Coccidioidomycosis
(Coccidiosis, San Joaquin Valley Fever, Valley Fever)

Coccidiodomycosis is a disease caused by breathing in the spores (like a sleeping egg) of the fungus *Coccidioides immitis,* which is often found in desert regions. Inhalation often follows disturbance of *contaminated* (unclean) soil by humans, or with dust storms and earthquakes. High-risk groups include African-Americans and Asians, pregnant women during the third trimester, people with poor immune function, and occupations with exposure to dust such as agricultural and construction workers.

Spores are a reproductive cell produced by plants (fungi, moss, ferns) and some protozoa and *bacteria* (germ). Bacterial spores have thick walls, and are able to withstand varying temperatures, humidity, and other unfavorable conditions. More than one half of infections do not cause *symptoms* (problems), and are only recognized by a positive coccidiodin skin test. Of persons living in these areas, 10-50% are skin test positive. In the remaining cases, symptoms range from mild to severe. People with compromised immune systems (AIDS and transplant patients for example) tend to have more serious and rapid acting infections with a greater risk of spread.

Sudden onset *(acute) pulmonary* (lung) coccidioidomycosis is almost always mild, with few or no symptoms, and *resolves* (goes away) without treatment. The incubation period is 7 to 21 days. Acute coccidioidomycosis is uncommon.

Chronic (continual) pulmonary coccidioidomycosis can develop 20 or more years after initial infection, and may not have been recognized, diagnosed, or treated at the time. Infections of the lung can form and *rupture* (break), releasing pus between the lungs and ribs. This disorder is less common than the acute form.

In disseminated disease, spread of infection to the bones, lungs, liver, *meninges* (membranes around the brain), brain, skin, heart, and *pericardium* (sac around the heart) may take place. *Meningitis* (infection of the membranes surrounding the brain and spinal cord) occurs in 30 to 50% of cases of disseminated disease, and may lead to permanent neurological damage. Mortality is high in HIV-infected persons with diffuse lung disease.

SYMPTOMS

Symptomatic infection (40% of cases) usually presents as influenza-like illness with fever, cough, headaches, rash, and *myalgias* (pain syndromes). It can also present as sudden onset pneumonia, rarely as long lasting pneumonia, or as disseminated form (affecting meninges, skin, and bone). Severe *pulmonary* (lung) disease may develop in HIV-infected persons.

TREATMENT

The sudden onset disease is almost always not harmful and goes away without treatment. Bed rest and treatment of flu-like symptoms until fever disappears may be recommended.

In severe forms of the disease that has spread throughout the body, antifungal treatment can be used. The length of treatment is not known.

PROGNOSIS

The outlook in milder cases is usually good. *Disseminated* (spread) coccidiodomycosis can be serious, particularly in people with weakened immune systems.

PREVENTION

- Disinfection using chemicals kills bacteria, but does not destroy their spores. Sterilization involves high

temperatures and a high pressure that in health-care settings is accomplished using a device called an **autoclave**.

- Developing an effective *vaccine* (vaccination offers the best prevention measure because infection provides life-long immunity).
- Identifying factors associated with increased risk for dissemination in select racial groups to target prevention efforts.

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