

The findings of the Pulmonary Complications of HIV Infection Study have been replicated in a single-center cohort of HIV-infected and HIV-uninfected subjects. In this cohort, respiratory symptoms were frequent complaints in the HIV-infected group and were significantly more common than in the HIV-uninfected group. These included dyspnea (%.

Please enter the email address. Separate multiple addresses with a comma. Key points Some lung problems can be more serious in people with HIV and occur more frequently. Smoking is a very common cause of lung disease. Antibiotics can be used to treat and prevent bacterial lung infections. Regular exercise can improve the efficiency of your lungs. The lungs are organs found in the chest, either side of the heart, protected by the ribcage. The right lung tends to be larger than the left lung. The lungs are covered with a thin layer, or membrane, called the pleura, and the rib cage with another membrane. The two membranes slide over each other as we breathe allowing the lungs to expand and contract. Inside, the lungs look like sponges and are made up of a mass of fine tubes. The smallest of these tubes are air sacs called alveoli, the walls of which are covered in tiny blood vessels. The lungs and breathing The role of the lungs is to absorb oxygen from the air and transfer it to the blood where it is then circulated around the body. Each time you breath in, air is transported down the nose or throat into the windpipe trachea and into two smaller tubes called bronchi; one going to the left lung, the other to the right. The air is then divided into smaller airways called bronchioles until it reaches the alveoli. Inside the alveoli, oxygen moves into the tiny blood vessels forming the walls and is picked up by red blood cells ready to be transported around the body. At the same time, waste products in the form of carbon dioxide move in the opposite direction; travelling from the blood into the alveoli and onward through the lungs to be breathed out. Lung disease Symptoms such as coughing, shortness of breath, coughing up blood, phlegm or mucus, and pain in the lungs are all signs of a problem in the lungs. As with anybody else, people with HIV can contract colds or influenza flu , which can affect the chest, causing symptoms such as a cough, and the production of phlegm. These normally clear up in a few days and cause no lasting damage. There are, however, some lung problems which are seen more often in people with HIV which can be very serious. Although anybody can become ill with bacterial pneumonia , pleurisy inflammation of the membrane surrounding the lungs , and bronchitis, these can be more serious in people with HIV and occur with more frequency, particularly if they have a depressed immune system. It is rare in countries where people have access to modern medical care. Tuberculosis TB is seen in increased rates amongst people with HIV and globally, it is the leading causes of illness and death amongst people with HIV. TB can develop at any time during HIV infection. People with weakened immune systems are more vulnerable to infection with TB. TB can be treated and cured. Smoking is a very common cause of lung-related problems and is the main cause of lung cancer. Smoking is also the leading cause of chronic obstructive pulmonary disease COPD , a group of lung diseases which cause breathing difficulties. However, smokers are much more likely to report symptoms of COPD. Tests If you have any kind of breathing problem, your doctor will listen to your chest with a stethoscope to assess how well your lungs are working. A bronchoscopy may also be used, where a small camera is passed down the nose, and a transbronchial biopsy involves taking small samples of lung tissue for checking. Alternatively, a small piece of pleura may be removed via the chest wall; a pleural biopsy. Lung-function tests, which measure the ability to transfer oxygen and how well the lungs inflate, may also be used. A body scan may be used to look for some infections or cancers. Treatments Antibiotics can be used to treat and prevent bacterial lung infections such as pneumonia, and can also be successfully used to treat PCP and TB. Taking HIV treatment can prevent your immune system becoming so weak that you develop serious lung infections. Chemotherapy, radiotherapy and surgery are used to treat cancers in the lungs. Keeping your lungs healthy Smoking is responsible for a lot of lung disease so stopping smoking will improve the health of your lungs. Ensuring that you receive regular check-ups at your HIV clinic will mean that you are monitored and treated for any possible HIV-related lung problems. Taking HIV treatment will keep your immune system strong. And eating a diet rich in fresh fruit and vegetables will help promote your general health. This factsheet is due for review in February

Chapter 2 : PPT - Pulmonary Manifestations of HIV Infection PowerPoint Presentation - ID

Advances in our understanding of human immunodeficiency virus (HIV) infection have led to improved care and incremental increases in survival. However, the pulmonary manifestations of HIV/acquired immunodeficiency syndrome (AIDS) remain a major cause of morbidity and mortality. Respiratory.

