

Supplemental Table 1. Morphological differences between Patients with Normotension, Moderate Hypertension, and Malignant Hypertension at the Time of Diagnosis

	Normotension	←p→	Hypertension	←p→	Malignant Hypertension	p (vs NTN)
	63 patients		47 patients		18 patients	
FSGS Type						
No FSGS	20 (31.7%)		8 (17.0%)		0 (0%)	
FSGS, NOS	24 (38.1%)		22 (46.8%)		5 (27.8%)	
FSGS, Perihilar variant	2 (3.2%)		5 (10.6%)		0 (0%)	
FSGS, Tip lesion	3 (4.8%)		1 (2.1%)		0 (0%)	
FSGS, Cellular variant	10 (15.9%)		9 (19.1%)		8 (44.4%)	
FSGS, Collapsing glomerulopathy	4 (6.3%)		2 (4.2%)		5 (27.8%)	
Chi ² = 28.34, p = .041						
Oxford Criteria						
Mesangial hypercellularity	12/63 = 19.0%	NS*	19/47 = 40.4%	NS*	12/18 = 66.7%	.0002
Gl. endocapillary prolif.	13/63 = 20.6%	NS	10/47 = 21.3%	.05	8/18 = 44.4%	NS*
Segmental glsclerosis**	48/63 = 76.2%	NS	42/47 = 89.4%	NS	17/18 = 94.4%	NS*
Tubular atrophy/Interstitial fibrosis (%)	19.1 (10-30)	.0002	33.1 (20-50)	.00002	67.1 (60-90)	.000000
Other Parenchymal Parameters						
Gl. necrosis	8/63 = 12.7%	.049	1/47 = 2.1%	NS	1/18 = 5.35%	NS
Gl. extracapillary prolif.	14/63 = 22.2%	NS	7/47 = 14.9%	.0005	10/18 = 55.5%	.004
% sclerotic glomeruli	22.1 (0 – 33)	.0005	38.9 (17-67)	.0014	68.7 (60-83)	.000001
Interstitial inflammation	0.70 (0 – 1)	.0014	1.40 (0-2)	NS	1.65 (1-2)	.00026
Arterial Parameters						
Arteriosclerosis (global)	1.47 (1-2)	.00039	2.30 (2-3)	NS	2.18 (2-3)	.0125
Arterial intimal sclerosis	0.77 (0-1)	.0005	1.52 (1-2)	NS	1.75 (0.5-3.0)	.0041
Arterial S/M hypertrophy	0.46 (0-1)	NS	0.67 (0-1)	.0016	1.41 (1-2)	.000011
Arteriolar Parameters						
Arteriolar lumen	2.59 (2-3)	NS	2.40 (2-3)	.0067	1.91 (1.5-2.0)	.00002
Arteriolar S/M hypertrophy	0.36 (0-1)	NS	0.50 (0-1)	NS*	0.85 (0.5-2.0)	.00071
Arteriolar hyaline deposits	0.76 (0-1)	NS	1.04 (0-2)	NS*	0.38 (0-1)	NS
TMA						
Arterial						
Acute, with fibrin	2/63 = 3.2%	NS*	6/47 = 12.8%	NS*	6/18 = 33.3%	.0002
Organized	3/63 = 4.8%	.004	11/47 = 23.4%	NS	6/18 = 33.3%	.0007
Arteriolar						
Acute, with fibrin (% cases)	6/63 = 9.5%	NS	9/47 = 19.1%	NS	4/18 = 22.2%	NS
Organized (% cases)	20/63 = 31.7%	.02	25/47 = 53.2%	NS	11/18 = 61.1%	NS
Any TMA (acute or organized, arterial or arteriolar)	20/63 = 31.7%	.0004	31/47 = 65.9%	.004	18/18 = 100%	.0000

Values expressed as mean (25th-75th percentile) or percentages. p calculated by Mann-Whitney U test or Fisher's exact test as appropriate.

* - Nonsignificant after Holm-Bonerroni correction to minimize type 1 error ($\alpha = 0.05$).

