

# Incidental splenic lesions

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**A** 43-year-old Caucasian male presented to the emergency department complaining of left lower quadrant pain that had lasted 1 day. He described the pain as “a wrench twisting my insides,” and he rated it as 8 out of 10. He also complained of nausea and non-bloody, nonbilious emesis. He did not have fever, chills, or weight loss. His medical history included diverticulitis, sigmoid colectomy, and nephrolithiasis.

The physical exam revealed a heart rate of 102 beats per minute, blood pressure of 153/89 mm Hg, respiratory rate of 20, and a temperature of 99.2°F. Abdominal exam demonstrated mild left lower quadrant tenderness to palpation without rebound or guarding. The remainder of the physical exam was unremarkable. Laboratory studies demonstrated a normal blood count and differential, and a normal comprehensive metabolic profile. The urinalysis showed 60–80 red blood cells per high-power field (RBC/HPF). A computed tomography (CT) scan of

his abdomen revealed a 3-mm calculus in the mid-left ureter without hydronephrosis, and a few small descending colon diverticuli. The patient was treated conservatively with hydration, analgesics, and antiemetic medications.

## Radiographic findings

The following day, the radiologist called the patient’s primary care physician to report that upon rereading the abdominal CT scan there appeared to be “patchy enhancement of the spleen” (**Figure 1**). Follow-up abdominal ultrasound revealed multiple irregular areas of low density within the spleen. A CT-guided spleen biopsy discovered multiple noncaseating, non-necrotizing granulomas. Subsequent chest CT revealed multiple bilateral micronodules and nodules (**Figure 2**).

- **WHAT IS THE DIAGNOSIS?**
- **WHAT ARE THE MANAGEMENT OPTIONS?**
- **WHAT IS THE PROGNOSIS?**

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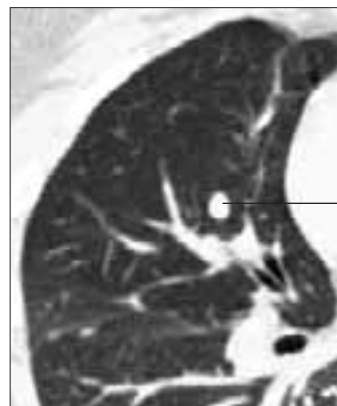
**FIGURE 1** Abdominal CT scan



Splenic nodules

*Abdominal CT scan demonstrating splenic nodules.*

**FIGURE 2** Chest CT scan



Pulmonary nodules and micronodules

*Chest CT scan demonstrating nodules/micronodules.*

Because clinical presentation varies and can involve many organ systems, sarcoidosis is often misdiagnosed

### ■ DIAGNOSIS: SARCOIDOSIS

Sarcoidosis is an idiopathic systemic disorder identified by noncaseating granulomas in affected organs. Clinical presentation is variable and can involve virtually any organ system. Because of this, sarcoidosis is often misdiagnosed. The diagnosis of sarcoidosis requires clinical and radiographic features known to be associated with sarcoidosis, noncaseating granulomas found on tissue biopsy, and exclusion of known causes of granulomatous diseases such as tuberculosis or berylliosis.<sup>1</sup>

Sarcoidosis most commonly affects adults in their third decade of life.<sup>2</sup> It is unusual to see the initial presentation of sarcoidosis after the age of 40 years—except in Scandinavia and Japan, where a second peak occurs among women after age 50 years.<sup>3,4,5</sup> There seems to be a slightly higher rate of sarcoidosis in women.<sup>1</sup> The incidence of sarcoidosis is higher in Swedes, Danes, and African Americans. The lifetime risk of sarcoidosis is 0.85% for US whites and 2.4% for US blacks.<sup>6</sup>

### Possible causes of sarcoidosis

Although the cause of sarcoidosis is unknown, there is evidence of spatial, seasonal (winter and early spring), and familial clustering. Multiple theories have been proposed suggesting possible transmissible agents as the cause of sarcoidosis, including infectious agents such as *Mycoplasma* and *Borrelia burgdorferi*.