As the disease progresses, they may have difficulty walking or delayed mental development, or cerebral palsy. In addition, children are susceptible to the same opportunistic infections as adults and may have severe forms of common childhood illnesses such as ear infections otitis media , pneumonia, and tonsillitis. Tuberculosis is an infection by the tuberculosis bacterium that predominantly affects the lungs, but it can spread through the blood and lymph nodes to the rest of the body in people with HIV. TB causes a long-term cough that may produce blood and may also cause fever, weight loss and night sweats. If the test is positive, a chest X-ray and other tests will determine if the infection is active. If the TB is not active, preventative treatments are available. Tuberculosis is more worrisome than many other opportunistic infections because of the ease with which it is spread by coughing or sneezing from one person to another. Initial symptoms include pain or irritated skin in the genital area and later sores that may erupt and ooze and bleed. Although these sores eventually heal, the virus periodically reappears, causing the same symptoms. The symptoms of HSV are more severe in people with HIV and the sores may take longer to heal over one month in duration. The symptoms include inflammation and a thick white coating on the mucous membranes of the mouth, tongue, vagina or esophagus Candida esophagitis. Children may have especially severe symptoms in the mouth or esophagus, which can make eating painful and difficult. Uncomplicated, severe or recurrent vulvovaginal candidiasis may also occur. Candidiasis of the bronchi, trachea, lungs or esophagus is considered "AIDS-defining", but oral or vulvovaginal candidiasis are not considered "AIDS-defining". NHL usually starts in the lymph nodes but can also start in the liver, lungs or gastrointestinal tract. The most common symptom of NHL is swollen usually painless lymph nodes in the neck, armpit or groin. Other symptoms include fever, night sweats, fatigue, itchy skin and weight loss, aches, and sometimes coughing, difficulty breathing and chest pain. Non-Hodgkin lymphoma has become more common in the past few decades. This may be related to the rise in the number of people who have a suppressed immune system, such as people infected with human immunodeficiency virus HIV and those who have had an organ transplant and need to take drugs that alter the immune system. Salmonella in HIV Salmonellosis food poisoning is an infection caused by the salmonella bacterium, which is contracted from contaminated food or water. Symptoms include severe diarrhea, fever, chills, abdominal pain and sometimes vomiting. The risk of contracting salmonellosis can be reduced by hand washing and by cooking meat and eggs thoroughly. Salmonella septicemia usually is treated with antibiotics. Drug therapy may be required for life to prevent relapses. HIV patients should avoid having reptiles as pets due to the possible transmission of salmonella. Some types of this virus cause common warts while others cause warts on the genitals. HPV infection is especially serious because it puts women at risk of invasive cervical cancer; the risk is further increased in women with HIV. Cryptosporidiosis in HIV Cryptosporidiosis is an infection contracted by ingesting contaminated food or water. The parasite grows in the intestines and bile ducts and can cause severe chronic diarrhea. Symptoms are chronic in patients with AIDS, lasting longer than one month. The fungus that causes the PCP infection is spread through breathing or coughing. Symptoms include persistent cough, fever, trouble breathing lips and nail-beds may become blue , fatigue, and weight loss. Recurrent episodes of pneumonia two or more episodes within a 1-year period are required for AIDS case reporting because pneumonia is a relatively common diagnosis and multiple episodes of pneumonia are more strongly associated with immunosuppression than are single episodes. It is a tumor of the blood vessel walls. Common symptoms are pink, red or purple lesions on the skin and in the mouth. The first spots, sores or bumps usually appear on the face, nose, mouth, arms, upper body or legs. The lesions vary from pinhead size to the size of a large coin and may be painless. Sometimes the skin lesions are painful and can cause itching and sores in the mouth or throat may cause eating or swallowing problems. Coccidioidomycosis in HIV A fungal infection that progresses to chronic localized disease of the lungs or other organs such as bone, skin,