** Segmental glomerulosclerosis in the Oxford classification includes all segmental scars and adhesions. To be diagnosed as FSGS, there must be in addition epithelial proliferation and/or hyalinosis lesions (El Karoui, et al., *Kidney international*, 2011). Hence, the seeming disparity between figures for segmental glomerulosclerosis and those for FSGS.

Supplemental Table 2. Comparison of Morphologic Lesions between Patients with and without Thrombotic Microangiopathy (TMA)

	TMA	No TMA	p
	69 patients	59 patients	
Glomerular Lesions			
% Sclerotic Glomeruli	50.7 (23.3-71.4)	15.1 ± 2.4%	.000000
FSGS	62/69 = 89.9%	30/59 = 50.8%	.0000
Glomerular Necroses	3/69 = 4.3%	7/59 = 11.9%	NS
Extracapillary Proliferation	22/69 = 31.9%	9/59 = 15.3%	NS
Oxford Classification Parameters			
Mesangial Hypercellularity	34/69 = 49.3%	8/59 = 13.6%	.0000
Segmental Glomerulosclerosis**	55/69 = 79.7%	26/59 = 44.1%	.0000
Endocapillary Proliferation	25/69 = 36.2%	6/59 = 10.1%	.0000
Tubular Atrophy/ Interstitial Fibrosis (%)	45.4 (25-60)	14.4 (5-20)	.000000
FSGS Type			
No FSGS	4 (4.80%)	23 (39.0%)	<.00001
FSGS, NOS	31 (42.0%)	22 (37.3%)	
FSGS, Perihilar variant	6 (8.7%)	1 (1.7%)	
FSGS, Cellular variant	19 (27.5%)	8 (13.6%)	
FSGS, Collapsing glomerulopathy	10 (14.5%)	1 (1.7%)	
FSGS, Tip lesion	1 (1.5%)	3 (5.1%)	
Tubulointerstitial Lesions			
Tubular Atrophy	2.17 (2-3)	0.75 (0-1)	.000000
Interstitial Inflammation	1.63 (1-2)	0.46 (0-1)	.000000
Arterial and Arteriolar Lesions			
Arterial Intimal Sclerosis	1.63 (1-2.5)	0.58 (0-1)	.000000
Arterial S/M Hypertrophy	0.90 (0-2)	0.34 (0-0.5)	.0001
Arterial Hyaline Deposits	0.43 (0-1)	0.13 (0-0)	.0008
Arteriolar Hyaline Deposits	0.91 (0-1.5)	0.72 (0-1)	NS
Arteriolar Lumen Size	2.16 (2-2.5)	2.77 (3-3)	.000000
Arteriolar S/M Hypertrophy	0.66 (0-1)	0.24 (0-0.5)	.000001
JGA hyperplasia	13/69 = 18.8%	3/50 = 6.0%	NS*
Type and Location of TMA			
Arterial Fibrinoid TMA	13/67 = 19.4%		
Arterial Organized TMA	19/67 = 28.4%		
Arteriolar Fibrinoid TMA	19/67 = 28.4%		
Arteriolar Organized TMA	52/67 = 77.6%		

Values expressed as mean (25th-75th percentile) or percentages. p calculated by Mann-Whitney U test or Fisher's exact test as appropriate.

* - Nonsignificant after Holm-Bonferroni correction to minimize type 1 error ($\alpha = 0.05$).

** Segmental glomerulosclerosis in the Oxford classification includes all segmental scars and adhesions. To be diagnosed as FSGS, there must be in addition epithelial proliferation and/or hyalinosis lesions (El Karoui, et al., KI, 2011). Hence, the seeming disparity between figures for segmental glomerulosclerosis and those for FSGS.

Supplemental Figures – Figure Legends

Figure S1. Interlobular artery showing marked medial hypertrophy. In addition to hypertrophy there is probable smooth muscle hyperplasia. Patient hypertensive. Masson trichrome stain (MS), X550.

