occur. Although the skin is the predominant organ involved, systemic vasculitis may result from drug reactions. Drugs that have been implicated in vasculitis include allopurinol, thiazides, gold, sulfonamides, phenytoin, and penicillin **(Chap. 60)**.

An increasing number of drugs have been reported to cause vasculitis associated with ANCA. Of these, the best evidence of causality exists for hydralazine and propylthiouracil. The clinical manifestations in ANCA-positive drug-induced vasculitis can range from cutaneous lesions to glomerulonephritis and pulmonary hemorrhage. Outside of drug discontinuation, treatment should be based on the severity of the vasculitis. Patients with immediately life-threatening small-vessel vasculitis should initially be treated with glucocorticoids and cyclophosphamide as described for granulomatosis with polyangiitis. Following clinical improvement, consideration may be given for tapering such agents along a more rapid schedule.

■ SERUM SICKNESS AND SERUM SICKNESS–LIKE REACTIONS

These reactions are characterized by the occurrence of fever, urticaria, polyarthralgias, and lymphadenopathy 7–10 days after primary exposure and 2–4 days after secondary exposure to a heterologous protein (classic serum sickness) or a nonprotein drug such as penicillin or sulfa (serum sickness–like reaction). Most of the manifestations are not due to a vasculitis; however, occasional patients will have typical cutaneous venulitis that may progress rarely to a systemic vasculitis.

■ VASCULITIS ASSOCIATED WITH OTHER UNDERLYING DISEASES

Certain *infections* may directly trigger an inflammatory vasculitic process. For example, rickettsias can invade and proliferate in the endothelial cells of small blood vessels causing a vasculitis **(Chap. 187)**. In addition, the inflammatory response around blood vessels associated with certain systemic fungal diseases such as histoplasmosis **(Chap. 212)** may mimic a primary vasculitic process.