and meninges. Lung involvement is most common in patients with AIDS. Compare drugs associated with Coccidioidomycosis Cryptococcal Meningitis in HIV Cryptococcal meningitis , caused by a fungus, is the most common central nervous system infection associated with HIV. Meningitis is an inflammation of the membranes and fluid surrounding the brain and spinal cord meninges. Symptoms include headache, high fever, stiff neck, and sensitivity to light. Meningitis is a serious disease that can cause severe complications and even prove fatal in a short amount of time. Toxoplasmosis in HIV Toxoplasmosis , caused by a parasite spread primarily by cats, is the most common cause of brain lesions in people with advanced HIV disease where toxoplasmosis often leads to encephalitis, an infection of the brain. Symptoms may include disorientation, seizures, fatigue, headaches and difficulty walking or speaking. PML causes a quick decline in cognitive and motor functions. Symptoms vary and may include speech problems, weakness on one side of the body, loss of vision in one eye, or numbness in one arm or leg. PML is a late-stage disease that occurs only when the immune system is severely damaged. Normally, the bacterium causes an infection of the respiratory tract but, in advanced HIV or AIDS, a systemic infection can affect almost any internal organ, including the bone marrow, liver or spleen. MAC causes nonspecific symptoms such as cough, fever, night sweats, weight loss, fatigue, stomach pain, and diarrhea. A healthy immune system inactivates the virus and it therefore remains dormant in the body. If the immune system weakens, as in untreated HIV, the virus resurfaces. Symptoms include fatigue, fever, enlarged lymph nodes and pain in the muscles or throat. CMV can cause damage to the eyes retinitis , digestive tract diarrhea , lungs pneumonia , liver hepatitis , or other organs. It may result in a form of dementia in advanced HIV disease.

Chapter 3 : Pulmonary manifestations of AIDS: review of episodes.

Pulmonary manifestations of HIV/AIDS are a major contributor to morbidity and mortality related to the disease. The differential in an HIV patient with a chest complaint is broad. Infectious causes are the most common, however, neoplasms, lymphom.

Respiratory symptoms are a frequent complaint among HIV-infected individuals and may be caused by a wide spectrum of illnesses. The OIs involve bacterial, mycobacterial, fungal, viral, and parasitic pathogens. Each of these OIs and neoplasms has a characteristic clinical and radiographic presentation. However, there can be considerable variation and overlap in these presentations. Therefore, no constellation of symptoms, physical examination findings, laboratory abnormalities, and chest radiographic findings is pathognomonic or specific for a particular disease. As a result, a definitive microbiologic or pathologic diagnosis is preferable to empiric therapy whenever possible. Diagnostic tests include cultures from sputum and blood and from respiratory specimens obtained by invasive procedures such as bronchoscopy, thoracentesis, computed tomography CT-guided transthoracic needle aspiration, thoracoscopy, mediastinoscopy, and open-lung biopsy. This chapter describes the frequency of respiratory symptoms, the spectrum of pulmonary illnesses that can affect HIV-infected patients, and a diagnostic approach to the evaluation of respiratory symptoms in HIV-infected patients, highlighting certain aspects of the clinical presentation that may be useful in differentiating the most common OIs and neoplasms. The characteristic chest radiographic presentations of the most common OIs and neoplasms are described and outlines of 3 case scenarios are presented to illustrate differential diagnoses and important diagnostic and therapeutic decisions for a variety of clinical and radiographic presentations. This fact was borne out by the Pulmonary Complications of HIV Infection Study, a large, prospective, observational cohort study of more than 1, HIV-infected subjects conducted at 6 sites across the United States where large numbers of HIV-infected patients received care. The subjects were evaluated at enrollment and at scheduled intervals randomized to either 3 or 6 months. In addition, subjects who developed new or worsening respiratory symptoms between these scheduled visits were instructed to present to a study site for evaluation. At each visit, subjects underwent a thorough history review and physical examination, routine laboratory studies complete blood count with differential, CD4 cell count, chest radiography posteroanterior and lateral views, and pulmonary function tests lung volumes, spirometry, and diffusing capacity for carbon monoxide. Subjects in whom a pulmonary illness was suspected underwent sputum induction, bronchoscopy, or both. The focus of the study was pulmonary disease. Researchers collected clinical and radiographic data prospectively and in a standardized fashion and, in subjects who developed new or worsening respiratory symptoms and in whom there was a suspicion of pulmonary disease, pursued definitive microbiologic and pathologic diagnoses whenever possible. The study provided clinicians with an unparalleled source of information on pulmonary diseases in HIV-infected patients. These included dyspnea The researchers found that current or past cigarette smoking was the most important predictor of respiratory symptoms among the HIV-infected group. The OIs include bacterial, mycobacterial, fungal, viral, and parasitic pathogens. OIs and neoplasms may be limited to the lungs, but pulmonary involvement may be only one manifestation of a multiorgan disease. Because prompt diagnosis and institution of appropriate therapy are essential for successful treatment of many of these HIV-related conditions, the initial focus of the evaluation of respiratory symptoms frequently and appropriately is placed on the diagnosis of an HIV-related OI or neoplasm. It is important to remember, however, that HIV-infected patients may have preexisting conditions or may develop conditions eg, pulmonary embolism, asthma, or bronchogenic carcinoma in a cigarette smoker unrelated to HIV infection that may cause respiratory complaints. In addition, factors that contribute to HIV infection, such as injection drug use IDU, may contribute to respiratory disease eg, pulmonary vascular disease. Clinicians should carefully consider these non-HIV-related respiratory conditions before embarking on an exhaustive search for an HIV-related OI or neoplasm. The Pulmonary Complications of HIV Infection Study demonstrated that upper respiratory tract infections URIs such as sinusitis, pharyngitis, and acute bronchitis were more commonly the cause of respiratory symptoms than Pneumocystis jiroveci pneumonia PCP,

