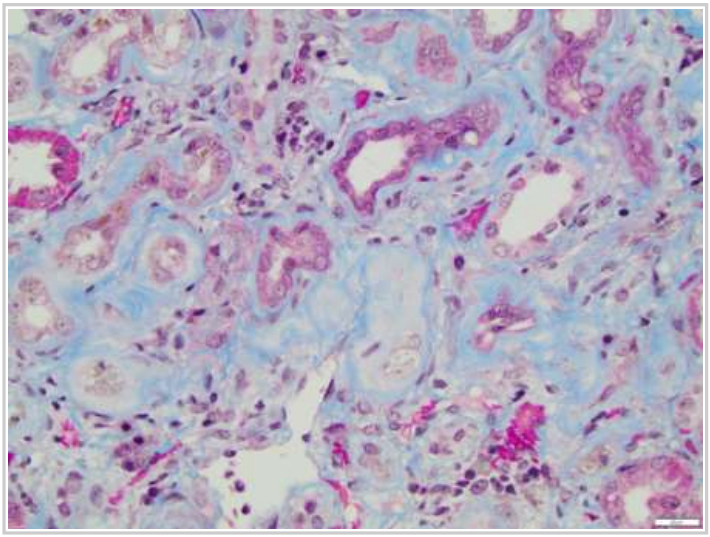

Figure 11

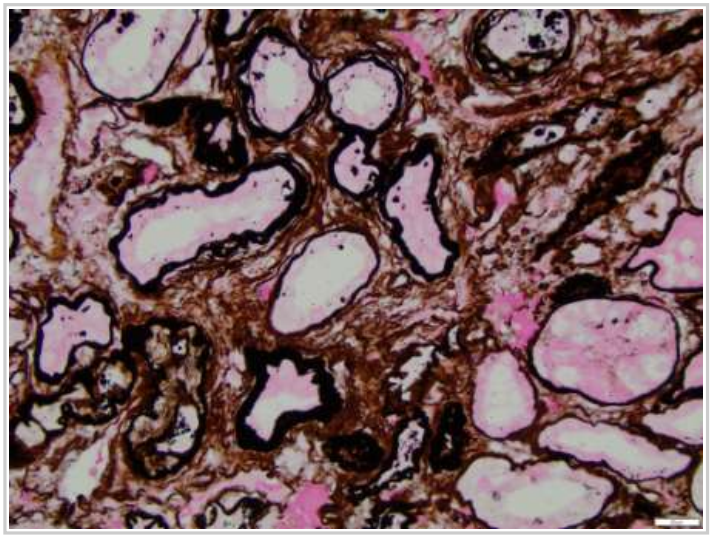

Figure 12