analgesic drugs often go unreported by the patient. It is important to recognize this syndrome because, if the drugs are not discontinued, a later development may be urothelial cancers of the distal ureter and urinary bladder. Lithium after prolonged use can also cause chronic interstitial nephritis along with nephrogenic diabetes insipidus and slowly progressive kidney failure.

Patients who have hypercalcemia or hyperoxaluria may develop nephrocalcinosis, a form of interstitial nephritis characterized by calcifications within the renal parenchyma, often at the cortical medullary boundary. When nephrocalcinosis and nephrolithiasis are concurrent, the most common etiologies include hypercalcemic disorders, particularly primary hyperparathyroidism, and congenital medullary sponge disease (tubular ectasia), as well as hereditary distal RTA. In patients with DM, chronic analgesic use, or sickle-cell diseases, the phenomenon of papillary necrosis is associated with chronic interstitial damage characterized by nephrogenic diabetes insipidus. For example, phenacetin toxicity is a result of the drug's concentrating in the medulla due to the normal urinary concentrating mechanism; ironically, the first function lost because of medullary toxicity is the ability to concentrate the urine. In the ensuing papillary necrosis, the patient may observe solids in the urine, which are sloughed tissue from the ischemic medulla. When a patient with inflammatory bowel disease or one who has had gastric bypass procedures such as the Roux-en-Y develops kidney injury, with or without calcium oxalate kidney stones, a 24-h urine oxalate measurement must be determined to diagnose intestinal hyperoxaluria, which otherwise may lead to nephrocalcinosis. Chronic bacterial pyelonephritis is not a common cause of chronic renal failure because it rarely affects both kidneys. Acute pyelonephritis in a solitary kidney or transplanted kidney may cause AKI.

■ PROTEINURIC STATES AND NEPHROTIC SYNDROME

Proteinuric States Some patients notice generalized edema and foamy urine, manifestations of proteinuria. Proteinuria is not synonymous with nephrotic syndrome (NS). In DM the urinary loss of microalbuminuria (MALB) defines glomerular proteinuria, which