bacterial pneumonia, tuberculosis TB , or pulmonary Kaposi sarcoma combined Table 3. Therefore, the diagnostic approach to the evaluation of respiratory symptoms in an HIV-infected patient must take all these factors into consideration. In the current era of combination antiretroviral therapy, the frequency of HIV-associated OIs and neoplasms has decreased. On this basis, patients in whom there is suspicion of pulmonary illness should undergo selected laboratory tests and chest radiography. The radiograph result should be compared with previously obtained images, if available. Frequently, the clinical and radiographic presentations will suggest a differential diagnosis and a diagnostic and management plan. Occasionally, additional tests such as chest CT scan, chest high-resolution CT HRCT scan, and pulmonary function tests may be needed to further evaluate the cause of the symptoms and to further refine the differential diagnosis. Whenever possible, the diagnostic approach should include tests that may provide a definitive microbiologic or pathologic diagnosis. These tests include cultures of sputum and blood. Specimens may be examined microscopically or cultured for bacterial, mycobacterial, fungal, viral, and parasitic pathogens, and they may be sent for cytopathologic and pathologic studies. Occasionally, specimens from other sites eg, skin, lymph node, bone marrow, cerebrospinal fluid will provide evidence for the diagnosis of extrapulmonary or disseminated disease. For certain OIs, blood or urine serologies eg, serum cryptococcal antigen, urine Histoplasma antigen or molecular techniques such as analyses based on polymerase chain reaction PCR can provide or strongly suggest the diagnosis. The decision regarding which tests to obtain and which treatments to initiate relies on an accurate differential diagnosis derived from a thorough history and physical examination, selected laboratory data, and imaging studies.

