Mycobacterium Tuberculosis Disease

Mycobacterium tuberculosis is the bacterium that causes tuberculosis. Primary TB occurs upon first exposure to the bacteria and can lead to pulmonary TB in the lungs. This is characterized by lung inflammation with constitutional symptoms like fever, weight loss, and night sweats. Hemoptysis occurs due to local tissue destruction. In severe cases especially with immunocompromised hosts, TB can disseminate into the bloodstream leading to extrapulmonary disease. Mycobacteria can enter any organ and cause inflammation and dysfunction. Addison's disease can occur after invasion of the adrenal glands. Kidney disease can present with pyuria and hematuria. GI infections typically involve the peritoneum and intestines, resulting in abdominal pain, ascites, and diarrhea. Liver disease can present with pain and jaundice. CNS disease often presents as meningitis with headache and meningismus. Bone involvement can include arthritis, osteomyelitis, and spondylitis. Pott's disease is another name for tuberculosis spondylitis or infection of the vertebrae.



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CONSTITUTIONAL SYMPTOMS/PULMONARY TUBERCULOSIS

Fever
Fever-beaver
Systemic symptoms, likely related to cytokine release, often appear early in the course of the disease and with reactivation. Fever is common in TB and is often relapsing and remitting. This symptom is considered one of the constitutional symptoms of this disease.

Night Sweats
Moon Sweats
Night sweats are another systemic finding in tuberculosis and are considered one of the constitutional symptoms seen in this disease. Most patients will complain that they see this several times a week.

Weight Loss
Skinny-with-baggy-pants
Weight loss is common in tuberculosis and likely related to systemic cytokine release.

Hemoptysis
Red-mop Coughing Blood
Hemoptysis, or the coughing up of blood, is present in approximately one-half of pulmonary tuberculosis cases. Patients presenting with hemoptysis and risk factors for TB should be thoroughly screened, given the strong correlation between this symptom and disease.

EXTRA-PULMONARY TUBERCULOSIS

Extrapulmonary Disease
Extra-newspaper-boy and Lungs
Mycobacteria typically enter the body through the lungs but can then disseminate widely through the bloodstream and lymphatic system. This dissemination can lead to widespread infections in any organ, including the adrenal glands, CNS, GI, liver, vertebrae, kidneys, and bone. Dissemination can also lead to sepsis and death.

Addison's Disease
Add (+) Sun
Addison's disease, or primary adrenal insufficiency, is a disorder in which the adrenal glands cannot produce sufficient steroid hormones, including cortisol and aldosterone. It can be caused by the dissemination of tuberculosis to the adrenal glands. This dissemination is an important cause of Addison's disease worldwide.

CNS
CNS-brain
Tuberculosis can seed in the CNS via hematogenous transmission, especially into the meninges. TB meningitis presents with fever, headache, meningismus, and cranial nerve dysfunction. CSF examination will show high numbers of lymphocytes.

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Liver

Liver

Liver involvement can present with abdominal pain in the right upper quadrant, vomiting, and diarrhea. Jaundice secondary to cholestasis is also seen. Historically on autopsy, the finding of diffuse liver granulomas looked like millet seeds, leading to the term miliary TB.

Kidneys

Kidneys

TB involvement of the kidneys can present non-specifically with pyuria and hematuria. There may be a history of negative urine cultures if TB was not previously suspected.

GI

Intestines

TB can invade any portion of the GI tract, most commonly the peritoneum and intestines. This invasion can present with abdominal pain, distension, ascites, and diarrhea.

Bones

Skeleton

Tuberculosis also commonly travels to the bone via hematogenous spread. This spread can cause a variety of diseases depending on the location, including arthritis, osteomyelitis, and spondylitis.

Pott's Disease

Pots-vertebrae

Pott’s disease, or tuberculous spondylitis, is the infection of the vertebrae by Mycobacteria. It often occurs in the lower vertebral segments and can result in systemic signs of infection, pain, and, eventually, vertebral collapse.

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