

RENAL CALCIFICATION

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Calcification occurred in the renal medullary tubules of 7 of 33 cats with normal kidneys and much more frequently in 104 cats with scarred kidneys. The calcification was confined to the tubules of the inner zone of the medulla and did not involve the cortex. The calcified area was white with faint radial streaks and often felt gritty. Calcification starts as fine granules along the circumference of the tubular basement membrane. Further deposition of calcium causes focal dense granular plaques that bulge into the interstitium and tubular lumens. Almost all cats over 3 years had some degree of renal calcification in otherwise normal kidneys, which increased with age. No calcification could be detected in the lungs, heart, pancreas or stomach of any cat in this series. Fine calcareous granules were a common finding in the media of the aorta, occurring with equal frequency in cat with scarred and unscarred kidneys.

The lesions are dystrophic, with calcium salts being deposited in injured, degenerating or necrotic tissues. Hyaline thickening and accumulating of cholesterol esters in the tubular basement membrane precedes the deposition of calcium. Calcification is not found in the thickened but lipid-free basement membranes of cortical tubules, so lipid accumulation is necessary for calcification. Hyalinization and deposition of lipids in normal kidneys appear to be a manifestation of senescence, related to age. It is doubtful that genetic or dietary factors are involved, and none of these cats had urinary calculi.