History and Physical Examination The goal of the history review and physical examination should be to establish a differential diagnosis and to assess the need for further evaluation eg, laboratory tests, chest radiography. Although each of the OIs and neoplasms has a characteristic clinical presentation, these presentations can vary and overlap significantly. As a result, no combination of symptoms or signs is diagnostic of a particular disease. Nevertheless, certain clinical information is useful for suggesting a particular diagnosis or diagnoses, perhaps none more so than the CD4 cell count. Each of the HIV-related respiratory illnesses typically develops at or below a characteristic CD4 cell count range and uncommonly or rarely occurs above these ranges Table 4. Respiratory illnesses such as URIs, obstructive airway disease, bacterial pneumonia, TB, non-Hodgkin lymphoma, pulmonary embolus, and bronchogenic carcinoma can occur in immunocompetent persons. Many of these diseases, however, are more common in HIV-infected persons than in immunocompetent ones. As the CD4 cell count declines, the incidence of many of these diseases increases. Often, these diseases are associated with extrapulmonary or disseminated disease that dominates the clinical presentation. With the exception of the endemic fungal pathogens, identification of these organisms in sputum or bronchoalveolar lavage fluid can represent either airway colonization or actual pulmonary disease. In these cases, careful consideration of the clinical situation and the value of more invasive procedures eg, lung biopsy is crucial before initiating treatment. In each of these examples, information on the relative frequencies of the various OIs and neoplasms within a certain CD4 cell count range is essential for further refining the differential diagnosis. The project reviewed medical records of enrolled subjects at 6-month intervals for the development of AIDS-defining and non-AIDS-defining infections, neoplasms, and illnesses. As of August , more than 22, HIV-infected patients had been enrolled, and 18, of these patients had at least one 6-month follow-up medical record review. The median duration of follow-up at that time was 12 months. Results showed, however, that bacterial pneumonia 1, episodes; 8. Knowledge of the CD4 cell count can be useful in narrowing the scope of the differential diagnosis, and knowledge of the relative frequencies of these pulmonary diseases can be useful in ranking potential diagnoses and suggesting a diagnostic and therapeutic plan. In that case, the diagnostic plan should include sputum and blood cultures for bacteria, and therapy probably should target the most common bacterial pathogens. Symptoms Respiratory symptoms include cough, dyspnea, and pleuritic chest pain, either alone or in combination. Dyspnea may be mild or severe and present at rest. Constitutional complaints such as fever, chills, night sweats, fatigue, anorexia, and weight loss also may be present. In addition, extrapulmonary symptoms eg, headache, stiff neck, abdominal tenderness or fullness may be present and could aid in differentiating the various OIs and neoplasms. In many clinical settings including San Francisco General

Hospital, the two most likely HIV-related syndromes producing significant respiratory symptoms and pneumonia are PCP and pneumonia caused by bacterial pathogens most commonly *Streptococcus pneumoniae* and *Haemophilus influenzae*. At San Francisco General Hospital, these two diseases account for the majority of the pulmonary diseases seen. Thus, distinguishing these two pneumonias often becomes the focus of the diagnostic approach Table 5. Respiratory symptoms are usually subacute and are present for weeks. Kovacs and colleagues reported in an early review that the median duration of symptoms was 28 days. Symptoms usually are acute and present for days. In contrast, the presence of purulent sputum and a duration of symptoms of a few days favors a diagnosis of bacterial pneumonia. Patients who have PCP and report a productive cough or purulent sputum often have a concurrent bacterial infection bronchitis or pneumonia. Patients diagnosed with bacterial pneumonia who initially respond to antibiotics but subsequently worsen often have PCP that has become clinically symptomatic. Bacterial pneumonia is more common in HIV-infected patients who are injection drug users than in patients without a history of IDU. Use of injection drugs or other illicit drugs can cause a variety of non-HIV-related pulmonary diseases eg, endocarditis-related septic emboli or pneumonitis, respiratory depression, pulmonary edema. As with immunocompetent persons, HIV-infected patients who are cigarette smokers are at increased risk of a variety of respiratory illnesses. Both bacterial bronchitis and bronchopneumonia are more common in HIV-infected cigarette smokers than in nonsmokers or former smokers. HIV-infected patients without such a history are unlikely to be exposed and become infected with these organisms; therefore, they are unlikely to develop disease as a manifestation of their HIV infection. TB is more common in certain geographic areas and in certain populations eg, immigrants from Asia and Latin America, homeless or unstably housed, incarcerated. HIV-infected patients who were born in or have traveled to a country with a high prevalence of TB and patients who are homeless, unstably housed, or previously incarcerated are at higher risk of exposure to *M tuberculosis*. Signs A complete physical examination, including vital signs, may provide important clues to the nature and severity of the disease. HIV-infected patients with pneumonia may be febrile, tachycardic, and tachypneic. Evidence of systemic hypotension would be concerning for a fulminant disease process. Pulse oximetry often reveals decreased oxygen saturation and provides an estimate of disease severity. The presence of exercise-induced desaturation, hypoxia, or an increase in the alveolar-arterial oxygen gradient is reported to be a sensitive finding for PCP. In contrast, patients with bacterial pneumonia often have focal lung findings. Evidence of wheezing in an HIV-infected patient who has a history of asthma suggests an asthma exacerbation, whereas findings of decreased breath sounds in a patient who has a long history of cigarette use may indicate emphysema. In a patient with sudden onset of pleuritic chest pain or shortness of breath, findings of absent breath sounds would be worrisome for pneumothorax. Occasionally, abnormal findings on the lung examination are the result of a nonpulmonary etiology. For example, the finding of rales in association with a cardiac S3 gallop and elevated jugular venous pressure suggests a cardiac etiology for the respiratory symptoms. Pulmonary embolic disease should be considered in a hypoxic patient, especially if there are predisposing factors eg, previous history, deep vein thrombosis. The remainder of the physical examination also may suggest an etiology for the respiratory symptoms, because many of the OIs and neoplasms that affect the lung can also cause extrapulmonary or disseminated disease. New cutaneous lesions may reflect a disseminated fungal disease, whereas hepatosplenomegaly suggests either disseminated mycobacterial or fungal disease or non-Hodgkin lymphoma. Patients with mucocutaneous Kaposi sarcoma may develop significant pulmonary involvement; however, the absence of mucocutaneous involvement does not rule out significant pulmonary Kaposi sarcoma. No clinical symptoms or signs could distinguish patients with pulmonary Kaposi sarcoma from those with pulmonary Kaposi sarcoma and a concurrent pulmonary OI. Laboratory Tests Selected laboratory tests may provide important clues to the diagnosis. Accordingly, no laboratory abnormality is specific for a particular pulmonary disease and the clinician must be cautious before attributing a laboratory abnormality to a pulmonary illness. These tests serve as a prognostic marker and as a baseline value for subsequent measurements. Serial measurements are useful with any patient who fails to exhibit a clinical response in an appropriate time interval and with any patient who is worsening clinically despite seemingly appropriate therapy. Often, this relative elevation is accompanied by a left shift. HIV-infected patients with neutropenia

