

over the flank and sometimes exquisite costovertebral angle tenderness, requiring gentle palpation for diagnosis.

The nephritic syndromes may be further subdivided depending on the inflamed structures within the kidney, including vascular, glomerular, and tubulointerstitial; and also, on the time course of progression of the inflammatory process, which may be acute, subacute, or chronic.

■ GLOMERULONEPHRITIS

Glomerulonephritis (GN) is associated with hypertension, volume expansion, and an abnormal urinalysis. In most cases, the volume expansion manifests as edema and hypertension; in the child, ascites may develop; and in the elderly, restlessness and anxiety may be the first signs of incipient acute pulmonary edema. There may be orthopnea at night or dyspnea on exertion, with or without significant peripheral edema. Acute GN is usually associated with low urine output (oliguria or at times complete anuria), low urine sodium content, and concentrated urine, resulting in the retention of salt and water. It is an absolute necessity to observe the urine, including a spun urinary sediment, to diagnose active GN.

The disease presentation may be acute or subacute (postinfectious GN and rapidly progressive GN), occurring over days or weeks; or it may be chronic, occurring over many months to years. The pathologic correlate of these presentations—the relative amount of acute inflammatory, proliferative, or necrotizing lesions in renal tissue versus chronic sclerotic and atrophic findings on renal biopsy—reflects the acuity versus chronicity of disease. Therefore, in these progressive destructive conditions, early diagnosis is critical and treatment for acute reversible disease should be instituted as quickly as possible.

The evaluation of the findings on history, physical examination, and urinalysis in narrowing diagnostic possibilities for a specific etiology of the glomerular syndromes is demonstrated in **Fig. 308-1**. The nephritic urinalysis shows hematuria, proteinuria, cells or clumps of cells, and cellular casts in the spun urinary sediment. The cells in the urine are usually a mixture of red blood cells and inflammatory cells, including polymorphonuclear (PMN) leukocytes. Microscopic