Other proposed agents include metals and inorganic substances such as clay and pine tree pollen.<sup>10</sup> Despite extensive research, these hypotheses have not been validated. Nonetheless, there seems to be an emerging pattern of immunologic abnormalities in patients with sarcoidosis, suggesting an abnormal host response.

### ■ CLINICAL PRESENTATION OF SARCOIDOSIS

The local Th1-type T lymphocyte is now believed to be the central cell responsible for granuloma formation.<sup>10</sup> It is hypothesized that sarcoid granulomas are formed in response to chronic antigenic stimulation of genetically susceptible Th-1 T cells and subsequent macrocyte-mediated inflammation.<sup>10,11</sup> Certain HLA haplotypes have been implicated in the pathogenesis of sarcoidosis, yet there is no consistent data linking any one haplotype to the disease.<sup>11</sup>

The clinical presentation of sarcoidosis is related to the organ(s) involved. Specifically, symptoms may be a result of granuloma mass-effect, immune complex vasculitis, metabolically active granulomas, or fibrotic organ destruction. The lungs are the most commonly affected organ and lung involvement is seen in 88% of patients diagnosed with sarcoidosis.<sup>1</sup>

The most common presentation of intrathoracic sarcoidosis is bilateral hilar lymphadenopathy with or without diffuse pulmonary infiltration. This may present clinically as cough, wheeze, shortness of breath, or dyspnea on exertion.

### Appearance on the skin

Skin manifestations of sarcoidosis are also relatively common, affecting up to one third of patients.<sup>1,7</sup> Cutaneous sarcoidosis is divided into nonspecific and specific lesions. Nonspecific skin lesions do not contain granulomas on biopsy.

*Erythema nodosum*, the most common nonspecific skin lesion of sarcoidosis, is commonly seen in European, Puerto Rican, and Mexican patients.<sup>8</sup> It presents as tender, subcutaneous erythematous nodules on the lower legs.

*Lofgren's syndrome* is the combination of erythema nodosum, bilateral hilar lymphadenopathy, fever, and polyarthritides.

*Specific sarcoid lesions* may present as cutaneous papules, plaques, or enlarging scars.

*Lupus pernio* is another specific skin lesion characteristic of sarcoidosis. It presents as chronic, indurated, violaceous plaques on the nose,

cheeks, lips, ears, or nasal mucosa. Lupus pernio is more common in African American women.<sup>8</sup>

### Other manifestations

Ocular manifestations of sarcoidosis include uveitis or chorioretinitis and are present in 27% of patients with sarcoidosis.<sup>1</sup>

Sarcoidosis in peripheral lymph nodes, spleen, and liver is seen in 10% to 30% of patients with sarcoidosis; however, these tend to be incidental findings.<sup>1</sup> Occasionally, hepatomegaly and splenomegaly are present.

Liver enzymes are typically normal, however a mildly elevated alkaline phosphatase is sometimes seen.<sup>1</sup> Neurological, cardiac, and renal involvement are uncommon, affecting less than 5% of patients with sarcoidosis.<sup>1,13</sup> Hypercalciuria with or without hypercalcemia is commonly seen secondary to overproduction of 1,25-vitamin D.<sup>8</sup>

### DIFFERENTIAL DIAGNOSIS

The differential diagnoses of solid splenic lesions can be divided into 3 categories: granulomatous disease, metastasis, and primary masses. Granulomatous diseases include tuberculosis, histoplasmosis, and sarcoid.

Metastasis is most commonly from melanoma, lymphoma, breast, or lung cancer, although prostate, colon, stomach, ovarian, and pancreatic metastasis have occurred. Primary masses include hemangioma, hemangiosarcoma, lymphangioma, and splenic infarction. Occasionally, regenerating nodules of hematopoiesis are seen in the spleen.

