of bronchial papillomas because of confusion with "true" papillomas in the early literature.7,8

The solitary papillomas are the rarest type. They usually present as an endobronchial mass in the segmental bronchi and may go undetected for years.9 Their highest prevalence is in men in their 50s and 60s. Barzo and colleagues10 observed only five cases of solitary papillomas over 21 years and 15,000 bronchoscopies. All their patients were men, and the youngest patient they described was 49 years old. Bronchiectasis, frequently mentioned as a complication of bronchial papillomas, was not observed in one series of seven cases of multiple papillomas with good radiographic correlation.11 Our case documents not only bronchiectasis but bronchial stenosis that may have been secondary to the recurrent pneumonias.

Although the multiple form has been associated with HPV subtypes 6/11, the exact pathophysiology for solitary squamous papilloma has not been determined.12 Our patient's DNA in situ hybridization studies of the resected papilloma demonstrated HPV subtypes 6/11, indicating HPV infection as the cause of solitary squamous papilloma of the lung. This may represent delayed infection from birth, or more likely, it may be an acquired infection as an adult. Aspiration of the virus as an adult would likely have a different clinical presentation than that seen in the juvenile form because of a more mature immune system. We speculate that the virus is acquired through aspiration of infected secretions in sexually active young men. This accounts for the late clinical presentation of solitary squamous papilloma in older men.

In situ hybridization is a technique that allows identification of particular nucleic acid sequences in tissues or cells associated with the DNA "foot-print" of a particular infection. Nucleic acid is visualized by hybridization of labeled probes to target DNA in human tissue. The probes can be double-stranded DNA, single-stranded DNA, or single-stranded ribonucleic acid (RNA) that can be labeled with radioisotope, biotin, fluorochromes, enzymes, or antibodies. The hybridization technique is accomplished by enzyme digestion of tissue and denaturing cellular double-stranded DNA. The homologous DNA or RNA probe then anneals with target DNA (HPV DNA in this case) during the hybridization process and is detected by the labeling technique. This process has caused revolutionary changes in the concepts, classification, and pathogenesis of infectious diseases, genetic disorders, and neoplasia by adding a new diagnostic technology.13

Our case is unusual because of the rare occurrence of the solitary form in a young man and the association with HPV by DNA in situ hybridization studies. In our review of the literature, this is the first case of solitary bronchial papilloma not suspected after bronchoscopy or chest CT, complicated by bronchial stenosis and bronchiectasis, with evidence of HPV infection diagnosed by in situ DNA hybridization.

REFERENCES


Pulmonary Mucormycosis Presenting as an Endobronchial Lesion*

Ahmad W. Husari, M.D.; William A. Jensen, M.D.; Carl M. Kirsch, M.D.; Anthony C. Campagna, M.D.; Frank T. Kagawa, M.D.; Kamal A. Hamed, M.D.; Raymond L. Azzi, M.D.; and David A. Stevens, M.D.

A 56-year-old diabetic man presented with left upper lobe collapse and postobstructive pneumonitis. Fiberoptic bronchoscopy revealed an endobronchial mass obstructing the left mainstem bronchus. The lesion resembled a bronchial adenoma; however, cytologic and histologic examination revealed invasive mucormycosis. The patient was treated with intravenous amphotericin B followed by endoscopic laser surgery that relieved the obstruction. (Chest 1994; 106:1859-91)

Key words: bronchial adenoma; endobronchial lesion; mucormycosis; opportunistic infection

Mucormycosis is an important opportunistic infection caused by fungi that belong to the class Zygo- mycetes. The disease was first reported by Paltauf1 in 1885

*From the Divisions of Pulmonary and Critical Care Medicine and the Division of Infectious Disease, Stanford University School of Medicine and the Santa Clara Valley Medical Center, San Jose, Calif.

Reprint requests: Dr. Jensen, Department of Medicine, Santa Clara Valley Medical Center, 751 South Bascom Avenue, San Jose, CA 95128

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FIGURE 1. Endobronchial lesion due to mucormycosis obstructing the left mainstem bronchus at the level of the main carina.

and the two most common clinical presentations are rhinocerebral or pulmonary mucormycosis. Mucormycosis has been reported in immunocompetent hosts, but the disease is usually seen in diabetics or other immunocompromised individuals. We report an unusual case of mucormycosis in a 56-year-old diabetic man presenting with an endobronchial mass obstructing the left mainstem bronchus. Endoscopically, the mass resembled a bronchial adenoma.

