

areas for biopsy. Cardiac PET scanning has also proved useful in assessing cardiac sarcoidosis. The identification of hypermetabolic activity may be due to the granulomas from sarcoidosis and not to disseminated malignancy.

MRI has also proved useful in the assessment of extrapulmonary sarcoidosis. Gadolinium enhancement has been demonstrated in areas of inflammation in the brain, heart, and bone. MRI scans may detect asymptomatic lesions. Like the PET scan, MRI changes appear similar to those seen with malignancy and infection. In some cases, biopsy may be necessary to determine the cause of the radiologic abnormality.

Serum levels of angiotensin-converting enzyme (ACE) can be helpful in the diagnosis of sarcoidosis. However, the test has somewhat low sensitivity and specificity. Elevated levels of ACE are reported in 60% of patients with acute disease and only 20% of patients with chronic disease. Although there are several causes for mild elevation of ACE, including diabetes, elevations of >50% of the upper limit of normal are seen in only a few conditions including sarcoidosis, leprosy, Gaucher's disease, hyperthyroidism, and disseminated granulomatous infections such as miliary tuberculosis. Because the ACE level is determined by a biologic assay, the concurrent use of an ACE inhibitor such as lisinopril will lead to a very low ACE level.

DIAGNOSIS

The diagnosis of sarcoidosis requires both compatible clinical features and pathologic findings. Because the cause of sarcoidosis remains elusive, the diagnosis cannot be made with 100% certainty. Nevertheless, the diagnosis can be made with reasonable certainty based on history and physical features along with laboratory and pathologic findings.

Patients are usually evaluated for possible sarcoidosis based on two scenarios (**Fig. 367-8**). In the first scenario, a patient may undergo a biopsy revealing a noncaseating granuloma in either a pulmonary or an extrapulmonary organ. If the clinical presentation is