

PNEUMOCYSTIS (2013)

Expanded commentary: Pneumocystis pneumonia is a common cause of death in patients whose immune systems are weakened by chemotherapy, bone marrow transplantation, or (most commonly) infection with human immunodeficiency virus (HIV). Pneumocystis is a yeast-like fungus that was rarely diagnosed before the onset of the acquired immune deficiency syndrome (AIDS) epidemic. A paper published in 1982 in the Morbidity and Mortality Weekly Report published by the Centers for Disease Control noted an unexplained increase in the incidence in Kaposi's sarcoma (a cancer associated with AIDS that causes reddish-purple skin lesions) and Pneumocystis pneumonia in residents of southern California. After several case studies of the disease, the paper rather poignantly notes: "All the above observations suggest the possibility of a cellular-immune dysfunction related to a common exposure that predisposes individuals to opportunistic infections such as pneumocystosis and candidiasis". Marked by shortness of breath, persistent fever, night sweats, and unintended weight loss, Pneumocystis pneumonia is now less commonly diagnosed due to the availability of antiretroviral medications to treat HIV infection. This photomicrograph illustrates Pneumocystis infection in an immunocompromised patient.

Pneumocystis pneumonia is characterized histologically by the presence of tiny, clustered, cup-shaped organisms in the spaces within the lung. The organisms are highlighted in black against a green background by the application of the Gömöri methenamine silver (GMS) stain. GMS is a common histological stain used to detect the presence of organisms, particularly fungi, by blackening components of the cell wall while coloring elements of normal human tissue green. The presence of Pneumocystis pneumonia in a post-mortem specimen strongly suggests that a weakened immune system caused or contributed to the patient's death. An explanation for the immunocompromised state must be found before an autopsy report or death certificate can be properly completed.