Sarcoidosis Characteristics and Labs

Sarcoidosis is an autoimmune disease characterized by noncaseating granulomas throughout the body. It is characterized by lab findings such as increased levels of ACE and asteroid bodies. Due to vitamin D activation, hypercalcemia is present. This disease is often asymptomatic and is diagnosed after finding bilateral hilar lymphadenopathy on routine X-ray.



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Mechanism

Unknown Mechanism
Question-mark Mechanism
The etiology of sarcoidosis is unknown, but it is known that it is a disease of disordered immune regulation.

Immune-Mediated
Moon Mediator
There are several immunological abnormalities that suggest the development of a cell-mediated response to an unidentified antigen driven by CD4+ helper T cells. Thus, sarcoidosis is an immune-mediated disorder.

Noncaseating Granulomas
Nun-cheese-eating Granny-llama
This disease leads to noncaseating (hard) granulomas in many tissues and organs. These are typically composed of clustered aggregated epithelioid cells, often with Langhans or foreign body-type giant cells.

Vitamin D Activation
Viking Daisy Activated
Within macrophages, 1?-hydroxylase-mediated Vitamin D activation occurs. Thus, patients often show lab values correlating with increased Vitamin D.

Labs

Hypercalcemia
Hiker-calcium-cow
Due to vitamin D activation, calcium absorption is increased in the gut and patients show serum hypercalcemia.

Elevated ACE
Up-arrow Ace
Elevated ACE levels in sarcoidosis are due to the increased production of ACE by the epithelioid cells within the granulomas.

Asteroid and Schaumann Bodies
Asteroid and Showman
Asteroid bodies, which are formed from lipids arranged in bilayer membranes, are microscopic findings found in the granulomas of sarcoidosis.

Schaumann bodies are cellular inclusion bodies composed of intracytoplasmic calcium, iron, and protein arranged in layered formations. They are associated with granulomatous conditions.

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Bronchoalveolar Lavage shows Increased CD4:CD8 Ratio

Lung Lava Shows Up-arrow CD (4) Fork: CD (8) Ball Ratio-radio

Bronchoalveolar lavage is a diagnostic technique where fluid is collected from the lungs and analyzed. It shows an increased CD4:CD8 ratio, which indicates a predominance of helper T-cells (CD4) compared to cytotoxic T-cells (CD8). The ratio is typically greater than 3.5, which supports the diagnosis. CD4-positive T-cells drive granuloma formation within the lungs during sarcoidosis

X-ray Shows Bilateral Hilar Lymphadenopathy

X-ray Shows Bi-ladder Hilary-Duff with Lymph-lime-add

Often an incidental finding, patient chest x-rays show bilateral hilar adenopathy and sometimes reticular opacities.

Treatment

Corticosteroids

Quarter-on-steroids

Corticosteroids have been the standard of treatment for many years and have been shown to slow or reverse the course of this disease.

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