History
Premature infant with anuria.

Diagnosis
Papillary Necrosis

Discussion
The renal artery branches to form segmental arteries that further divide into lobar, interlobar and then arcuate arteries. The arcuate arteries parallel the corticomedullary junction and give rise to interlobar which contribute to the afferent arterioles of the glomerulus. Blood leaves the glomerular capillary network by efferent arterioles to form a secondary capillary network around the urinary tubules in the cortex or descend into the renal medulla as vasa recta. The vasa recta taper as they continue distally toward the apex, slowing flow and contributing to relative hypoxia. Further, the hypertonic environment predisposes this region to injury. Renal papillary necrosis is the consequence of ischemia. Inflammation or trauma can lead to edema of the interstitium and compression of the medullary vasculature. Hypotension (dehydration, sepsis, vascular catheter) can also contribute to papillary necrosis. Renal papillary necrosis is seen in diabetes, analgesic use, hemoglobinopathies (sickle cell disease), pyelonephritis, renal vein thrombosis, tuberculosis, and obstructive uropathy.

Findings
US-Serial renal sonography (dates annotated on images). 5/2 Increased renal echogenicity with poor corticomedullary differentiation. 5/19 Continued abnormal renal echogenicity with improving corticomedullary differentiation. 5/27 Echogenic detached papillae; one sloughed papilla is obstructing the UPJ.

Reference
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