Figure S2. Glomerulus with capillary thrombi. This is the sole glomerulus in 128 biopsies to show capillary thrombi. Patient normotensive on antihypertensive agents. MS, X450.

Figure S3. Recent thrombus in an interlobular artery. Although organized thrombi are frequent in arteries and arterioles leading to obsolescent glomeruli, fresh thrombi are somewhat uncommon. Patient with malignant hypertension. MS, X 450.

Figure S4. Organized thrombi in interlobular artery. Recanalization is evident at several points (arrows) in this artery from a case with advanced disease. Artery (upper left) shows fresh TMA. patient with malignant hypertension. MS. X350.

Figure S5. Arteries showing “onionskin” appearance. There is marked reduction of the lumens with fresh intimal fibrinoid deposits (arrow). Patient with malignant hypertension. MS. X550.

Figure S6. Smooth muscle necrosis in afferent arteriole. The necrotic smooth muscle cells (arrows) have a hyaline, spindled appearance. Marked luminal narrowing. Patient hypertensive. MS. X 550.

Figure S7. Artery with TMA. CD61-positive granular material is patchy, present in one dilated luminal cross section, but not in other. anti-CD61. This patchy distribution is common. X350*

Figure S8. Arterioles with Medial CD61-positive Material. One lumen has an evident thrombus, other doesn't. anti-CD61. X450 each*

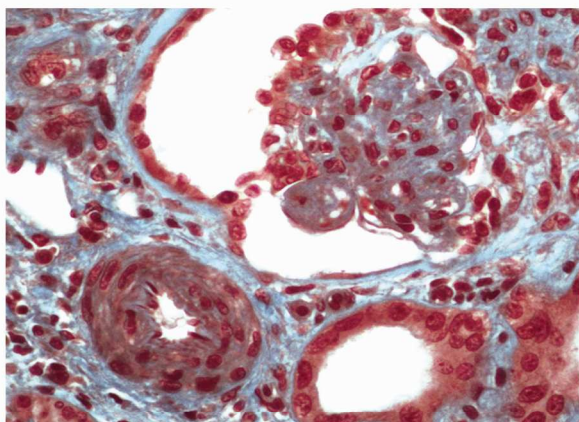
Figure S9 - Artery and Arterioles with TMA. Both have apparent thromboses. That in the arteriole (above) is CD-61 positive, where as that in the artery is negative. anti-CD61. X 400*

Figure S10. Thrombus within Venule - A thrombus is present within a small periarterial venule. Arrow shows platelet aggregate admixed with fibrinous material. anti-CD61. X450*

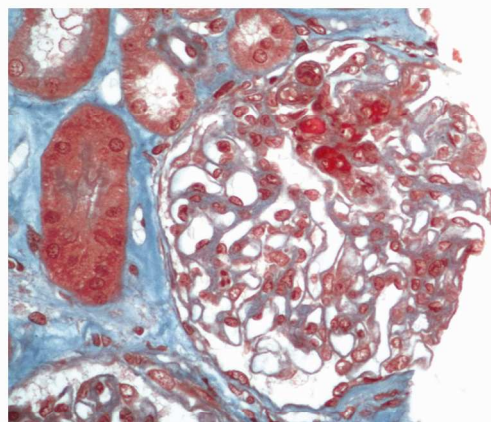
Figure S11. Platelet Aggregate in a Peritubular Capillary. anti-CD61. X500*.

Figure S12. Platelet Aggregate in a Peritubular Capillary. anit-CD61. X500*.