### TESTING: A DIAGNOSIS OF EXCLUSION

The diagnosis of sarcoidosis is ultimately a diagnosis of exclusion. No laboratory tests can confirm the diagnosis of sarcoid. However, serum levels of angiotensin-converting enzyme are elevated in 50% to 80% of patients with sarcoidosis. Also, cutaneous anergy to common antigens (mumps, candida) is seen in 50% of patients with sarcoidosis.<sup>1,9</sup>

Overall, 70% of patients with sarcoidosis will experience a spontaneous remission

Once the diagnosis of sarcoidosis is made, additional clinical information is needed. In addition to a detailed history and physical, a chest x-ray, pulmonary function tests (PFT), electrocardiogram, comprehensive metabolic profile, and slit lamp evaluation should be obtained.

Some clinicians follow angiotensin-converting enzyme levels to monitor disease activity; however, treatment is ultimately based on the patient's symptoms.

### TREATMENT: CORTICOSTEROIDS TREAT THE SYMPTOMS

Corticosteroids are the cornerstone of treatment for sarcoidosis. Asymptomatic, early disease can be observed with routine follow-up. Oral corticosteroids should be prescribed for symptomatic cardiac, neurologic, and ocular sarcoidosis. Oral corticosteroids should also be prescribed for any symptomatic pulmonary disease, especially in the setting of worsening PFTs, severe hypercalcemia, and painful or disfiguring skin lesions (LOE: **2a**).<sup>7,8,10</sup>

For symptomatic or worsening pulmonary sarcoidosis, patients are prescribed prednisone 20 to 40 mg daily for 3 months. If the patient responds to prednisone, it should slowly be tapered to 5 to 10 mg and continued for a period of 12 months.<sup>7,11,12</sup>

Topical steroids can be used for uveitis and skin lesions;<sup>1,8</sup> the latter also respond well to intralesional steroids.<sup>7</sup> Inhaled corticosteroids are now being used to treat pulmonary disease, but their efficacy is uncertain.<sup>1,8,10</sup>

Of patients being treated with corticosteroids, 25% to 40% will relapse and require further treatment.<sup>1,8</sup> The addition of methotrexate, azathioprine, or hydroxychloroquine is sometimes required in recalcitrant cases of sarcoidosis (LOE: **2b**).<sup>1,8,11</sup>

## ■ PROGNOSIS: MOST EXPERIENCE SPONTANEOUS REMISSION

Overall, 70% of patients with sarcoidosis will experience a spontaneous remission.<sup>1,8,11</sup>

Serious extrapulmonary involvement is seen in 4% to 7% of patients at presentation and 1% to 5% of patients with sarcoidosis will die from respiratory, cardiac, or neurological sequela of sarcoidosis.<sup>1,8</sup>

Higher rates of chronic and more serious sarcoidosis are found in patients of African heritage or who are older than 40 years at the onset of disease, and in those who have lupus pernio, chronic uveitis, chronic hypercalcemia, progressive pulmonary sarcoidosis, nasal mucosal involvement, cystic bone lesions, neurosarcoidosis, cardiac involvement, and chronic respiratory insufficiency.<sup>8</sup>

## ■ PATIENT FOLLOW-UP

All of the recommended tests were done for this patient. Pulmonary function testing was normal, and he never developed any respiratory symptoms. Therefore, treatment with corticosteroids was deferred. He is now being seen every 4 to 6 months for follow-up PFTs and laboratory testing.

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## DRUG BRAND NAMES

Azathioprine • Imuran  
Hydroxychloroquine • Plaquenil  
Methotrexate • Folex

## ■ SUBMITTING IMAGES TO PHOTO ROUNDS

Do you have images (slides, prints, digitized photos) of compelling clinical cases of interest to family physicians? We would like to publish them, along with a brief description of the clinical presentation and a diagnostic question for readers. The case should include information on the differential diagnosis and treatment, the latter applying an evidence-based approach supported by current references. Submit electronic files to [usatine@uthscsa.edu](mailto:usatine@uthscsa.edu), or send high-quality slides and prints to:

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