CASE REPORT

A 56-year-old Hispanic man was admitted to the hospital for evaluation of cough, fever, chills and left-sided pleuritic chest pain of 2 weeks’ duration. He was a type II diabetic and his diabetes had been poorly controlled by diet alone. Physical examination showed a normal head, ears, eyes, nose, and throat. Chest auscultation revealed decreased breath sounds over the entire left hemithorax. Results of the remainder of the examination were unremarkable. A complete blood cell count showed a hematocrit of 41 percent and a leukocyte count of 10,000/mm³ with 70 percent neutrophils, 17 percent lymphocytes, 7 percent monocytes, and 6 percent eosinophils. The serum glucose level was 245 mg/dl, the serum urea nitrogen level was 18 mg/dl, and the creatinine concentration was 1 mg/dl. Results of the urinalysis were normal. A chest radiograph demonstrated left upper lobe collapse with a leftward shift of the mediastinum. Computed tomography of the chest revealed left perihilar adenopathy and complete occlusion of the left mainstem bronchus.

Fiberoptic bronchoscopy revealed an endobronchial mass obstructing the left main bronchus. The mass, originating from the lateral wall of the left main bronchus, was firm, well circumscribed, and had smooth erythematous mucosa resembling a bronchial adenoma (Fig 1). A biopsy specimen of the lesion was not taken due to the potential risk of brisk bleeding, but it was washed and brushed. Cytologic examination of the endobronchial brushings and a postbronchoscopy sputum revealed broad, non-septate hyphae, branching at right angles, consistent with mucormycosis. Three days later, the patient was brought to the operating room where fiberoptic bronchoscopy was performed under general anesthesia with thoracic surgery standby in the event of uncontrolled bleeding. The mass was aspirated using a 22-gauge transbronchial aspiration needle (Mill-Rose Laboratories, Inc, Mentor, Ohio) and purulent material was obtained and the mass decreased in size. Multiple biopsy specimens of the lesion were taken with alligator forceps without complication. The needle aspirate and the biopsy specimens demonstrated invasive mucormycosis (Fig 2). Fungal cultures of the bronchoscopy specimens, peripheral blood, and urine were negative. The airways beyond the mass appeared normal. There was no evidence of malignancy in the cytologic or histologic specimens.

Amphotericin B was given intravenously to a total dose of 1.4 g, which resulted in renal insufficiency and no change in his symptoms. A repeated fiberoptic bronchoscopy was done 21 days after the previous study and showed no evidence of improvement in the endobronchial mass. Thoracic surgery was consulted but the patient declined thoracotomy. He did, however, agree to palliative therapy and the lesion was partially obliterated with Nd-YAG laser therapy. The patient was afebrile and had no pulmonary complaints following the procedure. Two months after Nd-YAG laser therapy, there was no evidence of left mainstem obstruction noted by physical examination or chest radiograph. The patient was subsequently unavailable for follow-up.

DISCUSSION

Our patient illustrates an unusual presentation of pulmonary mucormycosis presenting as an endobronchial mass. Given the patient’s presentation, the diagnosis of malignancy with postobstructive pneumonia was considered most likely.

Endobronchial mucormycosis has been described in the literature and the lesions have been identified as gray-white mucoid material that frequently block a major airway. The involved airways are typically edematous and necrotic. In our patient, no necrosis or mucoid material was noted at bronchoscopy and the lesion’s appearance was suggestive of a bronchial adenoma. We postulate that a submucosal, invasive fungal infection caused a submucosal abscess that presented as an endobronchial mass.