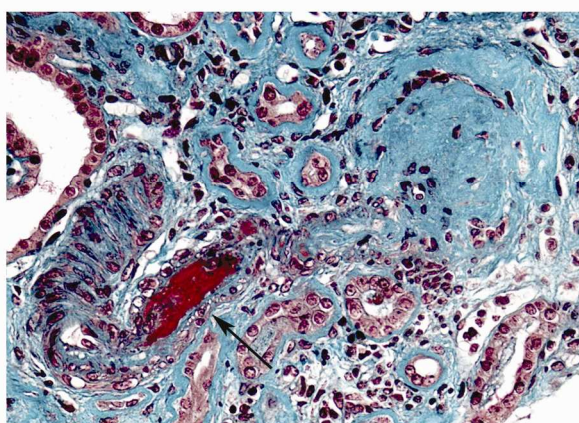
Supplemental Figures - S1- S6 - TMA in IgAN



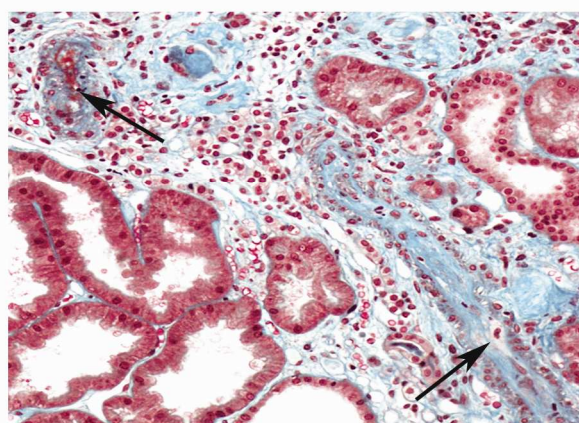
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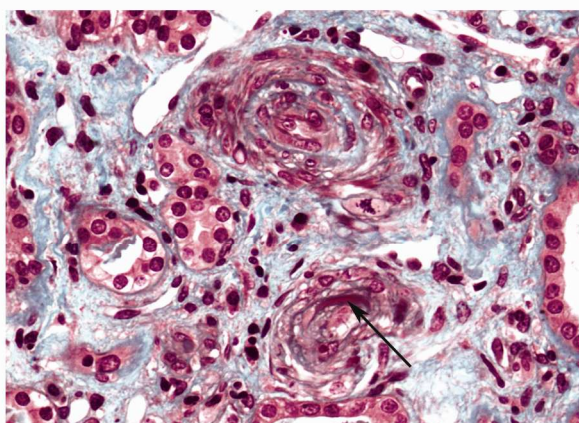
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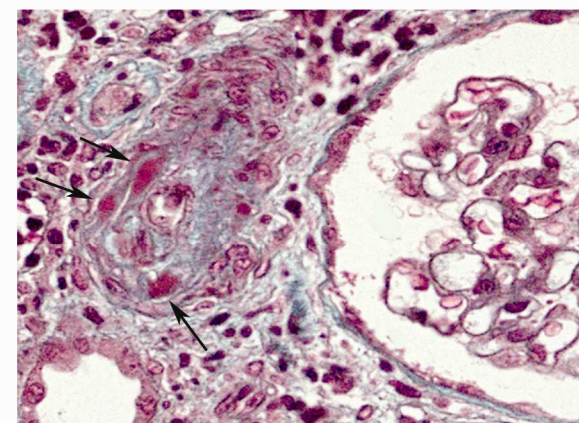
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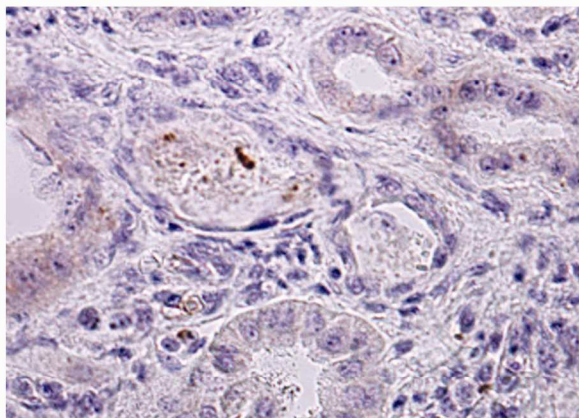