are at higher risk of bacterial and certain fungal *Aspergillus* spp infections. In these patients, the WBC count more frequently reflects the degree of underlying immunosuppression, the use of bone marrow suppressive medications, or the presence of an infiltrative marrow infection or neoplasm rather than the presence of PCP. It must be emphasized, however, that serum LDH level is nonspecific for PCP and may be elevated as a result of many pulmonary and nonpulmonary conditions including bacterial pneumonia.

Chapter 4 : Pulmonary manifestations of HIV/AIDS in the tropics – Mayo Clinic

Pulmonary manifestations of HHV-8 infection occur almost exclusively in immunocompromised patients, mostly during HIV infection. HHV-8 was suspected of being involved in the pathogenesis of pulmonary hypertension, sarcoidosis or multiple myeloma, without confirmation [5 - 7].

Chapter 5 : Pulmonary Manifestations of HIV infection

The pulmonary manifestations of AIDS-related non-Hodgkin's lymphoma. Chest ; Corti M, Villafañe MF, Trione N, et al. Primary pulmonary AIDS-related lymphoma.

Chapter 6 : Pulmonary Manifestations of HIV

*Philip C. Hopewell. Lung disease, specifically *Pneumocystis carinii* pneumonia (PCP), was the first recognized mode of expression of infection with the human immunodeficiency virus (HIV).*

Chapter 7 : HIV & AIDS Information :: Factsheet The lungs

Patients. All HIV-infected patients referred to the Pulmonary and Critical Care Medicine Service from January 1, , through December 31, (era 1) and from July 1, , through June 30, (era 2).

Chapter 8 : Imaging lung manifestations of HIV/AIDS

Renal, Cardiac, and Pulmonary Manifestations of HIV/AIDS the disease and the presence of other AIDS-associated illnesses. Some children can have chronic urine protein.

Chapter 9 : HIV/AIDS (pulmonary and thoracic manifestations) | Radiology Reference Article | www.nxgvisi

We reviewed the clinical records and chest radiographs of all patients admitted to our institution between and who had pulmonary disease and who were later proved to have acquired immunodeficiency syndrome (AIDS) (95 patients). Diffuse parenchymal lung disease was the most common finding.