It is recommended that therapy for pulmonary mucormycosis should be aggressive. The fungus produces a locally invasive infection with a high fatality rate frequently due to asphyxiation due to massive airway hemorrhage. Although medical therapy alone using intravenous amphotericin B is occasionally successful, a combined approach using surgical resection and amphotericin B is advised. In our case, perililar structures were involved and the lesion was close to the carina mak-
ing a surgical resection a technically difficult procedure of questionable value. A conservative approach using amphotericin B was initially tried and was hampered by renal insufficiency. Our patient received a total dose of 1.4 g of amphotericin B with no improvement on repeated endoscopic evaluation. Laser therapy, however, was successful in relieving the obstruction.

Endobronchial involvement is a rare presentation of mucormycosis. Our patient is unique because the endobronchial lesion looked more like a bronchial adenoma than a necrotic mass. Also, this case represents the first report of palliative laser therapy for endobronchial mucormycosis. In the appropriate patient population, which includes diabetics and immunocompromised hosts, mucormycosis should be considered in the differential diagnosis of an endobronchial mass lesion.

REFERENCES

Pulmonary Hemorrhage*

An Uncommon Cause of Pulmonary Infiltrates in Patients With AIDS

Henry Koziel, MD; Kathleen Haley, MD; Imad Nasser, MD; and Andrew E. Filderman, MD, FCCP

We describe two patients with AIDS who developed new diffuse pulmonary infiltrates during the course of their hospitalization. In both cases, the infiltrates were attributed to pulmonary hemorrhage complicating an existing condition rather than representing a new pulmonary process. Identification of pulmonary hemorrhage in these patients allowed for discontinuation of treatment with empiric medications and continued appropriate supportive care. (Chesl 1994; 106:1991-94)

Key words: AIDS; alveolar hemorrhage; pulmonary infiltrates

The development of pulmonary infiltrates in individuals infected with human immunodeficiency virus type 1 (HIV) remains a common clinical problem.1 This presents the clinician with an extensive differential diagnosis.2-6 with the focus often on infectious etiologies.6

Pulmonary hemorrhage has been reported in association with a number of disorders.7 Although pulmonary hemorrhage has been reported in immunocompromised hosts,8-13 this entity is not commonly considered in the diagnosis of pulmonary infiltrates in patients with AIDS.2,3 We present a retrospective review of two cases of HIV-infected individuals who developed pulmonary infiltrates during the course of their hospitalization. In each case, findings consistent with pulmonary hemorrhage were observed.

CASE REPORTS

CASE 1
A 35-year-old white bisexual man was determined to have positive HIV serologic test results 8 months prior to hospital admission (PTA) when he was diagnosed as having Pneumocystis carinii pneumonia. Following complete recovery from P carinii pneumonia, he received monthly aerosolized pentamidine prophylaxis. Additional complications of HIV-related disease included cutaneous Kaposi’s sarcoma, herpetic esophagitis, anemia, and leukopenia.

The patient was hospitalized with a 7-day history of fever, chills, nausea, vomiting, and acute renal failure. Empiric treatment with ceftriaxone and vancomycin was initiated for fevers. Renal biopsy specimen disclosed no evidence for vasculitis, malignancy, or microbial pathogens, including bacterial, fungal, P carinii, or acid-fast bacilli (AFB). Progression to anuric renal failure necessitated hemodialysis.

On the seventh hospital day, the patient developed melena, hematemesis, hematuria, and a hemorrhagic pericardial effusion with tamponade. Development of small bilateral pulmonary infiltrates prompted the addition of empiric trimethoprim-sulfamethoxazole therapy. The radiographic abnormalities progressed to extensive diffuse bilateral alveolar infiltrates (Fig 1), precipitating respiratory failure requiring intubation and mechanical ventilation. Laboratory data at that time disclosed the following values: hematocrit, 25.3%; prothrombin time (PT), 13.1 s; partial thromboplastin time (PTT), 41 s; platelet count, 41,000/mm3; serum urea nitrogen, 56 mg/dL; and creatinine, 9.0

| AFB=acid-fast bacillus; AIDS=acquired immunodeficiency syndrome; BAL=bronchoalveolar lavage; DHPG=dihydroxypropoxymethylquarine; HIV=human immunodeficiency virus type 1; LDH=lactate dehydrogenase; PT=prothrombin time; PTA=prior to hospital admission; PTT=partial thromboplastin time |