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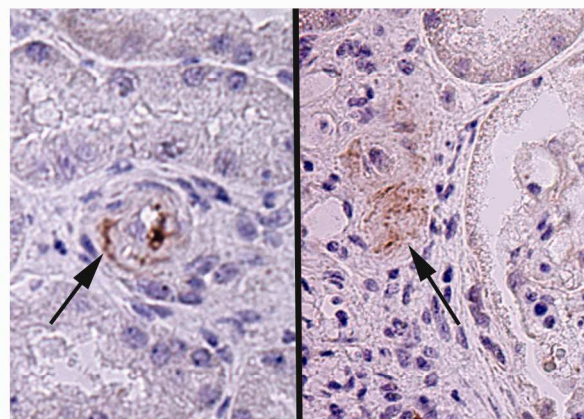


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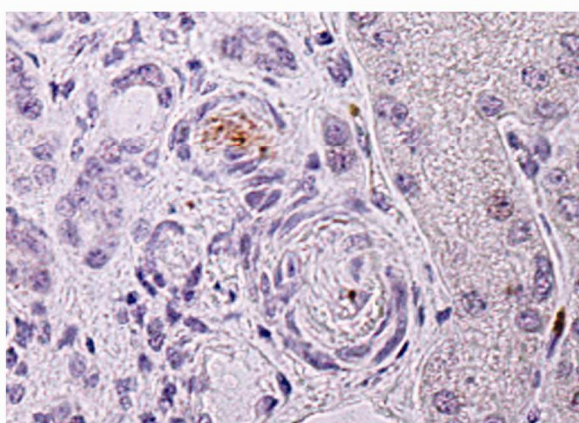
Supplemental Figures - S7 - S12 - TMA in IgAN



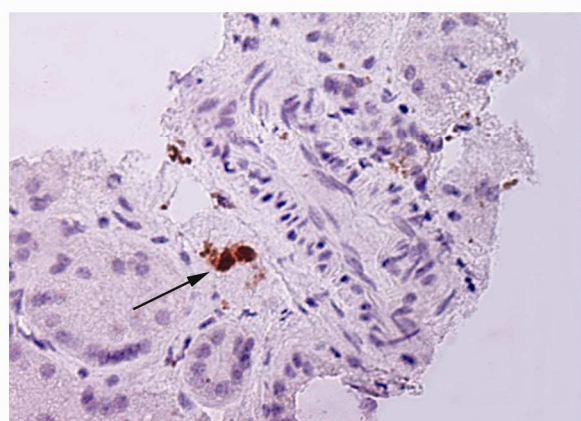
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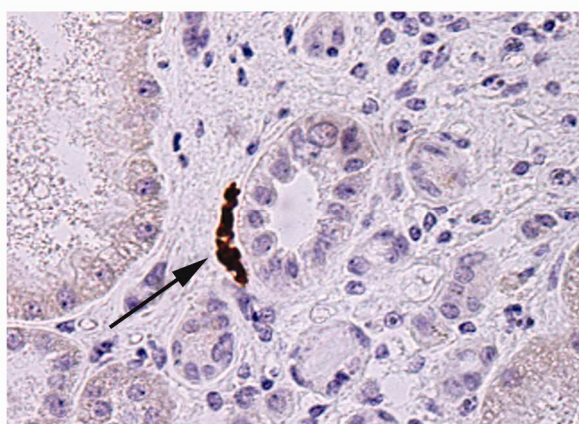
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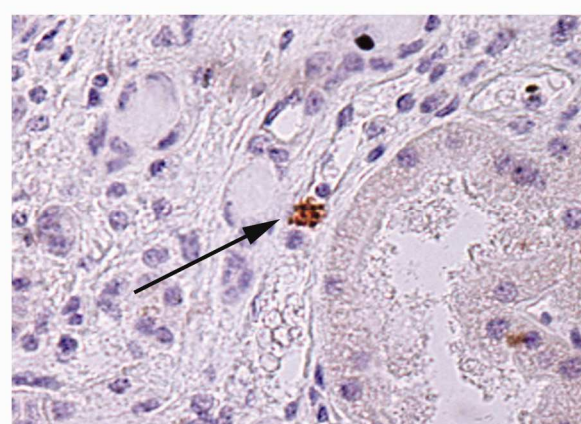
S9



S10



S11



S12